Progressive Architecture

September 1976 A Penton/IPC Reinhold Publication



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Photos of Saint Augustin School Centre near Bonn, Germany.

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Cover: The Kitakyushu City Museum of Art is seen in a survey (p.72) of the work of Japanese architect Arata Isozaki. Photo: © Shinkenshiku-Sha.





Architect: Haughey, Black & Associates; Battle Creek Installation: Perma-Shield Casements

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PROJECT: Crown Center, Kansas City, Mo. ARCHITECT: The Architects Collaborative, Boston, Mass. ASSOC. ARCHITECT: Marshall & Brown, Inc., Kansas City, Mo. CONTRACTOR: J.E. Dunn Construction Co., Kansas City, Mo. FABRICATOR-ERECTOR: John D. Burke, Jr. Company, Denver, Colo. Progressive Architecture: Editorial

The future of architecture

September 1976

What will you all be doing ten years from now? twenty years? We've been planning an issue, scheduled for May 1977, in which we will tackle the question heard everywhere today: ''Where is all this going to lead?''

In the midst of the current economic turmoil, nothing seems certain about the future of architecture, except that architecture is going to be critically important. In a world headed toward greater density of population, scarcer resources, and tighter governmental controls (all inevitable, in my view), we will simply have to think harder before we build anything.

It could be that we get an exaggerated impression of change in today's architectural world. Perhaps economic recovery will return the profession to a position comfortably like that of the 1960s, when society seemed so eager to accept whatever architects and planners prescribed. After we have completed the rounds of interviews, consultations, and research for the May 1977 issue, we will know more about the actual rate and direction of change.

What are some of the forces that we must try to measure? First, there is a complex set of external circumstances. What about the economics of construction, for instance—the cost of building relative to various "software" alternatives, the relative cost of "high-tech" construction vs. labor-intensive methods, or the recycling value of existing structures? What can be predicted about the standard of living or the square footage per person, about family structure, about work and recreation patterns? Will regulations covering safety, pollution, environmental impact, and security continue to proliferate, and how severely will they limit the architect's discretion?

Then there are questions as to how the profession—internally—will respond. Will more architectural decisions be made by captive corporate architects? by design/build staff architects? by government staffers? Will big firms represent a larger part of the whole profession? Will small firms find an increasing market for adjunct and consulting commissions? Will architectural research and other emerging activities substantially expand the profession's opportunities?

And what about the people who will compose these architectural firms of 10-20 years hence? Where will they be coming from? with what background? with what aspirations? Will continuing education play an important role in their lives—or ours?

And, lastly, what will come off those future boards? What kind of architectural design will meet society's needs and earn its respect? By now most of us have given up those Space Age images of the crystalline metropolis, or the selfgenerating metabolic community. A less radical evolution seems to be in the offing—influenced by the findings of behavioral sciences, linguistic studies, and historical research, by experiments in participatory design and selfhelp building. Design evolution will depend, as well, on external questions of attitude—on the public attitude toward government, for instance, toward business, toward public amenities.

We are going to be doing a good deal of inquiring in these areas over the next few months. By May, we should have something enlightening to report, if only to concede that confusion is universal. And you are all invited to participate. Many of you have developed special insights as to where we are headed—or where we should be headed and why. Many of you will have valuable suggestions as to whom we should consult and what we should read. Any thoughts you can contribute—by way of a brief note to me—will be most welcome.

John Maris Difa

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Letters from readers

Views

Credits clarified

I want to correct the credits given for the design of the Federal Office Building, Lawndale, California, your July 1976 issue. Although recently finished, this building was designed in 1966. From June 1964 to July 1968 I was Director of Design and Vice President at DMJM. The design of all buildings during that period, including the Federal Office Building, was done under my direction. Anthony Lumsden worked closely with me on several projects, and we developed together many of the design concepts and ideas during those four years at DMJM. On this particular building Anthony Lumsden took the initiative and made the major contributions towards its development, but this was done working closely with me, and I remained responsible for the direction the project took and made all design decisions. Cesar Pelli, AIA Gruen Associates

Los Angeles, Calif.

Our compliments on your July issue of P/A on Federal Architecture. All of us at DMJM are proud that the Federal Office Building in Lawndale, Calif. was chosen to be included in this survey of recent works of architecture designed for the Federal Government.

Although this building was completed in 1973 under the design direction of Anthony J. Lumsden, Vice-President and Principal for Design, it was initiated in our office in 1966. During the period from June 1964 to July 1968 Cesar Pelli was Director of Design at DMJM, and Tony Lumsden was Assistant Director of Design. In July 1968 Mr. Pelli left DMJM for Gruen Associates. Since July 1968 Mr. Lumsden has been directing the Design Department. He was named a Vice-President of DMJM in December 1968.

Cesar Pelli's name should be credited in association with this project. Michael Franklin Ross, AIA Projects Director/Urban Design Daniel, Mann, Johnson, & Mendenhall

Los Angeles, Calif.

Federal meat and potatoes

Our office found Suzanne Stephens' article on the Foley Square Courthouse Annex (P/A, July 1976, p. 60) a joy to read. We feel complimented, especially in that your magazine is noted for its discerning and sometimes critical eye.

For my part, after years of toil and occasional compromise it is a special reward to read about what perhaps was often in the back of my mind but could not be expressed in words. In a sense the article sums up my own feelings about an Architect's responsibility in today's society. (I was never much one for fancy French sauces . . . being from a German background where "meat and potatoes" are the mainstay, and when you work for the government this seems to be an appropriate diet in that you are spending public money.)

Peter Samton, Partner Gruzen & Partners New York, N.Y.

the new hospital room:



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Preliminary frame analysis determines simple steel frame with braced core most efficient.

Eastern Properties Office Building, Lexington, Ky., is a 33,300-sq-ft structure designed to accommodate a radio station, a corporate headquarters for a large financial organization, a computer operation, and a complete printing shop.

The owners, along with the project's structural engineers, White, Walker & McReynolds, requested a preliminary analysis based on a building having six supported levels. Several framing schemes were investigated, but the most efficient proved to be a simple connected frame with a braced core. Because of various other factors involved, the owner decided on a 4-level structure with a 5th-level mechanical penthouse. The framing scheme, however, remained essentially the same as that recommended by the framing study. "We selected structural steel for the framing material because of its ease and speed in erection, lower cost, and its structural ability to support the clear spans re-quired by the owner," reports Bank Management Associates, construction managers for the project. "Based on Bethlehem's preliminary framing analysis, we selected the scheme that would be the most economical and use the smallest amount of steel necessary."

Erected in 30 days

The office, situated on an elevated site, rises 66 ft 6 in. from its on-grade, 93-ft-sq base. ASTM A572 Grade 50 high-strength steel is used in the base tier portion of all columns. The balance of the steel is A36. The entire structural frame was erected within one month and is expected to be ready for occupancy within eight months. Wind loads are accommodated in the central con by X-bracing in one direction and K-bracing in the other. The core houses all vertical transportation fire protection equipment, restrooms, mechanication and electrical shafts.

Spray-on fire protection is applied in accordance with the BOCA building code specifications. Co umns are rated for 2 hours; beams for 1 hour.



Typical floor framing plan illustrates the structure's genero column-free bays. The frame is designed for a live load of 1 psf plus 25 psf for partitions.



The floor system consists of a 3¼-in. lightweight composite concrete topping over 2-in. non-cellular composite steel deck. Floorto-floor height is 12 ft. Bethlehem furnished all of the structural steel requirements for the building.



Owner: Eastern Properties, Inc., Lexington, Ky.; Architects: Joh son/Romanowitz, and W. D. Hatcher III, consulting archite Lexington, Ky.; Structural Engineer: White, Walker & McReynold Lexington, Ky.; Fabricator/Erector: Englert Engineering Co pany, Nashville, Tenn.; Contractor: White & Congleton Co., In Lexington, Ky.

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Designer's Saturday

Chicago has always been the major, national market and neither Los Angeles with its new Pacific Design Center, Dallas with its Trade Center nor New York can rival the Mart. But New York has something quite unique. With all the showrooms spread around 57th St. between First and Madison Avenues, the pageant of people sporting tee shirts and balloons while carrying shopping bags stuffed with the offerings of their travels forms a colorful spectacle. The reunion of old friends in cramped elevators is not uncommon.

Designer's Saturday began some nine years ago, when several of the contemporary furniture manufacturers decided to keep their showrooms open on a Saturday for those from out of town who couldn't make it during normal weekday hours. In the intervening years, the number of participating showrooms has grown from six to over 30, with the addition of four or five new members this year; the festivity has been extended to include Friday, and attendance is up to over 4,000 people.

Traditionally, too, there has been a cocktail party, held in one of the major contemporary spaces in the city. This year will be no exception, with the party scheduled for the Museum of Modern Art. While the Designer's Saturday Association has always sponsored the party and will continue to do so, people attending are asked to make a contribution or become a member of the Museum to help support one of the few institutions in this country which has a major collection of contemporary design.

So come and enjoy old friends and new furniture. By day, feast on all the new designs as well as other sustenance offered at all the showrooms. By night, feast on food, theater, music, dance or movies. New York is New York, even though Chicago has the Mart.



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of is a man of ingenuity and imagination: cushions are to fit over the chair frame, Velcro fastenings become nt design detail. His chairs not only look very , they are deliciously comfortable.



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Designer's Saturday

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Again this year, as once before, the reception on Saturday will be held at the Museum of Modern Art, 11 West 53rd Street from 7-9 pm. Only this year there will be a difference. While Designer's Saturday, Inc. will bear the cost of the event as they have in past years, those attending the reception will be asked to make a tax deductible contribution or take out a membership in the Museum in order to help support the institution's work. Weather per-

mitting, the reception will be held in the Sculpture Garden. In addition, the Phillip Goodwin Galleries, housing the Museum's permanent design collection, will be open as will the Architecture and Design Study Center, a new research and curatorial facility normally closed to the public. Also on view will be *The Natural Paradise: Painting in America 1800-1950,* scheduled to open the preceding day. Reservations are limited for this event, so for information about the reception as well as Designer's Saturday write to Designer's Saturday Inc. P.O. Box 1103, FDR Station, New York, N.Y. 10022.

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Helikon: Options System for the open office design by Bob Becker Circle 111 on reader service card







ICF: Igloo-P, a free-standing bar designed by Paolo Pellegrini *Circle 112 on reader service card*



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News report



Anderson Notter's reuse of New London station.





Opening party fills stairs to lower waiting room.

Richardson's 'new' New London station

In the tradition of whistle-stopping campaigns, an Amtrak train with a special car for press and distinguished guests including a U.S. Senator, made its way under rainy July skies from Washington to Boston. When it arrived at New London, Conn., bands played and the waiting crowd cheered. Sen. Lowell Weicker (R-Conn.) stepped up to a red, white, and blue ribbon and with a snip re-opened the New London Railroad Station designed by Henry Hobson Richardson in 1885 and refurbished by Anderson Notter Associates of Boston.

The station, bought five years ago by the New London Redevelopment Agency, was scheduled to be torn down. A citizen protest. A feasibility study. And soon Union Station Associates of New London, a subsidiary of Anderson Notter—which received an AIA National Honor Award this year for reuse of the old Boston City Hall (P/A, April 1976, p. 24)—found itself the new owner of a building on the National Register of Historic Places.

Amtrak agreed to lease spaces in the terminal for 20 years, and this commitment enabled other funds to pour in from numerous public and private sources—even from the New London Redevelopment Agency, which originally wanted to tear it down. Government funds restored the exterior while private money enabled the interior to be converted into office space on the second floor and a restaurant (not

News report

built) on the two-level mezzanine.

The original materials and unique features, such as natural oak wood, slate roof, brick and granite walls, and fireplaces—were cleaned and repaired, and a new matching oak ticket counter was installed for Amtrak. An opening was made in the main floor to provide light and a grand staircase to a new waiting area below in the basement. Brightly upholstered waiting room chairs and carpeting add comfort.

The building, while in use, is several months from completion but already seems popular with the town. The Day, a local newspaper which originally published an editorial favoring demolition of the building ("Why an eyesore should be permitted to block this view [of Long Island Sound] is beyond comprehension."), and later reversed its recommendation in an editorial, recently wrote in a special edition: "The Day congratulates Anderson Notter and the Union Railroad Station Trust for their foresight in saving this venerable building which becomes more attractive with each passing day."

Pension funds tapped for home mortgages?

A tax bill amendment that would encourage investment of pension funds in housing mortgages has been presented to Congress for consideration along with the tax reform legislation (HR 10612). The amendment was prepared by Sen. Robert Dole (D-Kan.) and removes the present tax exempt status of pension funds unless 20 percent of the fund assets is invested in residential mortgages. The investments would have to take place at an increase of 2 percent a year until the 20 percent level was achieved.

Supporting this move is the National Association of Home Builders, which has campaigned for years to tap the billion-dollar pension fund reserves. The NAHB feels this source would give the traditionally fluctuating housing market more stability.

Now the largest single source of home financing comes from thrift institutions—savings and loan associations and mutual banks—which themselves fluctuate according to national saving trends.

Labs for Kahn's Salk Institute

A 6000-sq-ft research lab has been designed for space within the late Louis Kahn's Jonas Salk Institute for Behavioral Research in La Jolla, Calif. The work is by Munroe & Reeves, AIA, of San Diego, Calif.

Required was direct visual and physical access of the labs to a computer with the provision for occasional isolation of some of the labs. Space for the test animals also had to be included. The solution was a round configuration on one level below grade with the computer located at the center surrounded by wedge-shaped labs. The facility was built inside a shell completed in 1967 but not in use.



Circular plan for new Salk Institute labs.



AIA grassroots debate ethics

The first of several regional hearings on proposed ethics changes of the American Institute of Architects was held midsummer in Chicago but the turnout was sparse—perhaps because it was summer—but the debate was lively. Similar sessions will be held in Atlanta, Boston, and Los Angeles before the task force reconvenes to produce its final report for the 1977 convention in San Diego.

The task force was charged to explore 'grassroots' responses to controversial changes regarding advertising, competitions, and free sketches, paying agents, and contracting for building construction (P/A, June 1976, p. 21).

Representatives from several midwest chapters and societies came to Chicago to question the committee and voice their opinions. Unfortunately, members of the task force felt that they were not in a position to answer, and so discussion of current interpretation of ethics issues was limited seriously. Dialogue, however, was spirited, probing, and sincerely concerned.

The majority agreed that the ban on advertising should not be broken. Representatives from the Minnesota and Indiana societies as well as the St. Louis chapter brought definite testimony in favor of that viewpoint. Many concurred that institutional advertising on behalf of the profession by the AIA itself should be explored.

On the free sketch issue, dialogue seemed to indicate strong feelings that this practice was not at all in the client's best interest. Relatively little conversation was devoted to the subject of paid agents, and some confusion surfaced on the existing policy regarding design-build options.

Additional and critical problems were raised over such issues as the Institute's failure to take a position on the mounting discrimination evidenced in Middle Eastern work, but these stand a good chance of slipping by unnoticed since the scheduled agenda does not call for such questions.

Overwhelmingly, the sentiment of those gathered was clear: the AIA must not confuse ethics with economics. In order to maintain professionalism, the Institute's ethics must be safe-guarded against erosion, and representatives cautioned the AIA not to dilute its standards for financial convenience or expediency. [Linda Legner]

Ms. Legner, an architectural writer in Chicago, is a frequent contributor to Inland Architect, journal of the Illinois Council and Chicago Chapter, the AIA.

Rotary ownership for Mazda office

Mazda Motors of America has a "for sale" sign out on its never-occupied new corporate headquarters in Irvine, Calif. The price is \$9 million for the 116,000-sq-ft building and 35-acres.

It faces the freeway and is a mile from the Orange County airport. Optional are \$750,000 in furnishings and accessories.

Architects David Jacobson Associates of Arcadia, Calif. aimed at what they called a ''forward looking'' yet solid and substantial corporate image—then came the economic squeeze and the decline of public faith in the rotary engine, forcing Mazda to curtail its expansion plans. The 30,000 sq ft of specially created ''Mazda blue'' glazed tile facing the building makes it highly visible from the San Diego Freeway. Not visible is the rotary-engine shaped table (optional) in the fourth floor executive suite.

The system used for the top three floors is cantilevered slab with posttensioned concrete joists. The ground floor is carried on sculptured steel and concrete columns—leaving uninterrupted a space for the display of Mazda cars to passing motorists.



Mazda headquarters: Irvine, Calif.

The curtain wall of the upper floors is composed of gray heat-absorbing glass at the vision panels running entirely around the perimeter; matching dark gray insulated spandrels are used. The 4'-10'' glass panels at the corners are bent to a 15-ft radius, and are backed with black filler panels at the sill sections.

The fourth floor board room had rear projection screening equipment tied directly to the National Computer System.



First prize—Duplay model (above); second prize (below) by Polytechnic Consultants.



French win \$25,000 Regina competition

The \$25,000 top prize in the International Urban Development Competition of Regina, Canada, was awarded to Claire and Michel Duplay of Paris, France, for a scheme which one of the jurors said embodied "ingenuity and joy." The purpose of the competition was to design new uses for 114 acres of rail yards in downtown Regina.

Second prize, \$15,000, went to Polytechnic Consultants Inc. of Tokyo, Japan, and third prize, \$10,000, was awarded to the team of David Brindle and Chris Dawson of Los Angeles.

A unique aspect of the competition was that citizens of Regina voted on the finalists, and their vote counted as the seventh juror on the six-man jury. The popular vote favored the Tokyo scheme, but the six individual jurors were unanimous in selecting the Paris project. Entries totaled 120, from which five were selected as finalists, awarded \$10,000 each, and given the opportunity to submit again.

Jurors were architects Alexander Kouzmanoff, New York; Fumihiko Maki, Tokyo; Ray Affleck, Montreal; and Clive Rodham, also a member of the Regina City Council; economist Douglas Fullerton, Ottawa; and attorney Richard Rendek, Regina. Funding of the competiton came from the Canadian Ministry of State for Urban Affairs.

Boston's Navy Yards to be developed

What Boston began by revitalizing its waterfront 15 years ago and is just about completing, it intends to do with the 90-acre Navy Yards phased out in 1974. The city is anticipating \$3 million federal and \$2 million in city funds to begin demolition and site work. A big boost for the project came with the recent announcement by Gov. Michael Dukakis that the Massachusetts College of Art, which was seeking a new home, will relocate in a recycled Navy Yard building.

Also encouraging has been an indication of interest in housing from the French developers, Société Immobelière, which did the Watergate apartments in Washington, D.C.

A large hurdle will be the transfer of property from the General Services Administration to the Boston Redevelopment Authority. As seen by the BRA, the Navy Yard site will include a permanent mooring of the USS Constitution: a public display to be run by the National Park Service; retail, office, and light industrial uses; 1000 units of housing; and a Museum of Nautical History.



BRA's proposed Navy Yard development.

The site has a number of 19th-Century granite and brick warehouses, some of which will be torn down. The Navy Yards are adjacent to the Charlestown community, which is un-

News report

dergoing its own renewal. At public hearings this summer residents voted to include the Navy Yard in their urban renewal program.

Two tales of a city: Chicago

"Build, don't talk," said Mies van der Rohe, but today Chicago architects also are talking since Chicago's architecture is the focus of its Bicentennial celebration. First, the Illinois Arts Council opened the ArchiCenter as a part of its Bicentennial program, "Illinois Architecture: Revolution on the Prairie' directed by Alexia Lalli.



ArchiVan, mobile museum that's part of the Illinois Arts Council's Bicentennial program.

ArchiCenter is a permanent exhibit and tourist information center at 111 South Dearborn St. and was designed by architects John Vinci and Lawrence Kenny. Featured at the comfortable gallery are audiovisual presentations, such as one on historic Pullman—a world-famous company town and one of the first planned "new towns," drawings by Frank Lloyd Wright, and photographs of the construction and demolition of architectural landmarks.

Two recent major architectural exhibitions in Chicago also have aroused earnest debate and gained national attention: ''100 Years of Chicago Architecture,'' an homage to steel-frame construction, originated in Munich and significantly expanded for its Chicago showing, and ''Chicago Architects,'' an exhibit first seen in New York (P/A April, 1976, p. 24), organized to complement ''100 Years'' by showing works outside the mainstream.

Jointly, the shows raised questions about contemporary architectural values ranging from the scale and quality



Installation of '100 Years of Chicago Architecture' at Museum of Contemporary Art.

of our environment to architectural symbolism. It is a flaw of both that these values are only implied and never explicitly stated. Local discussions lauded the two shows but also leveled a number of criticisms. Both exhibits have been accused of being anti-urban, and "Chicago Architects" has been called diffuse and irrelevant. The "100 Years" exhibit in its expanded version has come under attack for its often uncritical attempt to include many, and therefore offend no one—with the inevitable dilution of both quality and polemic.

Both exhibits have been exceptionally well attended, suggesting that the public is interested in architecture. To further present the dialogue implied by the two shows, the Museum of Contemporary Art organized three symposia in May on the past, present, and future of Chicago architecture.

The Museum's symposium on the past had a panel comprising Chicago critic, Franz Schulze, moderator; Suzanne Stephens, senior editor of P/A; William Marlin, former Chicagoan and associate editor of the Architectural Record; Nory Miller, editor of the Inland Architect and architecture critic for the Chicago Daily News, and Allan Temko, architecture critic for the San Francisco Chronicle. Temko, a staunch supporter of Chicago's structural architecture, dominated the discussion, trying to convince everyone that the holy grail is in the basement of the Inland Steel Building (by SOM, Chicago). Interestingly, it was not the architectural critics but the architects and planners in the two symposia that

followed who made the severest criticisms of Chicago's architecture.

The last symposium, a discussion of Chicago today, was moderated by Carter Manny, partner, C.F. Murphy Associates and director of the Graham Foundation, with architects Bruce Graham, partner, Skidmore, Owings & Merrill, Chicago; Dirk Lohan of Fujikawa, Conterato, Lohan & Associates (formerly the Office of Mies van der Rohe); James Freed, dean of Illinois Institute of Technology and associate partner, I. M. Pei & Associates, New York; Stanley Tigerman; and James Nagle, partner, Booth & Nagle.

Significantly, several of the panelists represent firms that have had a major part in shaping not only Chicago but also other cities across the country. With the exception of Bruce Graham, they seemed to agree that perhaps modern architecture has been, as Manny put it, the Genghis Khan of cities. Manny believes that, "We are over the period of buildings as a unique single object." Buildings as microcosms of entire cities will continue to grow in size and complexity.

Nagle emphasized the need for buildings to be contextual—carefully considered responses to their environments. Freed, who studied at IIT and worked for Mies van der Rohe, rejected the utopian or "perfect building" as anti-urban.

Summing the meaning of all this talk, Tigerman, one of Chicago's most visible and audible architects said, "... when the mind is tapped, the viscera may not be far behind." [Stuart Cohen] [continued on page 26]

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News report continued from page 24



Craftsman Phillip Simmons with gate he executed.

'Two Centuries of Black American Art'

A major Bicentennial exhibition entitled "Two Centuries of Black American Art" will open Sept. 30 at the Los Angeles County Museum of Art and then travel to Atlanta, Dallas, and New York. The exhibition, which includes rediscoveries of the impact of African artisans on the architecture of the Colonial South, was conceived by David Driskell, chairman of the Art Department of Fisk University, Nashville, Tenn. Historic movements such as the "Negro Renaissance" of the 1920s and 1930s will be represented.

Housing Partnership sees bright future

The National Housing Partnership chairman recently expressed confidence that the NHP will stimulate an annual \$127 million in apartment construction and assist builders in providing \$160 million in houses. George DeFranceaux, chairman, also said that the federal Section 8 programs should increase "significantly" in the next few years. Section 8 does not provide direct aid to builders but rather offers a rent supplement to needy families and individuals. DeFranceaux spoke at the annual stockholders meeting of the National Corporation for Housing Partnerships this spring in Washington.

'Spectrum Canada' exhibit tours

An exhibition of 184 juried works, including 16 architectural presentations, called "Spectrum Canada" will travel to ten Canadian cities during the next two years. The exhibition opened in Montreal during the Olympic Games.

Organized by the Royal Canadian Academy of Arts, "Spectrum Canada" received 1885 submissions from which jurors—including architect Henry Hawthorn—selected the exhibit's contents. The installation was designed by Toronto architect C. Blakeway Millar with the assistance of industrial designer



Francois Dallegret and painter D. Mackay Houstoun.

'Guidelines' gives pros the business

The Guidelines Architectural Letter, a monthly publication which tells architects how to run an office—profitably began four years ago when a registered California architect wanted to help his talented fellow-designers from "going down the tubes" financially.

A recent issue, for example, talks about how to accelerate with the pickup in the economy without taking on more employees—by instead sending work to moonlighting draftsmen. How does the architect avoid disastrous results from those free-lancers who might misrepresent their abilities?

The Guidelines says first to advertise aggressively to build a pool of standby help and then when it's secured, "put it all in writing." Don't stick with slow starters, don't pay hourly rates but negotiate a lump sum—paid after final acceptance of the drawings, and insist on progress prints at regular intervals. While some architects get burned by sending work out, the *Guidelines* cited one architect who gives work to up to a dozen free-lancers at a time, makes money on every job, and does good work. He employs a senior assistant to review progress prints and coordinate the in coming work.

Fred A. Stitt, who started the *Guide-lines* and is registered in California, said his 10 years' experience working in offices of various types showed him that architects share mutual problems. He also discovered that some architects had hit upon imaginative solutions, and so he started writing about these practices in a series of small manuals—13 in all—which have sold over 40,000 copies.

Later Stitt published eight handbooks on such topics as creative bossing and errors and omissions. His latest invention is a lab in his own architectural office where new procedures in drafting room productivity are developed and tested.

Guidelines is both informative and well written. A complimentary copy will

be sent upon request to those writing *Guidelines*, P.O. Box 456, Orinda, Calif. 94563.

Other subjects the newsletter has covered are methods of making an effective client presentation, using the telephone as a primary marketing tool, how to respond if you're laid off the job, and how to turn a profit with interior design work.

Professional groups consider standards

The American Institute of Architects and three other professional groups have banded together to intensify their efforts to develop a unified specification system. The focus of the current effort is Division 1, which outlines the general requirements of project implementation. The task is to develop an approach to Division 1 documents compatible with those guidelines already in existence for each group. The other organizations involved are the Production Systems for Architects and [continued on page 29]



The classic styling of ornamental handrailings adds rich dimensions to any architectural setting. The Blum collection includes handrail mouldings, spindles, scrolls, finials and decorative panels.

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STATE NATIONAL BANK

News report continued from page 27

Engineers (PSAE) founded by the AIA in 1969, the Construction Sciences Research Foundation (CSRF) and the Construction Specifications Institute (CSI) founded by CSRF in 1967.

A new document relative to this unification system is available: the 13th edition of the General Conditions of the Contract for Construction (Document A-201). This publication has dropped detailed procedural requirements and has streamlined the provisions to the minimum legally required to establish a contractural duty.

The AIA annually distributes more than 200,000 copies of the General Conditions Contract, the most widely used form of building construction contract.

Bank of Oklahoma tallest in state

The 51-story Bank of Oklahoma Tower by Minoru Yamasaki of Troy, Mich., is



Oklahoma Tower in Tulsa.

scheduled to open this month in Tulsa making it the tallest building in the state. More than two-thirds of the building was leased before the building was halfway completed. The building is part of the \$200 million nine-squareblock Williams Center—master planned by Yamasaki. The center includes a performing arts complex, hotel, enclosed retail mall, restaurants, parking garages, and a park. Williams Realty Corporation is the developer. The bank building will be clad in anodized aluminum with solar bronze glass; at the base will be arches of white marble.

Marshall Purnell is AIA minority officer

Marshall Purnell has taken the position of administrator for minority affairs at the American Institute of Architects. Previously, he was co-director of the Institute's Federal Agency Liaison programs, and prior to joining the AIA he was with Fry & Welch Architects, Washington D.C. and a member of the faculty at the University of Maryland School of Architecture.

His appointment as administrator is a victory of sorts for the National Organization of Minority Architects (NOMA) which had lobbied against the AIA's proposed reduction of the job from a full to a part-time position. However, in the AIA's cost-cutting efforts the job has been downgraded, from that of a deputy vice president to administrator, and the budget significantly reduced. [continued on page 30]





East coast home: Architect James Walker, Boston, Mass. Cabot's Stains on exterior and interior wood surfaces. Naturally beautiful for wood...the stain that shows the grain.

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News report continued from page 29



Headless horseman gallops along the Bay.

Driftwood art adorns freeway

Unsigned, mysterious objects of art made from driftwood and other found objects have baffled motorists and highway officials in Emeryville, Calif. for the last 11 years. The sculpture is in a changing exhibit on the shores of San Francisco Bay along the East-



Smiling face with a plastic bottle nose.

shore Freeway, and nobody knows who does it or when. It began to appear in 1965, but not one person has been seen assembling the fantastic images, which have included a gigantic hitchhiking hand, a headless horseman, a group of musicians, guillotine, sail boat, roadrunner, and dinosaur.

Viewing the work causes a traffic slowdown as motorists approach a busy multilevel interchange, but the



Motorists can't resist stopping for this hitchhiker.

parking lot for a nearby development provides a place to stop and look.

The major material is Bay driftwood which the artists augment with tires, bedsprings, oil drums, foam rubber, and logs. Even when vandals knock down the artworks the sculpture is restored or replaced. The display seems to change from month to month; some speculate that street people from Berkeley are responsible.



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News report continued from page 30.



Windows on the World terraced restaurant.

Windows on the World at World Trade Center

The New York World Trade Center's 107th floor, acre-large restaurant, Windows on the World, which seats up to 1000 at a time, has opened to critical acclaim—not so much yet for its design by Warren Platner of North Haven, Conn., as for the total dining experience advanced by its managers, Inhilco, created as a subsidiary of Hilton International especially to run eating facilities at the WTC.

Windows of Windows on the World and of the Observation Deck on the companion building were a point of controversy with the buildings' architect Minoru Yamasaki of Troy, Mich., and planners of the restaurant. Yamasaki designed the windows of the towers 1'-9'' wide, but after a debate they were increased to 2'-4'' on the restaurant and observation deck floors.

The dining rooms—and there are several types—create an atmosphere of well-being and "residentiality." "There's nothing here to impress people but to make them feel comfortable," declared Platner.

Well, perhaps the women's and men's glittering lounges *could* be a bit impressive to visitors. They are unquestionably the most ornate rooms. And why not? asks Platner. Both were created in odd-shaped leftover spaces, but the Norwegian Rose marble on the walls, polished chrome towel stands, and ceilings paneled in oyster-white silk (embroidered pink silk on the powder room walls) compensate for any



feeling of being spatial stepchildren.

At times some of the devices, such as stylized paintings or the proposal to include large, semi-precious stones in the mirror and glass gallery, jar the senses. And yet, this restaurant has something to please everybody.

Platner said all he was told when he got the job seven years ago was the budget—\$6 million later increased to \$6.5—and the request for a fireplace. Despite inflation he stayed on budget, and he successfully discouraged the idea of a fireplace (smoke handling would be too difficult). Expenses were kept down by using stock materials on large areas and lavishing money on small focal points like the toilet rooms or the numerous one-of-a-kind lighting fixtures created by Platner.

His overall design principles were to use every inch of window space for dining and to place the largest rooms at the corners, which have the best views. At the northeast is the main restaurant seating 350; the southeast cor-



Mirrored, 50-ft gallery from restaurant to reception area (far end).



Gleaming restrooms spare no expense.

ner contains the Grill, seating 200. To overcome the notion that only window tables are desirable, the dining areas are tiered giving each table a view and enhancing the feeling of intimacy.

Observation deck easy on the feet



Comfort and view for top of World Trade Center

"It's hard to be down when you're up" is the promotional theme of the Observation Deck at the World Trade Center [continued on page 42]



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In perspective



House for many

Dutch architect Egbert Jan Hoogenberk has proposed a prototypical "house" in which 22 individuals, more or less, would share cooking, dining, recreation, and craft rooms. Private living-sleeping units would be loftlike flats and duplexes, equipped with sinks, hot plates, and showers, each divisible to meet the needs of one to four people. Two private rooms for guests would be included; a small elevator would accommodate wheel chairs and furniture.

Hoogenberk's concept is a straightforward way to provide small-scaled, communal structures for the growing number who are not part of coupleplus-children households. Similar in some respects to the converted loft housing of New York, this proposal replaces redundant kitchens, toilets, and other private facilities with communal ones, encouraging an extended family relationship within a manageable group.

The dimensions of this prototype would be adaptable to most urban and suburban sites. Construction would be of concrete block bearing walls and light precast floors. Plastered wall surfaces would have "innocent and relatively cheap" decoration in bright tiles, which could be varied widely from building to building. [JMD]





Great hall (above) links communal ground floor with private second floor (plans below).



Duplex units on top two floors (section left) have divisible upper lofts (sketches below).





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Report from New England

For some, good comes in threes

Can the three-decker, that "weed" of 19th-century New England architecture, survive? Like Brooklyn's ailanthus (tree-of-heaven), the native growth springs endlessly—north to Maine, south to New Jersey—housing 25 to 50 percent of the inhabitants of many old northeast cities.

A vernacular offshoot of the townhouse, it is thin-fronted but freestanding, an old form of low-rise/high-density housing with one family per floor. Unlike the revived rowhouse, however, the triple-decker has yet to acquire city chic. Some are dilapidated; few inspire great love.



Three-deckers: compelling form of mass housing.



In the last year or two, however, this early mode of mass housing has won some new fans and even fanatics. Urbanists see its three-family living style as an alternative to suburban sprawl. In its reclamation also lies salvation of the old city it fills.

Like its historic kin in the Victorian inner city, the three-decker stacks three families head-to-toe in spacious six-room apartments off narrow corridors. It features bay windows, big porches, side and backyards. Playful ornament scales down the bulk of its skinny shape. Variety in color, site, and detail enliven the monotonous rows into spritely streetscapes. Unlike tight rowhouses or the Chicago "three-flat" which bears a like name, the threedecker is an urban architectural form with rural New England aspirations. The reformers of the hour wanted to give the working classes more room than the packed tenements; they supplied some yard space, windows on four sides, and porches front and back to air the baby or the wash.

In the 1880-to-1910 heyday of the form, hundreds of anonymous carpenter/builders hammered out the woodframed houses for early industrial areas. A multiple of the single-family ideal, it would fill tree-lined suburbanesque streets and yet provide the density for immigrant-dwellers to carry on European-style street and stoop life, and to use the trolley moving out to the emerging "streetcar suburbs."

Today, the three-decker is both an antique and a compelling form of mass housing. Lately, a few are learning to enjoy the rhythms of its muted colors and shapes; to see the variety within unity (roofs are mansard, flat, or peaked); and to appreciate "the plasticity of the wooden form rustically simplistic in its urban context," as notes Arthur Krim, geographer and threedecker researcher.

The lack of pedigree has blinded many of the 150,000 or so threedecker dwellers who ring Boston (an equal number, by guess, elsewhere). "Ugly duckling" and "homely," the local papers still label them while yet endorsing Boston's attempt to polish the image. But the design-wise have begun to know better. "It would be a real question in my mind as to which is the ultimate form of urban architecture the rowhouse or the three-decker," declares John Harrell, an urban designer with the Boston Redevelopment Authority. Like the early brownstone pioneers, the small band uses these structures either intact or, occasionally, as a shell.

"At first, the concept of buying a three-decker house in the city is odd," planner Fred Ficken admits. Able to see design and economic possibilities, he has punched skylights in his top floor quarters and plans the novelty of selling off the two units below at \$10,000 or so apiece.

Bob Rugo, another three-decker owner and likewise a planner, is wellaware that 1200-sq ft spaces on 8000sq-ft lots (typical size) don't sell at a HUD auction for \$6000 without implying trouble. There are indeed social, financial, and neighborhood problems.

The condition of these structures tells more of northeast city life and urban attitudes than of architecture. In Bangor, Maine, they blend in; in student-packed Cambridge or stable Everett, Mass., they look well-kept; they fetch prices in Boston from \$25,000 to \$50,000 and up; and in parts of Dorchester they face absentee owners and abandonment.

Economics matter most to promoters of the form and should intrigue housing experts everywhere. A Boston Redevelopment Authority/Boston Urban Observatory study, led by Rolf Goetze, said the three-decker is the "lowest cost form of home ownership in many neighborhoods. For thousands of working-class families who could not manage a mortgage without help of rental income, they offer the only available entry into home ownership." As an alternate to high-rise or single-family solutions, they are a still-working model of mass housing. The fact that resident owners often charge low rents to get compatible tenants and that these tenants, in turn, may share in upkeep suggests other housing lessons on informal subsidy and support.

Three-deckers could, and sometimes still do, represent a stepping stone for lower income groups moving up. The three-decker, then, should provide one of the more provocative architectural trends.

Meanwhile, we might all do well to remember that a weed is only a plant with an unappreciative gardener. [Jane Holtz Kay] *Ms. Kay, a free-lance writer, is architectural critic for* The Nation. Senior High School, Plano, Texas act: Jarvis Putty Jarvis, Inc., Dallas, Texas ctor: Batson-Cook Company, Dallas, Texas Manufacturer: Lone Star Stucco by Texstar Industries, Inc., Ft. Worth, Texas ring Contractor: Ray Boyd Plaster & Tile, Inc., Garland, Texas



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News report continued from page 32

in New York. Once there on the 107th floor, you should be down—sitting, that is—according to the Deck's designer Warren Platner. After visiting scores of observation decks on tall buildings around the world, he concluded they were inconsiderate of the foot-weary tourist. His remedy was specially designed metal benches right at the windows' edge so that the viewer can rest and look straight down as well as out.

Rails behind the seats and an elevated floor enable a second row of people to lean on the rails and comfortably look out without disturbing those who are seated.

To keep within his \$1.3-million budget, Platner eliminated the reflective metal ceiling, but he didn't pinch on the floor covering: an embossed, nonskid rubber that's easy on the feet and practically maintenance free.

Since scheduled tour groups visit the Deck rain or shine, something of interest had to be provided when the view was obscured. Graphic artist Milton Glaser was commissioned to design a presentation on marketing around the world (to tie in with the World Trade Center theme) and the colorful display lines the inner walls, where another railing provides additional seating.

Personalities

Robert Tennenbaum, RA has been named director of the graduate program in community planning at the School of Social Work and Community Planning, University of Maryland at Baltimore.

Basil Honikman has been appointed chairman of the department of architecture, architectural engineering and planning at the University of Miami, Coral Gables, Fla.

Joseph Esherick of Esherick Homsey Dodge & Davis, San Francisco, has been elected an associate of the National Academy of Design, New York City.

Hugh A. Stubbins, Jr., FAIA of Cambridge, Mass. has been named an honorary member of the Boston Architectural Center.

Kevin Roche of Kevin Roche-John [continued on page 44] YWCA, Minneapolis, Minnesota Freerks Sperl Flynn, Architects, St. Paul, Minnesota Hoyt Construction Company, Sheet Metal Contractor, Bloomington, Minnesota



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Calendar

Through Oct. 10. "Suburban Alternatives: 11 American projects," Magazzini del Sale, Fondamenta di Zattere, Venice, Italy. The exhibit, organized by the Institute for Architecture & Urban Studies, is the American contribution to the 1976 Venice Biennale. Through Oct. 31. "Signs of Life: Symbols in the American City," Renwick Gallery, Smithsonian Institution, Washington, D.C.

Through Oct. 31. "Three Centuries of American Art" exhibit, Philadelphia Museum of Art.

Through Oct. 31. "Art Nouveau Belgium/France," Art Institute of Chicago. Sept. 17–Oct. 17. Chicago Chapter, AIA, Awards exhibit, Art Institute. Sept. 26–30. Council of Educational Facility Planners international conference, Los Angeles, Calif.

Oct. 5–7. The Producers' Council, Inc. annual convention, Phoenix, Ariz. Oct. 8–9. International conference on designing for the elderly sponsored by AIA and Center on Aging & Human Development, Nashville, Tenn.

Oct. 9–12. Industrial Designers Society of America annual meeting, Philadelphia, Pa.

Oct. 13–30. International Conference of Women Architects, Iran.

Oct. 21–22. International Academy for Aquatic Sports and Recreation Facility—Olean YMCA Architectural Congress, Olean, N.Y.

Oct. 29–31. National Trust for Historic Preservation annual convention, Philadelphia, Pa.

Nov. 3–4. Computer graphics conference and equipment display, Engineering Society of Detroit.

Nov. 7–9. National conference on planning and design of state court programs and facilities, University of IIlinois, Urbana-Champaign.

Nov. 17–19. Building & Construction Exposition & Conference sponsored by The Producers' Council, Inc., McCormick Place, Chicago.



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Health Care Centers, Providence, R.I.

Health and packaging



Building shell is basically a rectangle, with all areas requiring fixed walls located along right wall in drawing and model photos (opposite page). Beginning with a set of parts designed around the program requirements, many optional layouts are possible. The drawing and the large model photo (opposite page) depict the built version. Painted mechanical elements (opposite page, lower right) serve to illustrate how building systems function.

Two government-sponsored community health centers focus on maintaining residents' medical well-being by providing an inviting, non-institutional environment.

Change. If there is anything just as sure as death and taxes, it is change. As many architects can attest, it is the one program constant for which it is most difficult to design. Certainly no discipline demands more of its physical facilities than the health care field.

When the U.S. Office of Economic Opportunity asked the Research and Design Institute (REDE, now operating as The REDE Corporation) to design two prototype health centers for Providence, R.I., there were social implications as well. Prompted by the Health Maintenance Organization (HMO) concept, the centers were to replace, and upgrade, services which had been provided by neighborhood storefront clinics in Providence. While the storefront operations had some severe quality shortcomings, they did spring from the communities themselves, and had the advantages of being familiar to local residents, of seeming friendly and non-institutional in character. Any new center, then, would have to retain those characteristics which encouraged the community people to avail themselves of services offered. It would also have to be capable of adapting to extremely uncertain future needs.

REDE designers were given a suggested plan for such a facility by the government sponsor, but felt that it was far from adequate. After lengthy consultations with community residents—potential users—and with staff members, REDE undertook a redefinition of the program, and of its component parts. To have used the suggested scheme would have locked the centers into fixed and rather institutional patterns not at all conducive to the type of care desired.













Finished interior of medical center built of factory-fabricated panel system. Main waiting area (above) serves low-walled specialty reception spaces.



Health Care Centers

Another consideration, long a part of REDE's outlook (P/A, Jan. 1973, p. 78), was the desire to make as much use of available systems and parts as possible. Flexibility of walls alone would not be enough. Various types of medical specialties such as pediatrics and obstetrics demand differing shelf and table heights, and an ideal system would provide those options and many more. REDE took its component ideas to a local manufacturer, William Bloom and Son, who agreed that, with simple standard adjustable shelf hardware, the panels would be capable of accepting an almost infinite variety of shelves, cabinets, mirrors, tackboards, etc. Also possible were entire self-contained rooms complete with a ceiling, lighting, and temperature control. Wall panels could be pre-wired and fitted with electrical outlets and with high windows mounted in standard gaskets used in buses or vans.

Developing their concept out of these components, REDE designers sought to combine inviting open spaces with appropriate degrees of privacy. The parti called for a main reception desk where patients would be greeted and directed to the proper area for examination or treatment. A skylighted waiting area with large plants is centrally located to serve specialty areas, each of which has its own reception desk, with low partitions. Adjacent semi-enclosed consultation areas have slightly higher surrounding panels which allow a sense of privacy without full enclosure. Full privacy, of course, is possible in the examination rooms.

While O.E.O. bought the plan, it decided to build one of the prototypes with the panel system, and the other using conventional construction. Conventional walls, needless to say, have little flexibility and require that carpet be installed



At the request of the OEO, one center was built conventionally, with fixed stud-and-gypsum board walls, creating objects around which carpet must be fitted. Flexibility and future change, of even the smallest accessory, is limited, since moving almost anything necessitates repair of wall or carpet.



The shell for second of two centers was entirely finished and carpet was installed before the builder left the job (above). Interior components were then brought in and assembled by the manufacturer (using ordinary tools), including full room units, complete with ceilings and lighting.









around them, not universally as in the panel scheme. Seen by itself, the conventionally built center would no doubt be a very acceptable design, but compared with the "kit-ofparts" facility, it pales. Certainly the latter is given an advantage by the colorful treatment of the ceiling mechanical elements, a feature omitted in the other center. But there is more to it than that. The crisp detailing of the panel components is as functional as it is handsome. Virtually everything that is wall-hung can be repositioned at will, whereas on gypsum board walls, installations tend to be much more permanent. Various wall coverings, integral with the panel system, had to be surface-applied to the standard walls and they look it. All in all, the effect of the components scheme is a cheerful, integrated environment, just what the designers sought in terms of light, color, and scale.

As with all projects, there are aspects of the Providence health centers which did not reach the heights to which the



Components of manufactured interiors system provide numerous options for joint conditions and attachment positions. Shelf indicated (left) is only one of many accessory items which may be mounted at various heights and locations on standard slotted track. Wall surface materials of almost any type can be integral part of the panels, fabricated along with the assembly.





design team aspired. Since those administrators with whom the concept was developed are no longer connected with the projects, and since O.E.O. was disbanded by the Nixon administration, there has been a continuity problem. While the major thrust of REDE's concept has been realized, much of the graphics program designed for the panel system has failed to materialize. Signs and notices of the marker and tape variety suffice instead.

Funds for maintenance—or at least an interest in it—appear minimal. Coffee stains mar carpeted floors, although the carpet was specifically chosen for its ability to resist stains and to be cleaned. Nobody bothers, it seems. (Another nearby center, also with REDE-designed interiors, sparkles because maintenance is constantly stressed.) Nor is any time wasted on the grounds. Perhaps the communities lack sufficient interest, or maybe the loss of those farsighted enough to launch the programs in the first place left the centers somewhat adrift; it's hard to say.

One other point bothers REDE principals Ron Beckman and Howard Yarme. Their efforts to develop a truly versatile system of interiors components from standard generic (rather than one-off exclusive) parts would seem to have paid off in the one prototype facility. But the end result-a specific set of objects-is not what they were after. Their work has always sought to initiate on-going process, not just a physical thing. It has been their goal to develop directions, points of departure upon which others could build. But the process which generated the panel system for the O.E.O. medical center, while it produced a marketable product, seems not to have been grasped for the lessons it could lend to other manufacturers. (It has been offered.) Most interiors systems are still made up of proprietary elements, interchangeable only within the individual system; many are expensive and non-standard, eliminating them





from consideration for all but the higher-budget interiors.

But for all that, the medical centers are functioning. The spatial feeling and scale are friendly and inviting. They work as they are being used, and they would work if required to change. If the implications are lost, if the projects become just another set of dust-gathering prototypes, it won't be because REDE didn't do its part. [Jim Murphy]

Data

Projects: prototype neighborhood health centers, Providence, R.I. **Architects** (building shell): McConnell & MacLeish.

Designers (interior concepts and program): the Research and Design Institute (now REDE Corporation, Providence, R.I.) Ronald Beckman, Executive Director; Howard Yarme, Project manager; Peter Wooding, Industrial Designer.

Program: buildings to house health care facilities for two neighborhoods. Interiors to provide flexible, inviting environment for changing health care needs.

Sites: two separate urban city lots, in blocks surrounded by low-scale residential/light commercial neighborhoods.

Structural system: open web joists and steel beams and columns. Mechanical system: gas-fired forced warm air, air conditioning. Consultants: Wilkenson Associates, HVAC; Morris Staller, electrical. Client: the U.S. Office of Economic Opportunity (Now Community Services Administration).

Interior components: William Bloom and Son.

Costs: approximately \$32/sq ft.

Photography: REDE, except as noted.

Around the patient

Many disciplines must be drawn together to design an efficient and pleasant environment for both patient and medical staff within the bounds of the patient room.

A hospital patient room fits many needs. It's a sick bay. It's a hotel room. It's an emergency unit. It's a family reunion center. To make sure it fulfills these demands requires more than one specialist. It calls for a team of experts planning together—right from the start—to translate the hospital client's needs and philosophies into a functioning patient unit. Good planning, supported by practical testing, assures a well-equipped, efficiently operating patient room. Once the broad physical space parameters are set, the planning team goes to work—interpreting, analyzing, modifying—to tailor that patient room to best fit the needs of the client. Together with the architect and the client, an American Health Facilities planner, nurse consultant, equipment planner, and interior designer create the final product.

In-depth interviewing is vital. Taking the time initially to learn the hospital client's philosophies and needs invariably saves time by enabling AHF and the client to come up with an appropriate solution in a shorter period of time.

Single rooms vs. multi-bed rooms

The trend today—towards single-bed rooms—seems to parallel the trend toward increased ambulatory care; those patients who are actually admitted to hospitals are generally more ill. Single rooms eliminate all segregation problems, for example, male-female, smoker-nonsmoker. They give instant isolation capabilities. They avoid the inefficiencies of shifting patients to ''match them up.'' Each move costs \$50–\$75 in terms of keeping track of the patient for billing, notifying pharmacy, switching charts. A typical multi-bed unit often functions at 80-85 percent occupancy because of impossible matches. The 40-bed units built in the past generally resulted in 32-34 occupied beds. This number of patients related efficiently to nursing staffing patterns. Today, creating a 32-34 single-bed unit allows the same nursing effectiveness.

Double rooms serve a good purpose in some departments, orthopedics for example, where the typical lengthy stay of the patients can be made less boring by changes of roommates. Double rooms are used in a psychiatric area for the companionship that can be an important part of a patient's treatment. In the OB department, women who deliver normally are not ''sick'' and usually enjoy company. (With OB occupancy on the decline, however, being able to use that single OB room for a clean surgery patient becomes very attractive.) Occasionally a hospital will use double rooms to establish rates—and to illustrate that the rates charged for a single room are realistic.

The mock-up room as a planning tool

A good way to assure an effective room is to build a mockup. Move in a surrogate patient, perform the procedures that could be done in the room, and see how it would work under actual conditions. The mock-up room tests concepts of medical/nursing care. A hospital-appointed committee usually works closely with the planners as they modify the room to suit the hospital's and patient's needs. The size of the room, the function of the components as they relate to patient care, nursing staff utilization, economy and efficiencies, and aesthestic considerations can all be tested thoroughly. The hospital client can also rigorously test all the equipment he'll be purchasing for the room.

The basic AHF philosophy of room size is—start small. Then let the room out, inch by inch—literally—as needs develop. A 6-in. increase in room dimension multiplied by many rooms plus additional corridor space quickly adds up to feet and yards. At \$85 per sq ft, it makes sense to the client to proceed this stingily. Once the mock-up room—a simple plywood structure fastened with C-clamps—is set up and the corridor width is marked off, test procedures begin.

Cardiac arrest—six people and a crash cart have to get through the door, into the room, and around the patient quickly! The procedure is run through until everyone feels sure that the space allotted will offer no physical detriment to handling this critical situation.

A stretcher is brought in to check patient transfer procedures. Manipulating a wheelchair around the room is another check, as is determining whether toilet and shower facilities are adequate for wheelchair patients. The position of cubicle curtain tracks is noted to make sure they don't interfere with IV equipment.

The position of the bed is studied. A bed on an angle

generally decreases the width of the room and gives better visibility of the patient from the corridor—an important nursing need. The hospital's concern with the patient's ability to look out of a window is also a determining factor.

Architects creating a nurse's direct line of vision to the patient's head frequently find the jutting bathroom wall interferes with a clear view. If the bathroom is not located near the entrance to the room, the need for a handy wash area can be filled by a lavatory located there. It provides easy access to doctors and technicians entering the room.

Lighting

Lighting is the most difficult part of functionally equipping a patient room, since there are so many different demands to be met. The mock-up room provides an excellent opportunity to test the various kinds of lighting required.

1) The patient needs a reading light that is easily controllable, safe, and located so that the raising of an electric bed



Two typical hospital room arrangements, one-bed versus two-bed.

won't drive an IV pole into it. 2) The physician requires bright lights for examination and dressing changes. And the lighting must be sufficient for head-to-toe inspection of a patient—many of whom weren't considerate enough to restrict their ailments to above-the-waist areas. 3) The room itself must have adequate illumination for visitors. 4) Nurses need a night light so they can safely enter a room at night without disturbing the patient with bright lights. A control on this light should enable the nurse to brighten the night light enough to allow her to read a patient's wristband before administering medication. A night light can also be a reassurance to the patient.

The lighting system within a patient room generally turns out to be a combination of many manufacturers' offerings. Fluorescent or quartz lights distort skin color less, so their usefulness in diagnoses is obvious. They also cost less to operate than incandescent lighting. Attaching rheostat devices to a fluorescent system is extremely expensive however; it's not nearly so costly for incandescent lighting. A careful evaluation of needs and physical environment leads to a lighting system best suited to the hospital.

Built-ins

Built-in wardrobe requirements and locations can be determined in the mock-up room. Wardrobes usually tend to be roomier than necessary. Hospitals with patients who require longer stays need larger wardrobes, however, as do hospitals in climates where bulky coats have to be accommodated in December. The hospital may also request that the wardrobe serve as a closet for linen and pillow storage.

TV location is critical. Aesthetics, visibility, and light reflection must all be considered. Small TV's mounted on an arm or a larger set on the wall are the two current options. Manufacturers point out that both present the same size image to the viewer. (One space problem was solved for a client when the TV was mounted above the wardrobe.)

If a coaxial cable system is designed into the building, it significantly decreases wiring costs of the project. TV's, telephones, nurse call systems will be in the cable—and the hospital can implement even more sophisticated systems as they are developed. There's also a trend to using a centrally located dispatcher who handles calls from patients all over the hospital and then informs nurses from the floor of patient requests. Some systems use a color code to simultaneously indicate personnel location as well as the degree of urgency of the patient calls.

Components of the room

The AHF equipment planner talks equipment specifics from a data base of every type of equipment and furniture. In a typical building program, more than 250 manufacturers' names and 3000 items can compose the final hospital equipment list. This data base breaks down into more than 450 space modules within the hospital—32 for patient rooms alone—and reviews the latest equipment specifications. It provides a beginning for the in-depth interviewing between equipment planner and the hospital personnel. It assures that every option and kind of system is debated, and that nothing is forgotten. Careful listening on the planner's part, right at the start, results in a well-equipped patient room for the hospital.

Bed consideration

To learn about bed requirements, planners interview nursing administration and department heads to learn what the bed needs to do. Does the nursing staff prefer electric beds? Should the bed have a five-position setting? Should it be controlled manually? What surface should the mattress rest on? Options include a solid pan or a chain link spring. A firm surface increases effectiveness of resuscitation equipment and results in greater comfort for the patient. This need for rigidity under the chest during cardiac arrest can also be provided by placing the bed's removable headboard under the patient. Once the headboard is removed, everyone needed in the emergency situation can gather around the patient for maximum attention. Safety features on a bed are important, the safety rails for example, and state and national safety codes must be consulted.

The equipment planner prepares a presentation of available beds which meet the client's requirements, discussing pros and cons of each model. They discuss servicing aspects-will it be serviced by the hospital engineering staff? Should the hospital contract with an outside provider? Preliminary discussions determine which beds the hospital will evaluate carefully. Once the bed is set up, nursing, engineering, biomedical engineering, and maintenance can thoroughly inspect every portion of it in a working environment. The engineering department should-literally-take the bed apart, checking ease of access to the parts. On an electric bed, biomedical engineers should conduct a safety check for leakage of electrical current. Dependability of the bed is paramount-downtime on an electric bed costs the hospital money. Housekeeping will check ease of environmental maintenance. They'll check for protection for the walls. Are the bed's wall bumpers adequate?

The hospital may not want to use the same bed in all

Hospital room equipment

areas. Sometimes a stretcher bed is used in ICU/CCU areas. It allows the staff to move the patient from the operating table back to his room without continually lifting him from surface to surface.

Medical wall systems

Wall systems come with a variety of options and can be tailored to fit a hospital's needs. Usually it's dollars that dictate how elaborate they are. A complete wall system may include patient lighting, blood-pressure apparatus, and oxygen, vacuum, and suction outlets. Bedside cabinets and storage units can be hung from the system. A hospital may not need the sophisticated flexibility that is typically offered. Some hospitals elect to go to a panel system with wiring and minimal options for less complex needs.

Chairs

A basic decision: who's the chair for—the patient? Visitors? Or both? A weak patient won't easily be able to get out of a soft, deep chair. He needs a chair that's comfortable, yet sturdy—but its sturdiness may not be comfortable to a visitor. The inpatient requires a chair that will maintain its balance under weight fluctuations as he assists himself up. The proper seat height is also important for easier rising from the chair. The correct pitch of the chair back is essential to the proper support of the head and back.

If the chair is procured with the patient in mind, the hospital's nursing philosophy must be considered. In medical/surgical areas particularly, if a patient is well enough to sit in his chair, that could mean it's checkout time—according to one philosophy. Another views the chair as part of the therapy and essential to the recuperation process. This applies particularly to progressive care areas in a CCU. Pediatrics presents another consideration. A reclining chair that has overnight, sleep-in capabilities or a chair that converts into a bed offers good solutions for accommodating parents who want to spend the night with a sick child. Maintenance factors are vital. An opening at the back of the chair simplifies maintenance procedures considerably. Is the chair moistureproof? This is a necessary feature in a geriatrics ward where there are incontinent patients.

The trend in patient rooms is toward smaller spaces. The space must therefore be used even more efficiently—and raises the question: is the additional seating necessary? And if it's necessary, how can it be handled? One solution is a stacking chair that can be stacked outside the room when it isn't being used. Another is a folding chair that can be hung on the wall—or stored in the wardrobe in the room.

Bedside cabinet

Choice of bedside cabinet is heavily influenced by nursing philosophy. Does the nurse consider the bedside cabinet part of her equipment or does she feel that it's for the patient? Or both? If the nurse intends to use that unit as a work space—upon which to set a tray—the top must be large enough to accommodate her needs, in addition to the patient's flowers, cards, etc. Other spaces can also be planned for the patient's use: a wall-mounted shelf or a flower stand.



Alternative room configurations, taking into account locations of various pieces of equipment and fixtures, window placement, and corridor view lin

Should the cabinet have three drawers? Two drawers and a shelf? Again, who's going to be using it? Is it only for the patient's belongings or will the bedpan be stored there? Should the bedside cabinet stand on casters, legs, a sled base? Consider mobility: most patients are right-handed, so the cabinet should be positioned at the left side of the bed. But what happens with a lefty? Is it important that the cabinet can be moved to the other side of the bed? Mobility in a bedside cabinet is an asset when the patient begins to sit up in bed. The cabinet on casters can easily be moved forward to accommodate his altered reach. But what happens when the patient begins to move around and tries to support himself against the cabinet?

Overbed table

Some hospitals choose overbed tables with a vanity for their medical/surgical patients. For patients in pediatric or psychiatric units, however, the vanity mirror may present a potential danger. The hospital must also consider how else the table will be used. If the patient takes his meals in a chair, the overbed table must have a base that will allow it to convert to a lower position. And if electric beds have been specified, it's important to select an overbed table that

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Characteristic list of equipment for one specific type of hospital room. AHF derives similar lists for each room type in its planning process.

rises easily—or the button-pushing patient who's manipulating his bed may find his knees are taller than he thought.

Window treatment

Choices include draperies, horizontal blinds, vertical blinds, or shades. Draperies can be washable or dry-cleanable. Fiberglass draperies are a popular choice, but hospitals should be aware that these "glass" materials break down. Some people are allergic to fiberglass fabric and visitors—or even the wind—in disturbing the draperies, can dislodge fibers into the air.

A system of thin-slat horizontal blinds sandwiched between thermal glass can be most effective for nursery windows. This system can provide privacy and acoustical control. The post-partum unit is generally positioned adjacent to the nursery, and the system keeps nursery sounds from escaping. When new mothers hear crying—any baby's crying—there's no way they can be convinced that it's not their brand-new offspring!

Carpet vs. vinyl

The most intelligent answer to the carpet vs. vinyl debate is a definite ''it depends.'' Carpeting can be an asset in areas

like general medical/surgical rooms or a cardiac unit where quiet is important. However, it may not be the best solution in potentially high-spillage areas like ICU areas. It is also critical that crash carts and other rolling equipment can be moved quickly in ICU. A hard surface floor assures this. It is extremely important that the proper fiber and carpet construction be selected. Demanding a quality carpet designed for health care will result in a higher initial cost than for vinyl, but the long-term maintenance costs are considerably lower.

Interior design

Historically, interior designers have not been included on the planning team until later in the project. Working together early, however, can mean the difference between a dull, sterile room for sick people and a lively, attractive room in which to recover.

Interior design input is a valuable aid for equipment planners too. It assures that equipment finishes and colors will be coordinated to building colors, window treatment, and accessories. Knowledge of design considerations adds another dimension to the equipment planner's selections for hospital approval. What does the final equipped room look like? Patient room needs are so unique and complex that each hospital represents hundreds of ideas and compromises. The results are a room that is equipped to function as efficiently and effectively as the hospital-and its patients-would like. Aesthetic considerations must tie all the carefully selected pieces of equipment together for a pleasing environment. Many factors influence the interior design-the architecture of the building, and the building materials and finishes used. The designer may be dealing with hard surface materials-paint and vinyl-and use a lot of color and patterns for interest. Or with the use of wood and carpeting, he can take a totally different approach for a softer, more sophisticated atmosphere. Once the hospital administration has defined the institution's "personality"or at any rate, the personality it would like to project-designers use equipment, furnishings, colors, and fabrics to create that image.

Planning equipment for a patient room involves a lot more than putting equipment into a room. It's a thoughtful planning process that requires expertise in architecture, medical/nursing techniques, interior design, graphics, psychology, environmental concerns, a vast knowledge of hospital equipment and furnishings. The chief critic is the patient who's going to be using that room—and he usually has plenty of time to analyze the results.

Co-authors: Jan Dolson, RN, Health Facilities Consultant. Recent planning projects include Vanderbilt Univ. Hospital, Nashville, Tenn. and Duke Univ. Hospital, Durham, N. C. Loren Hesla, Project Director, AHF, holds a BS in business from Southern Methodist Univ. and studied hospital administration at the Univ. of Minn. Carol Krewson, IBD, is currently planning interiors for Vanderbilt Univ. Hospital, Nashville, and Creighton Memorial St. Joseph Hospital, Omaha, Neb. Joe Parimucha, AIA, holds an MS in public health and medical facility planning and design from Columbia Univ. and a bachelor of Architecture from Carnegie Institute of Technology.

Where there's fire there's smoke

It's especially hard for the mind to accept death from fire or smoke in a place like a hospital or nursing home. This is reflected in society's many, often conflicting codes dealing with life safety.

Architects who design health care facilities—hospitals, nursing homes, and other similar projects—know that this category is one of the most demanding in terms of constraints, especially regarding the floors that house patients.

Of course there is the ever-present constraint of money or the lack of it. Then there is the constraint imposed by the nature of the facility, what architect Joseph L. Russo calls "the tyrannical rule that relates the number of rooms on a corridor to the distance a nurse must travel to reach her patient." And finally there are the life safety-related code mandates on the size of fire zones or compartments, corridor width, door size, direction of door swing, materials that may be used, number, size and location of exits, fire detection, alarm and suppression systems, and on and on. Russo points out also that the code requirement of independent egress for each 150'x150' (maximum) area on the patient floor creates a basic grid that the architect must follow in his building plan as a whole.

There's no unanimity among the various codes or government agencies on what constitutes appropriate design for life safety. True, there is general agreement that fatalities are unacceptable and that smoke kills more patients than flame. There is even fairly wide—but not complete agreement on what would constitute an ideally fire-safe facility if dollars were unlimited. But in this imperfect world where everything has a cost, choices must be made. Fires will happen. Is it enough to make structures fire-resistive? Should the emphasis be on early detection, alarm, and evacuation? Is it reasonable to expect to evacuate large numbers of bedridden patients rapidly from the building? From the fire area? Should the emphasis be on fire containment and extinguishment with automatic sprinkler systems? Should the emphasis be on compartments—areas of safe refuge that can be isolated from the fire and smoke? Should fire doors and corridor doors to patient rooms be allowed to remain normally open, closing automatically in emergencies, as barriers against fire and smoke?

Decoding the codes

Most building codes address themselves to most if not all of these questions. Where applicable codes point in the same direction but differ in specifics, architects tend to avoid hassles by following the most restrictive—and expensive ones. But what is an architect to do when codes unequivocally contradict each other? Richard Sonder, partner with Joseph Russo in the firm of Russo & Sonder, cites an example: New York State requires sprinklers in operating rooms, New York City forbids them. Some codes say, Keep the exhaust system going during a fire to evacuate smoke; some codes say, Don't. Of course, conflicts like this are eventually resolved, but think of the cost in wasted time, effort, and money.

Fire-related regulations tend to be reactive. Each disaster sets off a flurry of activity aimed, usually, at preventing the same disaster from happening again. The result is an accretion of well-intended but often self-defeating rules and laws, says Howard Seltzer, president of Westermann Miller Associates.

Seltzer says that the multitude of codes is inefficient and leads to excessive costs. Furthermore, when architects upgrade an existing facility, they are usually required to bring it up to the applicable codes. This is so expensive that many owners decide not to have the job done at all.

WMA has assembled a 35-page tabular code monitor to cope with the tangle of codes that may be applicable to the University of Pennsylvania Silverstein Pavilion hospital addition project in which the firm is engaged (associated architects, Geddes Brecher Qualls Cunningham; consultant, Maurice W. Perreault). The possibly applicable code provisions are identified for each construction item. Among the codes analyzed for the monitor are National Fire Protection Association Life Safety Code, NFPA 101; NFPA Occupancy Standards and Process Hazards; Basic Building Code; Philadelphia Building Code; Pa. Dept. of Labor and Industry, "Building Regulations for Protection from Fire and Panic"; HEW, PHS 930-A-7; HEW, "Minimum Requirements of Construction and Equipment for Hospitals and Medical Facilities," and many more.

P/A has no easy answers to the problems posed by the multiplicity of codes. Undoubtedly a single, all-embracing, national code, flexibly and rationally administered, and

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Interior: Nonbearing Walls Separating Tenant Spaces		-	1 hour 4-801		1 hour 8-22(C6)			
Interior: Columns, Beams, Girders & Trusses		3 (1 Flr) 4 (More than 1 Floor)	3 hours		1-1/2 hrs. 6-22(C4)	4 hours 702.2a		
Interior: Floor Construction		3 hours	2 hours	1	1-1/2 hrs.	3 hours 702.3		
Interior: Floor Construction of Offset Firewalls		4 hours	3 hours same rat's as wall- 4-515					
Interior: Smokestop Partition	1 hour 10-1324	1						
Roof Construction		2 hours	1-1/2 hr.		1-1/2 hrs.	2 hours 702.4		5.7

WESTERMANN-MILLER-ASSOCIATES RC. C GEDDES- BRECHER-QUALLS-CUNNINGHAM RC ASSOCIATED ARCHITECTS MAURICE W, PERREAULT AND ASSOCIATES, INC. C CONSULTANTS

Monitor compiled by Westermann Miller Associates helps firm find a path through tangle of codes. This is one page of 35 in manual.

quickly responsive to new, authentic fire research findings, is what we need. There's nothing like that today, although NFPA 101 probably comes closest. One can only hope that code authorities, fire safety experts, architects, engineers, and legislators will find a way soon to come together and create such a code. For now, however, the best we can do is to mark the paths and pitfalls in the thicket of conflict and confusion that is life safety design.

Interlocked chain

Life safety depends on an interlocked chain having seven major links, '' says John M. Foehl, SFPE, manager of architectural and building products, Copper Development Association. The links: fire prevention, detection, alarm, escape or refuge, containment, control, and suppression. Prevention implies good housekeeping practices. Detection relies on heat, smoke, flame, and rate-of-temperature-rise sensors. Alarm refers to alerting supervisors, central security, and the local fire department. Escape or refuge relates to a rehearsed evacuation plan. Containment refers to the structure's fire-resistive characteristics. Control refers to smoke evacuation and ventilation and the use of portable extinguishing equipment. Suppression refers to sprinkler systems and fire hoses.

John G. Degenkolb, California fire consultant, makes these recommendations for a complete life safety system:

1 Fire-rated construction.

2 Early-warning detection of smoke and fire, activating the automatic closing of doors to all patient sleeping rooms, surgeries, intensive care units, cardiac rooms, etc., to block the passage of smoke and confine the fire to its room of origin.

3 Automatic sprinkler protection. The sprinklers are in addition to, not in lieu of, smoke detection and automatic door control.

4 Division of each floor into at least two areas or compartments, with automatic-closing, tight-fitting smoke and draft control doors on cross corridors. In case of fire, the patients are evacuated horizontally to the safe areas from the fire-affected area until it is safe to return or until evacuation from the building, if necessary.

5 A trained staff capable of instant response to building emergencies. 6 Smoke control facilities, consisting of either a separate air conditioning system for each area of the floor or motorized smoke-actuated dampers to isolate the smoky area from the rest of the building. It is not practical, says Degenkolb, to shut down an air supply which serves more than one floor, as this could endanger patients, but the system nevertheless must not permit smoke to be recirculated.

Along with Degenkolb, most fire experts agree that evacuation of a hospital, nursing home, or similar institution is usually impractical if not impossible, except from streetlevel floors. Much preferred is so-called horizontal evacuation to a safe area on the same floor, but this presupposes that the institution has a sprinkler system to fight the fire and/or the fire department will arrive before it is too late to control the blaze.

Doorways to trouble

Degenkolb's recommendation for detector-activated automatic-closing doors in patient rooms is the subject of extremely active controversy. It's interesting to note that Foehl's chain of seven links does not include automatic door closers. "Everything in life safety comes to a compromise, mainly because of economics," says Foehl, and the automatic door closer is squeezed out by economics. Early detection and automatic suppression have top priority, Foehl believes. But the controversy doesn't hinge only on economics. Supporters and opponents of automatic door closers have a basic disagreement as to whether they have any life safety value at all, although one may wonder if some of the opposition's non-economic arguments are a mask for economic considerations.

Let's look at some background. Most fire fatalities in health care facilities are due to smoke or gas inhalation and most result from fires originating in patients' clothing, mattresses, or nearby combustibles, and usually are related to cigarette smoking. In two Chicago fires early this year at the Wincrest Nursing Home and Cermak House—more than 30 died this way. In the years that fire records have been kept, thousands of patients have died of smoke inhalation in health care facility fires. The proportion of inhalation to flame deaths has probably grown as fire-resistive and protected construction has grown more widespread. "We're building better ovens," says Richard Sonder.

A reaction: Codes and regulations were written to require that doors on patient floors be kept closed or be self-closing to prevent smoke spread. Overlooked was the fact that nurses feel they must be able to see their patients, that many patients feel isolated behind closed doors, that closed doors are an inconvenience to the staff and that they may be a danger as they swing shut behind patients or nurses carrying trays. An unscheduled reaction: Staff frequently chocked or tied doors open, illegally but effectively. This has turned an emergency into a disaster on a number of occasions when the staff failed to close the doors during a fire.

One solution: Permit doors to remain held open normally, with provision for remote or automatic release and closing upon detection of smoke. The three model building codes—the Basic, Standard, and Uniform—now require institutional occupancy doors to be either self-closing or automatic-closing by detection of products of combustion other than heat. NFPA 101, by contrast, permits stairway

Technics: life safety in health care facilities



Chart shows long incubation period during which lethal gases and smoke may be generated before flames erupt. (LCN Door Closers)

doors and doors in smoke partitions and on horizontal exits to be self-closing or automatic-closing, but says nothing about room-to-corridor doors. Several states have adopted all or parts of the model building codes or the NFPA Life Safety code. Nursing homes must meet the standards of NFPA in order to be certified under federal Medicare and Medicaid programs.

Strong opposition to self-closing or automatic-closing doors has come from associations of nursing homes and hospitals, and they have sponsored campaigns to eliminate the requirement from several state and local codes, especially with regard to room-to-corridor doors. Some architects agree with some of their arguments.

Martin Cohen and Barry Oberlander, SOM, say: "When we speak of life safety, we're not only speaking of the physical structure, we're speaking also of the ability of the nursing staff to function properly, to keep an eye on the patients. Self-closing doors either hide the patient from the nurse, or they're blocked open, which defeats their purpose. Automatic-closing doors add expense at a time when we've got to hold expenses down. Also, someone has to hold the door open while you're evacuating a patient who is bedridden."

Frank Eliseo, director of development of New York's Facilities Development Corp., the state's agency for administering the design and construction of health-related, narcotics, and correctional institutions, says: "We don't want to close doors on individual rooms; we want to close off and compartment the peril area and move our patients horizontally to safe refuge areas."

All of the architects that P/A talked to agreed on the need for detector-actuated automatic closure on fire doors and those between compartments. When they objected, it was to the devices on patient doors.

This kind of thinking apparently mystifies fire consultant Degenkolb. "Does it make any sense," he asks, "to build one-hour fire-resistant corridor walls, to prohibit or block shut the transoms, to require wired glass to be limited in area and to be in the fixed closed position, to prohibit louvers in doors, to prohibit the use of the corridor as an air supply plenum, and then to allow an unprotected opening at least 44-in. wide by 80-in. high every 10-15 ft along the length of the corridor in both walls? I think not!"

Have it whose way?

The battlers for and against make use of analyses of institutional fires, tests, and statistics, often with the same material being interpreted both ways. Some opponents claim that an automatic sprinkler system and early warning detectors are enough; the National Automatic Sprinkler and Fire Control Assn. states that there never has been a multiple loss of life from fire in a completely sprinklered nursing home in this country since fire records were first assembled by the NFPA.

Proponents counter that NFPA 101 specifically exempts fire-resistive institutional buildings and one-story facilities with protected construction from the requirement for full sprinklering. HEW estimated that, as of March 1976, almost 8600 of 16,500 nursing facilities participating in Medicare or Medicaid were not required to have this protection because of their constructional classification (although some of these may have been so equipped, nevertheless). Another item: HEW has the right to waive the automatic sprinkler requirement, regardless of construction, if it considers that fire safety is not compromised; but a Government Accounting Office (GAO) survey for Congress reported in 1975 that 79 percent of the nursing homes in its sample which had been granted HEW waivers did not meet HEW's own standards for the waivers.

Following the Wincrest fire in Chicago, Mayor Richard Daley ordered an investigation. The panel determined that Wincrest was a modern, well-constructed fire-resistive building, well-equipped with heat and smoke detectors wired to transmit a house alarm, and a fire alarm system directly connected to the Chicago Fire Department. Being fire-resistive, Wincrest was not required to have a fully sprinklered installation.

The fire at Wincrest was discovered in a plywood wardrobe in patient room 306. Nurses discovered it and pulled the fire alarm. They tried to fight the fire with hand extinguishers and started evacuation procedures. The first fire company arrived in less than four minutes. When the fire was extinguished, physical damage was only \$25,000. But 23 patients had died of smoke inhalation.

The Investigatory Panel concluded: Automatic sprinklers would have solved the problem: detect the fire, give the alarm, and either extinguish or hold the fire in check. Indirectly this would control the amount of smoke.

This supposition is possibly true, says Stanley Reichlin, president of Reading Door Closers, but why did the panel not consider detector-actuated door closers? Reichlin quotes Senator Charles Percy as saying that several residents were in Room 308 with the door closed and did not even know there had been a fire until after it had been extinguished and they were rescued. Reichlin further says that the American Nursing Home Assn.'s Fire Safety Manual assigns 12 fire responsibilities to the nursing staff, including closing patient doors, sounding the alarm, and notifying the fire department, staff, and patients, but there's no certainty that they would perform as required in an emergency.

For example, nine patients died in a hospital fire in Osceola, Mo., in 1974, because their doors were left open; the nurse on duty had not attended fire drills. Reichlin also says that a 33-month study by the Oregon State Fire Marshal's office found that of 13 fatalities covered by the study, nine took place in fully sprinklered buildings, and in seven cases the sprinklers never operated. Reichlin contends that smoke often kills in the time between fire ignition and the activation of the sprinklers. Activating the sprinklers with fast-acting detectors would solve this problem, except that these detectors signal frequent false alarms. A falsely triggered door is a minor annoyance; a falsely triggered sprinkler is a considerably more serious affair.

"Project Corridor," a series of full-scale fire tests ordered by the California State Fire Marshal found that smoke-actuated automatic-closing doors "greatly improve the safety to persons from fire by obviating the human factor needed to perform the same function if such devices are not provided." The test rooms in Project Corridor were not equipped with sprinklers.

Richard Hudnut of the Builders Hardware Manufacturers



"Project Corridor" tests by California State Fire Marshal indicate that one doorframe-mounted ionization detector may replace a pair of ceiling-mounted detectors, one on each side. (Rixson-Firemark)

Assn. objects to some of the cost figures—he calls them misleading—reported by opponents of mandatory detector/closers. Hudnut says the opposition should not include the cost of items they are willing to accept aside from the closer unit, such as the smoke detector, warning light at the patient's door, signal at the nurse's station, and the hookup to the central alarm system. Some of the quoted figures run to \$3000; the actual costs are claimed to run closer to \$125-\$325 per door for UL-listed devices.

The foregoing account of the controversy over door closers can hardly be described as fitting into a nutshell. Although it is a sharply abbreviated version of the thousands of words that have been employed in the battle, it was necessary because this is one area of institutional life safety where experts—including architects—do not agree.

Shower of safety

There is no question of the vital role that automatic sprinklers play in preventing the spread of fire and extinguishment. The experience of recent years has shown that fireresistant construction is no magic shield against fire or fatalities. High-rated construction protects property, not necessarily lives. As the old truism has it, buildings may not burn but contents do. Cohen and Oberlander recommend mandatory automatic sprinklers; John Foehl adds, even in closets, where many smoldering fires start. Cohen points out that fire-resistive construction can be defeated by poor housekeeping which allows heaps of trash and rubbish to pile up; furthermore, careless maintenance crews may, say, open a fire-rated ceiling to do repairs and neglect to replace the tiles, destroying the ceiling's fire effectiveness.

Building codes recognize the value of automatic sprinklers by awarding bonuses to institutions that have full installations. NFPA 101, for example makes these allowances for health care facilities:

Construction. Building up to three stories high may be protected noncombustible; normally, buildings of two stories and more must be of the higher-rated fire-resistive construction.



lonization detector placement tips: Location too close to supply register, top, is bad, as air may sweep particles of combustion away from detector; good location is near return grille. (LCN Door Closers)

Enclosure walls around stairways, elevators, etc. Fire resistance must be at least 1 hr in buildings up to three stories; normally, at least 2-hr resistance is required for buildings of two stories and more.

Corridor walls. Partitions may be used to divide corridors from use areas; the normal requirement is continuous, slab-to-slab walls with at least 1-hr resistance.

Exit capacity. Based on 22-in.-wide units, allowed capacity for exits leading to stairs is 35 persons per unit, raised from 22; for exits without stairs (doors on horizontal exits), capacity is raised to 45 from 30.

Travel distance. Maximum distance from a patient-room door to the nearest exit is raised to 150 ft from 100 ft; distance from the farthest point in a room to the exit is raised to 200 ft from 150 ft.

Technics: life safety in health care facilities

These bonuses add to the designer's freedom and cut construction costs. Yet cost is the main reason that sprinklering is not universal. The GAO has some reassuring news on this score. Based on a survey, GAO came up with an installation cost figure of \$393-\$625 per bed. Amortizing the higher figure over 20 years at 9¼ percent interest, this comes to \$5.57 per bed per month. Medicare and Medicaid reimbursements for interest and depreciation would pay part of this. Lower insurance premiums might also be granted.

GAO does recognize that HEW takes too long to process the paperwork and that HUD procedures prohibit the granting of loan insurance after work has begun. It recommends legislation requiring automatic sprinklers in all nursing homes and a change in HUD's restrictive procedure.

John Foehl of CDA is involved in another approach to cost saving: hydraulic design. In conventional design, the size of mains, risers, sprinklers, etc., is specified in the codes. But, says Foehl, sprinkler codes have traditionally been property-oriented rather than life-safety oriented, since they were designed to protect the large open spaces of industrial and commercial buildings; the availability of large flows of water was desired.

But a life safety automatic sprinkler system for the patients' floor would have to fight the fire in only one, or perhaps two, rooms. By quickly suppressing the fire, it would prevent its spread. So by careful analysis of the needs, particularly of the most critical room, the available water supply pressure (determined by flow tests at the nearest hydrants), and of pipe and fitting pressure losses, hydraulic design offers the possibility of a much less expensive and more flexible sprinkler installation. Some codes allow wider spacing for sprinklers in hydraulic design. Foehl's interest is, quite naturally, copper pipe. Because of its low-friction bore and its resistance to scale and corrosion (assuring that capacity does not diminish with time), a lower supply pressure is needed to provide the required flow. In marginal pressure situations, this could eliminate the need for a booster fire pump.

A computerized program for the hydraulic design of automatic sprinkler systems is available. Copper Development Assn. offers the service free to architects, engineers, and owners. The architect provides data about the building and the water-supply characteristics, CDA translates the data into computer language and the computer designs the complete sprinkler system.

Unsleeping eyes

The eyes of any fire control system are its detectors. Alerted, they can cause alarms to sound, lights to flash, dampers to open or close, fans to turn on or off, doors to close, sprinklers to operate. Their location and the nature of the trouble can be displayed and printed out at a remote station, including a central security console.

Since fires usually smolder before they flame, often generating lethal quantities of smoke and invisible gases, early detection is vital. This is provided by products-of-combustion detectors, also called ionization detectors. They respond, very fast, to the presence of such products in the air. This makes them ideal for patient rooms and corridors. However, because they occasionally false-alarm, they are not used to initiate drastic action, like the opening of a sprinkler, although their speed would be advantageous. Sprinklers depend on heat: a fusible link melts at a predetermined temperature or a heat-affected diaphragm opens, allowing water to spray through the sprinkler orifice. Aside from the extreme discomfort which may be caused by an unnecessary sprinkler shower, once the link melts the head must be replaced. The diaphragm unit, however, automatically shuts off and resets itself when the temperature drops.

Rate-of-rise sensors ignore ambient temperature, high or low, but are triggered when it gets too hot too fast, as when a fire flames up. Flame detectors respond to flickering light, and are useful for storage and other unattended areas, or where a flash fire or explosion might occur. Photoelectric



Sprinkler-head types are upright, pendent, sidewall, and ceiling flushmounted. Usual orifice size is ½ in., but smaller orifices may be used in confined spaces such as closets and vestibules. (CDA)

detectors respond when smoke obscures the air beyond a predetermined point; a gathering of determined tobacco smokers can cause them to false-alarm.

Fire tests and actual experience invariably show the effectiveness of ionization detectors, but their proper placement is a matter of continuing investigation.

NFPA Pamphlet 80, "Standard for Fire Doors and Windows," in its 1974 revision says that where the depth of the wall section above the door is 24 in. or less, one detector placed within 1 to 5 ft of the opening on either side or mounted on the doorframe will give good protection. In its 1973 edition, the standard required two detectors, one on each side, or a single doorframe mounted unit, if the wall section was more than 12 in. deep.

NFPA 101, in an addition to its 1973 edition, states that an approved smoke detection system is to be installed in all corridors, spaced no more than 30 ft apart or 15 ft from the walls, and electrically interconnected to the fire alarm system. But where each patient room is protected by such a system and there is a local detector at the smoke partition, no corridor system is required on a patient sleeping floor.

Big Brother is watching

Central control systems bring the ultimate in sophistication to a fire safety operation. Not only can they supervise all fire, smoke, and ionization sensors and fire alarm and notification functions, but the systems may also be used to



Schematic Distribution Pattern-Standard Upright



Schematic Distribution Pattern-Standard Pendent



Schematic Distribution Pattern—Standard Sidewall

Schematics illustrate water-spray patterns produced by different types of sprinkler heads. Top is standard upright sprinkler, middle is standard pendent and bottom is sidewall-mounted head. (CDA)

monitor and control physical security, heating and air conditioning, lighting, elevators, laundry and kitchen equipment, garbage and sewage processors and, indeed, any critical equipment.

While simpler systems are usually hard-wired—that is, a separate circuit connects each sensor to the control console—more advanced systems are soft-wired and multiplexed under computer control, and speak to the computer in its own language; digital-coded pulses. With soft wiring, sensors in any zone are wired to local data-gathering panels, instead of to the control unit; the local panels in turn are connected to the control unit with 2-wire coaxial cable. Many times a second the computer addresses each sensor with its digital code and checks on its status, using the shared wires (multiplexing). If an anomaly is indicated, the computer rechecks a few times to make sure it isn't a false alarm, then initiates whatever action is required.

A smaller central system may be dedicated to any of the jobs mentioned above. A larger, integrated system spreads the cost and can supervise many buildings scattered over a wide area. Many systems are modular and expandable, block by block. Building alterations don't entail extensive rewiring of connections; just tell the computer about the new arrangements.

St. Francis Hospital, Beech Grove, Ind., a 306-bed facility in two buildings, with an eight-floor addition underway, uses one of the large systems to control almost all building functions, including life safety. Two interesting features: fire control doors are electromagnetically latched open and released by the computer when it receives an alarm from the associated detector; fire extinguisher brackets are wired to send an alarm to the central console when the extinguisher is removed, alerting the console attendant when even a small fire occurs.

Cohan and Oberlander of SOM probably sum up the feelings of most architects when they say: "Codes are a necessity. Without them, in the intense competition over where the available hospital dollars should go, life safety, among other features, could be short-changed. Codes are supposed to represent the minimum, not the ideal, and the minimum is what you usually get."

What worries Cohen and other architects the most is what he calls the "unsinkable battleship mentality," the belief that design by itself can prevent fires and save lives. While this is complimentary to architects, Cohen says, the real answer to the problem is a well-trained, well-disciplined staff that maintains excellent housekeeping standards and knows exactly what to do in a fire emergency.

When Utopia is established, we shall see this. In the meantime, architects must struggle within the restraints of the codes, fighting for variances when they believe there is a better way, and pray that patients and their visitors stop smoking. [Henry Lefer]

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[For product information, see Products and Literature, p. 99.]

High density on the dunes

A condominium project in Ocean City designed by architect William Morgan explores high-density housing issues with provocative results.

Ocean City compares to many East Coast seaside resorts. The oldest portions of these towns, constructed in the early part of this century, are edged with boardwalks behind which sit two- and three-story wood frame guesthouses with double-tiered porches. This densely built, not very lavish vernacular construction gave way in the 1950s to low-rise concrete block motels, even less lavish in appearance. As speculation forced land prices up, it was evident that high-rises would soon appear where permitted.

Up until the 1960s a large tract of privately held land north of Ocean City lay completely undeveloped. When it was finally subdivided and sold, the real estate developers pressed for variances from the town's 45-ft height limit for high-density condominium construction. Since the strip contained no cottages or motels, the city, in consultation with a planning firm, decided to allow 20-story towers in that zone. What would have been desirable at the same time (if a touch utopian) was an overall urban design plan to coordinate the siting and architectural execution of the projects. Instead the developers and their architects have created a chillingly monumental melange of awkwardly massed and positioned slabs, blocks, and towers. Rising in phantasmagoric relief against the city's wide white beach, they are a far cry from this country's "beach shack" ambience formerly predominant on its coasts.

With this kind of backdrop, the Pyramid stands out. If it can't alter the entire gestalt, at least it provides a strong identifiable building of architectural distinction for its residents. Informal conversations with tenants reveal they were attracted to the Pyramid by its architectural ''look,'' its floor-through apartments, balconies, and private ocean views. Morgan has worked out a complex V-shaped scheme with apartment units stepped back in staggered banks of three floors, all facing the ocean. Because of the plan, each living room and balcony is oriented east toward the ocean view with bedrooms cranked to the southwest or northwest along open access corridors.

Despite design advantages, the original selling prices failed to attract prospective buyers. At that time (1974-75)



MASTER PLAN

N FUTURE | COMPLETE

Master plan shows three

30







The distinct geometry of the Pyramid stands out as isolated fragment (left above) but gets swallowed seen in context (above).



Expression of circulation provides articulation of façade (above and below) extending from elevator core at entrance to open galleries along side, or cantilevered fire stairs.





Resort condominium, Ocean City, Md.

the high costs of construction of the Pyramid, coupled with the ''soft condominium market'' in Ocean City and other resorts precipitated the project's going into foreclosure. Originally the condominiums were priced in the \$45,000 (onebedroom) to \$60,000 (two bedroom) range with some reaching as high as \$90,000. Finally they were offered with smashing success—at an \$18,000 average reduction per condominium. Unfortunately, however, the joint venture partners, headed by Ocean City developer John Whaley who hired Morgan, lost their total investment.

According to Whaley, the particular type of concrete construction-more than the design-was the principal reason behind the "astronomical" cost, (reportedly \$10 million). A completely poured concrete structure appeared most desirable for the scheme given its configuration and concrete's acoustical advantages. (Most of the condominium towers along the strip use some form of concrete construction: the most popular method is a poured-in-place concrete frame with precast concrete stacked walls.) Thus Morgan and Whaley decided to try a new poured-in-place method, a low-slump sprayed concrete with a one-sided form. However, it proved to be too slow a technique for this large a structure. Eventually concrete masonry had to be employed where feasible for the upper walls. In addition, expensive transfer beams were needed to fit car slots in between ground floor pilings supporting the triangular structure.

Originally the master plan called for 580 units in three pyramidlike structures, 13-, 19-, and 25-stories high. Not any longer. So the Pyramid sits on its 2.5 acres surrounded by some breathing room of undeveloped land (five acres) where the other project stages would have gone. Yet despite its distinctive architecture—especially in comparison with its neighbors—the single building functions only as one nicely fashioned fragment in a chaotic environment. Its value to the overall context is thus diminished. As such, the Pyramid should then be viewed primarily for its implications as a housing prototype to be applied elsewhere.

Here the advantages of the solution are clear, though very peculiar to a certain situation. Aside from the amenities of the plan mentioned above, the setback of the design casts fewer shadows on the beach and swimming pool than a normal tower configuration. The raising of the building off the sand (in case of flooding) allows room for car slots (only about a third needed, however). The architect succeeds in breaking up the massing and varying the elevations artfully, by cantilevering the fire stairs at the end of the wings progressively away from the building and pulling them back towards the elevator core, and by staggering the banks of apartment units.

Nevertheless the design concept does have certain definite drawbacks, formally and programmatically. Since the structure recedes away from the ocean at the center, apartments there are cast in cool shadows from late morning on (a situation desirable in Florida perhaps more than Maryland). Although the balconies are shielded from other balconies by the blank walls stepping forward, the effect from within most of the apartments is similar to seeing with a horse's blinders: The view ahead is great, but confined.



Staggered banks of units provide privacy of views from apartment balconies



Apartments are simply finished with carpeting, acoustic spray on ceilings. Ship-decklike terraces surround corner apartments.







(The rare corner apartments with 1000-sq-ft terraces, on the other hand, are splendidly expansive). As ingenious as the layouts are, most of the apartments have the long dark "dumbbell" shape found in New York City's old-law tenements—a criticism made by prospective tenants. Since the bedrooms overlook the open circulation galleries, their windows are understandably small. This concept obviously works best for housing where the occupants are able to spend most of the day outside.

Morgan reasons that the "deep mass from east to west provides maximum enclosed space within a minimum perimeter surface—an important economic factor." Perhaps. However, the fire stairs cantilevering out from the volume, the changing rhythm of units ascending to the elevator core, the recessed entries off the corridors call for a lot of perimeter walls, floors, etc. Gross square footage totals 249,694 sq ft; net, 163,618 sq ft-a rather uneconomical ratio. These jazzy manipulations in the massing, the lessthan-rational maneuvering of protruding floors within setback banks of units neither advance the building type in terms of simplified construction, nor really, in terms of architectural form. While all these elements along with the strong elevator core marking the entrance create a legible and formally "interesting" exterior, the whole tends to strain for too broad a gestural effect. This is not to detract from the Pyramid's architectural edge over much luxury housing. But it still comes close to being Miami Beach without the tzazkas.

The architect (understandably) sees it differently: "A major design influence was the sand dunes—the fragile interface between the relentless sea and unyielding land . . . (with) each dune related to the next as sculptures under the sun. Set at the edge of the sea, the building becomes the beginning of the earth."

Aside from the ecological questions of building *anything* atop the sand dunes, or perceptual distinctions regarding the point at which a building stops looking like a sand dune and starts resembling a mountain, the architect can't be faulted for his intentions. Nor for his aspirations. "It makes available to the majority of our population high-density housing of architectural excellence." Citing failures in housing in the U.S. and Canada, Morgan maintains that the "most interesting aspect of this project has been to pa-

tiently search . . . for an architecture of reality."

That architecture of reality hasn't been found yet, however. Taken as a prototype for urban housing, the concept raises questions regarding the plan's applicability to other situations, the optimum construction techniques, etc. In terms of resort housing, it may offer a more palatable solution than other high-density condominiums, but leaves the question open whether any high-rise high-density development along the coast is desirable—from either the ecological or recreational point of view. [Suzanne Stephens]

Data

Project: The Pyramid condominum, Ocean City, Maryland. **Architect:** William Morgan Architects, Jacksonville, Florida; William Morgan, designer; Thomas A. McCrary, project manager; Theodore C. Strader, project architect.

Contractor: The Farms Company.

Program: one phase (180 condominium units) of a total plan for 580 condominium units for high-rise development in beach resort. Most of units are one and two bedrooms with a limited number of penthouses and corner units with additional bedrooms. All units required a direct view of the ocean and a balcony (facing east) not less than 10-ft deep. Master plan would also include recreational amenities such as ball courts, enclosed pool, activity rooms.

Site: 2.5 acres (this stage) on oceanfront beach, north of main business district.

Structural system: six-in.-thick reinforced concrete walls support poured-in-place flat slabs. Bearing walls are sprayed in place low-slump pea rock concrete using one-sided forms. Uppermost bearing walls are concrete masonry where stresses and codes permit. Concrete foundation pilings support bearing fin walls and transfer beams to raise structure off the ground and allow for car parking.

Mechanical system: vertical riser shafts carry conventional systems and are connected to 20-ft-wide insulated chase garage ceiling linking to central utility room. Chiller at top of elevator shaft supplies cooled water to individual air handling units; electric resistance strips in unit supply ducts provide heating.

Major materials: poured-in-place concrete, paint, carpeting (See Building materials, p. 112).

Consultants: Atchison & Keller, Inc. (mechanical): Sherrer-Bauman & Associates, structural; Geiger-Berger Associates, special structural; William Lam Associates, Inc., lighting; John Saladino, interiors of model apartments.

Costs: withheld at request of client. **Photography:** Robert Lautman.

Low density in the dunes

C. Ray Smith

Resort condominiums at Baja California by Mexican architect Ricardo Legorreta offer a lowprofile, low-density form of beachfront housing.

Few buildings built underground have as spectacular and self-evident rationales for being dug in as the condominium units designed by Mexico's Ricardo Legorreta for the resort at Cabo San Lucas in Baja California, Mexico. And few underground buildings actually reinforce the contours of their terrains as these condominiums do.

There, at the southernmost tip of Baja, the desert vegetation comes down in a continuous run from the headland mountains to the sea. A dune behind the beach is angled toward the jagged, imposing rocks of the cape—the end of the road and of the land, the last goal and symbol of conquest over that 1000-mile frontier projecting into the Pacific.

On this beach adjacent to the Camino Real Hotel at Cabo San Lucas—a resort that has had considerable success as Baja's tourist flow has increased—the hotel envisioned ten condominium units planned for sale. Architect Legorreta, who had designed Mexico City's Camino Real Hotel (P/A, June 1969, p. 82) with sculptural massing, battered walls, and vibrant color inside and out, felt that ''any kind of architecture would be powerless to compete with the natural environment at Cabo San Lucas.'' Therefore, he explains, ''The criterion of the design was to leave the landscape untouched.''

Into the slope of the dune he recesses two rows of units, five to a row. Each condominium is a two-bedroom unit with a living room, kitchenette, and bath flanked on each side by a bedroom and another bath.

Visible only from the water, the units are entered across the dune on boardwalks that thread through a pattern of low, concrete retaining walls—like a desert version of a boxwood parterre. Everything else is underground.

The underground scheme is especially practical at Cabo San Lucas since it almost never rains. Local stone is used

Aurhor: C. Ray Smith, AIA, an architecture and design critic, was Editor of Interiors and senior editor of P/A.

for the retaining walls of the units and concrete slabs for the roofs; the inner walls, with an air space between them and the retaining walls, are of block and plaster.

From the dune-top boardwalks, stairs leading down to the units narrow at the bottom. The device, which architect Legorreta has applied before in the entrance hallways of at least two houses in Mexico, provides a transition that, he says, ''changes the scale and the sensation of light so that you enter the space through a kind of tunnel.'' At the bottom of the stair is a patio—also open to the sky and filled ''like a small oasis,'' the architect notes, with tropical desert vegetation.

From inside, each room has a view of the rocks through glass walls that slide open onto the beach. Beyond the glass, exterior retaining walls are inflected to the views of the rocks dipping into the sea. Each wall is specially constructed to make the most of the individual angles of each unit as well as to preserve the dune.

Besides its purpose as a condominium, each unit is planned so that it can be used as supplemental hotel accommodation until it is sold. What makes it possible to use each condominium as three separate hotel bedrooms is the sunken patio forming a central space. The patio both separates and links the three-room unit.

To make each of the rooms serviceable as a separate hotel accommodation, each is visually isolated from the other by a small, enclosed tunnellike entrance. The central living room has wood shutters against the patio glass to maintain privacy. In addition, each room has its own bath, and the living room has a convertible sofa that allows it to double as a bedroom.

Inside, according to architect Legorreta, "The inner atmosphere is created by means of walls of balanced proportions that generate both parapets and furniture." Furnishings include these built-in "parapet" units of brick and plaster that serve as cushioned banquettes and as end tables. The banquettes divide the seating areas from the sleeping areas of the bedrooms, and there a change in elevation reinforces the distinction.

The plaster-finished interiors are painted sand color to extend the idea of consistency with the dune. Recessed in the wall alongside each dining table is a wedge-shaped lighting fixture, sculpted into the plaster. Light spreads owed into the s, the two rows ndominium units unimpeded views cific and mounright). The are entered the rooftops w) with stairs om) at the rear ng to underground ings. Living s have splayed ning walls, ters and glass sliding s facing ocean middle and m).











Resort condominiums, Baja California

The entry stairs led to private rear court that separates three bedrooms (right). Rooms can function as three separate units or one apartment. Plaster finished interiors with clay brick flooring below are deliberately simple. Bathrooms are lit by round skylight (bottom right) and finished in handcrafted tiles. Wedge-shaped niche in dining area (bottom left) conceals lighting.



















THROUGH LIVING ROOM



down those sand-colored plaster wedges with the glow of a wall-washer on travertine. Architect Legorreta feels that Mexican architecture must take advantage of the craftsmanship of its contractors to build in such fixtures rather than apply industrialized fittings for which there is no tradition of maintenance in his country.

Other interior materials are the clay brick of the floors and the handmade ceramic Mexican tiles that line the walls of the bathrooms—above which, incidentally, are round skylights that dot the dune with cisternlike forms. Among the movable furniture, the chairs, which are designed by the Legorreta office and are from a series called the Vallarta Furniture, have rush seats and legs that splay or flair at the bottom.

All of the interior detailing is done with Legorreta's usual care and functional invention, but the site solution and the inflections toward the views are so strong as to take precedence. As Ricardo Legorreta says, "with the use of the underground elements, the landscape blends with the architecture, giving it strength and personality, and at the same time, the architecture forms part of the landscape. By its lines and volumes, it tries to give man the desired peace and rest that have been lost in most of our cities."

This basic concept paradoxically elevates the condominium project to a stature far greater than its actual one.



Existing hotel sits in back of condominiums.

Data

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Project: condominiums for Camino Real Hotel, Cabo San Lucas, Baja Calif.

Architects: Legorreta Arquitectos, Mexico, D.F. Ricardo Legorreta, principal in charge of design.

General contractor: Constructora Ballesteros.

Program: ten three-room condominium units, planned as supplemental hotel accommodation until sold.

Site: sand dune and beach adjacent to client's existing hotel. **Structural system:** retaining walls of local stone; concrete slab roofs; inner walls of block and plaster separated from retaining walls by air

space. Mechanical systems: through-wall a/c units in bedrooms.

Major materials: plaster walls, clay brick floors, handmade ceramic tile baths, sliding glass walls.

Consultants: Bernardo and Jose Luis Calderon, structural; P.S.I., electrical and mechanical.

Client: Camino Real Hotel, Cabo San Lucas.

Photography: Richard Gross.

THROUGH BEDROOM

The unreal architecture of Arata Isozaki

Jennifer Taylor

The architecture of Arata Isozaki may be seen as outrageous, but his built works in Japan communicate abstract theories and satisfy functional demands.

The architecture of Arata Isozaki presents the most eloquent statement of the introspective, poetic mood of Japanese architecture replacing the search for technological and structural prowess that dominated the architecture of the 1960s. Yet the event of Isozaki's architecture is unique and isolated. His buildings provide a completely new architectural experience that derives from the rejection of the modern architecture's objective theories and the substitution of a personal, visionary approach to what he sees as the problems of today's existence.

The theory

To Isozaki, a building is the medium for returning meaning to the environment through the artist's ability to see and express the nature of the times, and to provide the opportunity for the release of the individual from the position into which he has been forced by contemporary life. "Today humanity has been atomized, made anonymous, and rendered abstract," and so, "It is scarcely surprising the architecture designed for anonymous human beings should be abstract and standardized." Isozaki contends that the obiective basis of modern architectural theories has contested rather than supported the right of the individual to identity and expression. He claims, "Modern architecture in general attempts to bury abstracted humanity with ubiquitous technology," and further, "It seems to me that the heart of our modern architectural inheritance is the task of condensing architecture and architectural parts in an oppressive visual simplicity that is always linked with commercial production. Things are losing their names, and individuality is being stripped of its significance as everything becomes enmeshed in the invisible, but all-pervading and controlling web of technology."

Author: Jennifer Taylor is a lecturer in architecture at the University of Sydney, Australia. Research for this article was supported by the Japan Foundation.



Gunma Prefectural Museum.



Arata Isozaki

The modern progress of Japan was built on the astounding rise in technological ability. Today the results of this progress are being evaluated, and their desirability questioned. While this is happening in many countries of the world, the rapid changes in Japan have produced more critical results than those found in most other lands. Like Isozaki, many architects are rejecting what now appears to have been an ill-founded faith in technology, and are embarking on a personal search for a way to combat the problems generated in the last decade.

In Isozaki's work the reaction has been radical. So total has been his rejection of tangible determinates that he has sought solutions on metaphysical planes. He explores "the immeasurably vast and complicated situation that constitutes our times," and develops a means of presenting the meaning of this condition in the building. He does this by using signs, symbols, and abstract images which are open to interpretation by the individual according to his experience and awareness. As Isozaki projects concepts of an intangible quality, he changes the commonly accepted relationship of things that belong to the tangible world by the restructuring of space, light, color, shadow, and texture. Only by destroying the conventional order of things can the new relationship between individual and environment become evident. Consequently, Isozaki's buildings are un-familiar, even ''unreal,'' and one becomes intensely conscious of their unique evocative atmosphere.

However, Isozaki is aware of the existence of, even the need for, controls, be they political, administrative, or technological. "Consequently, devising ways of dealing with controls and interpreting them in a concrete way that makes resistance possible is one of the major aspects of the architect's job." Isozaki aims to free the individual from the strait jacket of disregard and overt control, and make possible his freedom of perception and behavior within recognizable restraints.

The buildings

Arata Isozaki attended Tokyo University, and after graduation studied under Kenzo Tange in the URTEC group. While still with URTEC he received his first independent commissions, among them a house for a doctor in central Oita and the Oita Medical Hall. Both buildings are highly stylized, but show a remarkable self-confidence for a 29-year-old architect. While the doctor's house is strictly geometrical, the Medical Hall breaks away from the architecture of its day by adopting the Bosch-like form of an onside oval drum elevated on sturdy pillars and slab walls. Within and below this unlikely body are the offices and conference rooms of the medical practitioners of Oita. The non-conformity of the architecture becomes clear when one realizes this building was completed in the same

year as the Dentsu Advertising Building in Osaka and the Kurashiki City Hall, both prime examples of Tange's rectangular façade architecture. As much as Tange's buildings speak of established order, so Isozaki's speak of rebellion.

The pivotal building between the lessons of his mentors and his own direction is also to be found in Oita—the lwata Girls' High School of 1964; the year of Tange's National Gymnasiums and St. Mary's Cathedral. The school is the first building designed by Isozaki after leaving Tange's atelier, and the effects of his tutorage are apparent. The new buildings are part of the design for an extensive complex to be added to an existing school. There is a surreal atmosphere about the site on which the old and new buildings stand. The original timber frame structures with connecting wooden corridors are dilapidated and sprawl in a lazy manner through neglected gardens of semitropical growth. A less likely site for avant-garde architecture is hardly imaginable, but on eventual arrival at Isozaki's complex, one finds it surprisingly at home in the strange setting. The new school is not large but its scale is heroic. It is divided into two principal sections, the classrooms and the special-use areas. The blocks rear up facing each other across a 63-ft-wide open space that is overlooked from all rooms. By stepping out the floor on the upper levels, the blocks acquire not only a tense dynamic quality, but the space between them becomes clearly defined, almost protected. A third element, the restroom block, is boldly and sensibly placed in the center of the composition to serve both wings. It forms the central focus of the group.

The emphasis placed on communica-



Doctor's residence.

Oita Medical Hall; original portion (right), new addition (left).

tion, both physical and visual, between all parts of the composition provides the key to the success of the building. The horizontal paths between blocks are true communication channels. The connection on the second level serves not only as a physical link but also as a viewing platform for what is going on below. The ground level platform forms a terrace, on which any activity is visible from above. Its position invites participation by all who exit from either wing. The vertical circulation is also a major communication space. The landings on each level are of sufficient dimension to serve as storage spaces, working areas, and as places for informal group discussions. The life in this building takes place in the communication corridors. The classrooms simply provide spaces for instruction. A stroke of vitality comes from the use of bright color flashed against the concrete, painted on doors, and in the red and blue awnings. The High School retains the boldness of the raw architecture of the earlier works, but its planning concepts are new. While Isozaki's later buildings adopt streamlined finishes, the logic of the school's courtyard is often retained and seen as roofed-over, enclosed principal internal spaces.

The decade of 1956–1966 was not such good years. Japan's expressionistic formalizing was not only pushed to the limit, but in some cases over the edge. The National Theatre in Tokyo, Tange's Kagawa Prefectural Gymnasium, Kiyonori Kikutake's Miyakonojo City Hall, Togo Murano's Takarazuka Catholic Church, and Sachio Otani's Kyoto International Conference Hall were completed about this time. Even Kunio Mayekawa's dependable rationality is not evident in his Civic Center for Saitama. Isozaki's Oita Prefectural Library belongs to this era. The building, which is sited directly opposite his earlier Medical Hall, is an experimental building showing full well the frustration of the architect as he searches for a new order and a fresh expression. The threatening, exaggerated external form is matched in the interior by equally complex, even tortuous spaces hit in the least logical places by strong, harsh colors. The lack of resolution of the sought-after rationale, of what Isozaki calls "process planning," is apparent through-out. That this building was attuned with its times is testified to by the award of the Japan Institute of Architects prize, and the Council of Architecture prize in Japan for 1967. Despite its shortcomings, the building is a significant development in Isozaki's work, as concepts so awkwardly handled here are refined and restated later.

Oita Prefectural Library.

Oita Medical Hall; new room adjoining original building.

Y. Futagawa, © Retoria

Iwata Girls' School.

Arata Isozaki

In the late 1960s the influence of Robert Venturi and Charles Moore reached Japan. There are two sides to this influence. First, the obvious-the use of color, particularly the supergraphics. But there is little evidence that this captured the Japanese imagination. Strong colors are found, such as the deep blue studded with stars in the dome over a fashionable restaurant, but the intent is quite different and bears no relationship to the use of color in the American work. It is in Isozaki's Fukuoka Sogo Bank in Oita of 1967 that the environmental potential of the new color is grasped and expressed. The dramatic central banking space relates to the plan of the girls' school courtyard, but here it is covered by a high, multi-angled roof that admits light from various unexpected places. By selectively keynoting structural elements, mechanical outlets, and circulation paths with bright colors, Isozaki adds to the confusing, lighthearted fantasy that contradicts the accepted image of "bank." In the design of this building he slips into other idioms his later work will exhibit. Given a very awkward, irregular corner site on the main street of Oita, he breaks the building into two sections-a lower part containing the main banking chamber, and a simple tower of prefabricated sections containing offices and conference rooms. The architectural interest is concentrated in the commanding forms and the equally dramatic central banking space. Other considerations are secondary. Despite its general assurance, there is still a naivete about this building, which is replaced by full confidence and sophistication in the major commissions of 1972-75

The urban theories of Venturi and Scott Brown were the second aspect of the American influence. These had arisen from the particulars of the American situation and much of what was said meant little in Japan. The Japanese had always lived with, and loved, the mess. No urban renewal programs had attempted to tidy up their cities. No cleansing, purifying hand had been laid on their buildings, for this is not the nature of Japanese architecture. But what was meaningful and was grasped, again by Isozaki, was the design potential in Venturi's subtle innuendos and the lessons he drew from the Italian architecture of the 16th Century. In a similar manner, Isozaki stimulates awareness by altering the accustomed context, scale, and texture of things, and by the juxtaposition of conflicting elements. But while Venturi also drew images from everyday common objects, and stressed the reality of the familiar world, Isozaki draws his images from unrelated times and places, and emphasizes not the local scene but the unlimited bounds of today's existence. His use of color enters realms untouched by his American contemporaries. As in the Byzantine age, Isozaki plays light on shining colored surfaces to dissolve and dematerialize the building in order to create

intangible other-worldly spaces. It is the unreality, rather than the reality of life, that is stressed.

Following a visit to Los Angeles in 1969, as visiting professor at the University of California, Isozaki was given the opportunity to relate the American concepts to his own perception of the current environment with the designs for three branch offices for the Fukuoka Sogo Bank. These small branch buildings allowed for the development of new design means, and each presents a clear, simple statement of the architect's intent. These were followed in 1972 by the complex design for the bank's Home Office.

The twin parallel red sandstone-clad walls that constitute the main section of the bank stand, large and imposing, in a line of glass-sheathed buildings in the main street opposite Fukuoka Station. This flat, dark, street wall, besides being a strong defining element in itself, acts as a foil and gives substance to the skeletal structures along each side. The severity of the wall, broken only by the rhythmical punched pattern of window openings, is relieved by a nonsensical, small, white, almost-classical window bay which projects from the otherwise unbroken flatness of the plane. Rather than break the wall for entry and light, Isozaki has placed a full, separate front element in the form of a huge polished red granite beamlike structure supported on gigantic hollow pillars of chipped red granite. Under the beam and between the pillars is tucked the miniature white marble entry which echoes in color and scale the single projecting window motif of the wall above. Together these elements make up a second, lower, street facade. Curving skylights with black metal trim form the transition between the two façades. The integration of the white graphics in the upper corner of the building completes the composition, which generates interest at all levels and yet maintains the integrity and power of the whole. All four façades of this free-standing structure are equally resolved, and in visual terms the building presents a highly successful example of street architecture.

The inside of the bank is amazingly rich with the play and extravagance possible only with a manneristic approach within a seemingly limitless budget. The principal banking hall with its entries and lobbies is dressed in white sandstone and polished red granite. It gleams in the flood of light pouring down from the skylights above and through the translucent vertical marble slabs that run from floor to ceiling at each end of the long narrow hall. The place is alive with astonishing, curved, contradictory details, and each willful part maintains its independence from the whole. Doors, clocks, telephone booths, benches, counters, all share in the arbitrary delight of the architect's frivolity. This is not a generalized space, nor is it a space of discrete functional parts. Rather, it combines the general with the particular, and puts them into conflict with each other. This concept extends throughout the building wherein each section has its

Oita Branch, Fukuoka Sogo Bank. Interior (below)

Ropponmatsu Branch, Fukuoka Sogo Bank (below

Tokyo Branch, Fukuoka Sogo Bank (below).

Home Office, Fukuoka Sogo Bank; from the front (above), from the side (drawing, left).

Lounge (above); main banking room (below).

Michael Ross

Main entrance (above).

Executive offices (above and below).

Gunma Prefectural Museum (this and facing page); stair to third floor (below).

own individual character, which is discordant with, yet ordered by, the imposed discipline of the whole.

In the same year, the extensions to the Oita Medical Hall were completed, and the changes from the approach of 1960 to that of 1972 can be clearly seen. The curving, heavy form of the early section, denoting the time of searching, has given way to clear resolution. The transition from the old to the new is achieved by retaining the rear outer wall of the old building as an internal wall of a light court which leads smoothly up low stairs into the new section. The elevator is centrally placed with the same directness and charged with the same overtones as the toilet block at the girls' school. The directness is carried through to the top level of the building where one leaves the elevator, not into an intermediary space, but straight on axis into the principal area of the curved hall with the sweeping tiered skylights above. The expected and the unexpected are continually played against each other. The new part's relationship with the old is explicit. Facing each other across the light well the spaces of the two are visually linked through the openings of the new inner walls. With the exception of the conference hall, all parts of this building are tied together in a mesh of total or partial communication, horizontally and vertically. Not only is the new section notable for its integration of the two parts, but throughout it presents a harmony of blended spaces from the conference hall on the top level, down through the balconies, small stepped lecture spaces, and bridges that overhang the major office space below. All through the building the highly inventive and complicated spaces are modulated by frequent interjection of simple and direct details and objects. The curving metal stacking chairs and high-backed curved plywood chairs, hallmarks of an Isozaki building, take their place with other precisely designed furnishings and fittings. Convincingly the diverse textures, colors, lighting, spaces, and solids are all brought together in a unified composition.

The economic upward trend continued,


Gunma Prefectural Museum; outdoor terrace of inflected cubes that extend into pool.

and with it came a noticeable turn towards luxurious finishes in the work of those undertaking the principal commissions. But Isozaki continued to demand the limelight with his three buildings of 1974–75 vintage; the Gunma Prefectural Museum of Modern Art, Takasaki, the Kitakyushu City Museum of Art, and the Kitakyushu Prefectural Library.

Gunma Prefectural Museum is quite "unreal." In sweeping lawns enclosed by woods on the outskirts of the country town of Takasaki stands the pristine aluminiumclad building. Far removed is the brute concrete of the 1960s; its place now taken by sleek, shining, geometrical boxes. The building profile is held long and low along the axis of the site, with two short wings projecting at either end from the major front façade. The grounds entrance lies at one corner of the site, and in a masterly stroke, Isozaki elevated the nearest wing over a reflecting pool and angled it from the remainder of the building, facing the point of entry. On passing through the gate, the visitor is hit with a direct broadside which prepares him, in part, for what is to follow.

The Museum is entered through the furthest wing so that the entire principal facade is experienced before moving inside. Even so, the impact of the vast, meticulously polished silver and white foyer is startling. The space is contained in twin linked boxes with geometrically subdivided windows filling their exterior walls, and revealing once again the full façade one has just passed. Ramps, bridges, and balconies float through, rather than break up, the smoothly simple major space. Were the materials less rich and the detailing less precise one could say it was detailed to the point of austerity; almost a rocket ship imagery. The surrounding secondary spaces, such as the restaurant, provide the Isozaki counterpoint by the unexpected intrusion of harsh, bright colors. The exhibition galleries vary in their lighting treatment but mostly they are plain, open spaces in marked contrast to the distinctive design of the lobby and its adjoining rooms.



South side of building showing outdoor terrace (left) and main entrance (right).



Interior of main entry hall (above). Third floc "Stair sculpture" at end of first floor exhibition space (below).

Third floor exhibition space (above).





View across building from main entrance hall.

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Osamu Murai

Arata Isozaki

From Gunma Museum to the Kitakyushu City Museum was a short step for Isozaki, but as much as Gunma is gentle and ephemeral, so Kitakyushu is harsh and aggressive. Rather than the flat plain of the park at Takasaki, the Kitakyushu Museum site is the top of a hill. The building has responded by rearing dramatically in multilevels climaxed by two boldly cantilevered, hollow, square-sectioned, overgrown beams that contain the principal exhibition spaces. These gigantic beams are wrapped in dark silver metallic sheets and filled at their ends with windows similar to those at Gunma Museum. As at Takasaki, the sequence of approach to the building has been carefully engineered, and the shock of entry into the main hall is comparable. While most parts of the building are of asymmetrical design and accommodate their functions in a straightforward manner, the principal entry hall is strictly symmetrical, with the great elevated boxed exhibition rooms slashing through on each side, carrying their metal-clad walls into the interior. The hard, taut, reflective space of the hall is highly expressive of Isozaki's drive towards a new imagery for 20th-Century architecture. As always, the initial blow is softened, this time by gently curving white marble stairways and smooth, almost classical doorframes.

The Kitakyushu City Museum of Art combines several of the features of the preceeding works: the centralized space of the girls' school, the aggressive cantilevers of the Oita Library, the distinct separation of parts of the Oita Bank, the contradictions of the Fukuoka Bank Home Office, and the three-dimensional ordering grid of Gunma Prefectural Museum, the Ripponmatsu and Nagasumi branch banks. The soft and the hard, the exuberance and the reticence, the logical and illogical, are all together in this tour de force.

For the library at Kitakyushu there is no precedent in Japan and few clues in Isozaki's previous work. One cannot but be amazed at the imagination of an architect who can conceive of a library and its accompanying museum as two sensuously curved snakelike forms vaulted with concrete ribs and sheathed in copper. Full advantage is taken of the siting of the building in the city's park grounds. Reading rooms and stacks open generously onto leafy surrounds to capture the nearby castle on its hill, and like a train on a sharp corner provide views back and forward to the curves of the building itself.

Not only is this library incredibly bold in its conception, but surprisingly it comfortably houses the complex functions of a large resource center. There are virtually no solid internal walls. The transition between, and definition of, spaces is achieved effortlessly by distance, directional change, and variation in floor and ceiling levels. The smoothly functioning interior consists of spaces not only pleasant and comfortable, but even emotive and in-



Longitudinal section (above), transverse section (below).





Kitakyushu City Museum (this and facing page).



Views of the main entrance hall (above, right, and below) and stair detail (bottom right).



Jennifer Taylor





spiring. Under the vault are placed floors at varying levels, some of which burst outside the skin and run alongside the main structure or tangle in an explosion of competing elements. The changes of level with stairs, ramps, overhead bridges, and balconies are typical of Isozaki's control of space variation, and over all soars the exposed concrete ribs of the vault. As in all Isozaki's buildings, the mix of seemingly discordant parts is apparent. The outstanding example here is the juxtaposition of the large, colorful, complex and circular medievel rose window, and the small, plain, ultra-simple, rectangular modern doorway below. The circular motif is picked up in the center of the door panel, making the relationship explicit. There is no balance of these opposites. The new is reduced to absurdity by the dominance of the old. Throughout the building the childlike furnishings, murals, graphics, and supergraphics give a note of innocence that denies the seriousness of the whole.

For the first time since Iwata High School, Isozaki has designed a building in which the answers to functional, visual, and emotional needs are fully integrated and attuned. This is a remarkable building, and one can only wonder where he will go from here.

The manner

The buildings are eloquent, but speak to the senses rather than to reason. One can understand the parts, even recognize their origins, but a rational explanation of the whole remains elusive.

The architecture derives from Isozaki's personal vision of the world and its translation into built forms through the control of a depersonalized ''manner.'' He accepts that the media for architecture cannot be invented. Rather, the artist has to recognize its existence in the multiplicity of all things through time and space. Communication, travel, and education have broken down the barriers of time and distance. "We have arrived at a point where it is meaningful to introduce and to mix in a disconnected fashion the many layers of historical fact, multiple styles, and regional visual vocabularies." In his buildings one can find "as vocabulary items things developed over the past 40 years of history of modern architecture. Probably their sole distinguishing element arises from the expanded field from which eclectic selection has become possible." The presence of items, which may range from Marilyn Monroe curves to LeCorbusier's concrete, or from a Romanesque arch to a rocket-ship fusilage, represents the eclectic borrowing of ideas and objects from the grab bag of experience. These are simply the words, however, and should not be confused with the grammar with which Isozaki writes the language of his buildings.

The grammar of Isozaki is unique. At risk, I venture to suggest that for the grammar of form he is indebted primarily to

Kenzo Tange; for his awareness of the possible range of vocabulary and technique to Robert Venturi, Charles Moore, and Hans Hollein; and, for his approach to design, to the modern formalists, particularly Louis Kahn, and again Venturi. But while such influences may have provided important stimuli, they have become more and more blurred as Isozaki either reacts against them or expands their meaning. It is interesting to note the similar orientation of some Italian projects of the late 1960s and 1970s. Surprisingly, as Isozaki had not encountered the Italian designers or their works until recently, these sympathetic developments are discrete and independent reactions to circumstances in the individual countries.

For each specific project he holds an "imaginary hypothesis" about the nature of the buildings. This he calls the "image." He finds he cannot explain the origin of images. The image is the essence of the building which initiates and permeates all aspects of the design. It is often expressed as a metaphor or an abstract idea. For the Oita Medical Hall it was "stratocomulus clouds," and for the Ripponmatsu and Nagasumi branches of the Fukuoko Sogo Bank it was "twilight." The image is meaningless outside itself and cannot be built. In order to give physical form to the visual concept he employs an approach "manner" as a framework for procedure. The 'manners'' operate through depersonalized techniques which are invented by the artist to explore the nature of space and to control the development of the design. These are totally abstract schema, conceived in terms of a geometrical ordering and disordering of space by means of a conceptualized grid or projection, to which



Kitakyushu Prefectural Library (this and facing page)



Masao Arai, © Japan Architect



Kitakyushu Prefectural Library, east entrance (above).





Main entrance on north side of building (above). "Rose window" above east entrance (above). Reference materials room on second floor above first-floor reading rooms (below).



all parts of the building must conform. For the Iwata Girls' School the manner was "chessmen," and for the Nagasumi and Ripponmatsu branch banks it was "amplification." These systems are developed to fit the specific requirements of the project as "I have not yet found a core that I feel will lead straight to an accurate totality covering the vastness of current conditions. I do not, in fact, think that a single solution can cover all the aspects of our world." He often uses more than one modulating system in a building.

So, having conceived of the image, developed the manner, and recognized the media, the building design proceeds towards the creation of spaces, forms, and objects that embody the projection of the artist's vision. Given the constraints of the functional demands of architecture it would be expected that the built form would fall far short of the concept. But Isozaki's intentions become manifest in buildings that engender an indefinable sensory awareness of vision, image, and manner.

To say Isozaki's architecture is unconventional and nonconforming would be a gross understatement. Rather, it is outrageously different. While the work follows in the path established by the early form makers of modern Japan, by his own virtuosity Isozaki has created a new world far removed from the drab heaviness of the architecture of the 1960s. With their contemporary sophistication and wit, his buildings offer a unique architectural experience, both in their outward appearance and interior effect. While strikingly original, Isozaki's architecture reflects the tenor of its times, particularly the buoyancy of the Japanese economy in the late 1960s and early 1970s, with the accompanying investment in sumptuous and extravagant architecture. It clearly expresses the disillusionment with the material and spiritual results of Japan's rapid advance into the post-industrial society.

Further, it is in accord with its place. Where else exists the combination of talent, money, mood, and values that makes such architecture possible? From a Western viewpoint one could question the Japanese values as indicated here; the priority given to beauty and meaning in architecture over convenience and functional efficiency, and expenditure on luxuries rather than necessities. Perhaps such questions are valid, but the same could be directed to the 5th-Century Greeks. It is against just such questions that Isozaki is rebelling.

In Japan, his buildings are applauded by both the clients and the profession. This is evidenced by the Fukuoka Sogo Bank (which has returned to the same architect on five occasions) and by the respect accorded by his contemporaries. In the fine arts of painting and sculpture a stance such as that adopted by Isozaki is the norm, rather than the exception. His major achievement lies in his ability to communicate his abstract theories while, at the same time, satisfactorily accommodating the functional demands of the applied art of architecture.

Village on the waterfront

An 'urban village' of 189 condominium dwelling units, designed by architects Bull Field Volkmann Stockwell, maintains and advances San Francisco's tradition of low-to-medium rise, in-city, open-market housing.

Citizens of San Francisco have long had the enviable choice of living well close to downtown. The hills—Nob, Russian, and Telegraph—which originally walled in the city were occupied early by the wealthy and have remained residential enclaves of prime value. Except for some tower building on Nob and Russian Hills and in the redevelopment area of the Golden Gateway, density has remained relatively low. Everyone's favorite image of the city includes streets of three- and four-story buildings whose rippling, bay-windowed façades provide continuity from Victorian times to the present.

For many years San Francisco has offered superior urban amenities: accessibility to a lively downtown shopping center as well as strong neighborhood shopping districts, proximity to the work habitat of the somber-suited and striving, and splendid recreational water areas with a choice of wilderness sports areas only hours away. All this plus a temperature climate have been factors in attracting moderate as well as the upper income residents.

Those whose acquaintance with San Francisco goes back for 30 or 40 years know it as a place where a surprising number of residents care about architecture. The area has maintained more architects in residential practice longer than most of the rest of the country, and they have contributed tract house and condominium styles that have been exported to the rest of the country.

Developers have naturally shared in this endeavor. Some have even actually sponsored serious architectural design. In the 1950s, Joseph Eichler was that rare developer who saw that only good architects could provide the kind of reflective design that would lift his product above the banal level of those he saw carpeting the Bay Area.

In the 1960s, another developer, Angelo Sangiacomo, came along to wave the flag for high style design, this time in the urban context. Starting in 1964 when he hired Joseph Esherick & Associates to design 144 one-bedroom units for a site on the slope of Telegraph Hill called Bay



Bay Stockton East and West, by Esherick, Homsey, Dodge & Davis and completed in 1964, apply the Telegraph Hill vernacular. Wood-framed buildings over a concrete garage contain small units with ample windows.

Stockton East & West, Sangiacomo has hired top talent.

The recently completed Telegraph Landing-a condominium complex by another developer-represents the kind of urbanity San Francisco fosters. This development is tailored to a market which is increasingly the only one in sight: professional and retired people without dependents. The architects, Bull Field Volkmann Stockwell, have bested the limitations of an irregular 2.17-acre site zoned for three different height limits, producing a project which, though densely packed, belies its actual size. A general theme of irregularity has succeeded in diminishing the scale and ensuring a graceful fit into a background context of smallscale buildings on Telegraph Hill. In fact, the hill-dwellers who keep a vigil over waterfront development have been entirely persuaded on the project's value by seeing a piece of the dreary gray foreground converted into a bright, sculptural form topped off by green roof gardens.

The faceted form has been achieved within a regular structural system, exposed at the underground garage level but hidden in the living floors above. There a series of cantilevered areas give the structure an irregular perimeter. The four buildings define a meandering interior court, a pedestrian street. The staggered building heights, 84 ft, 65 ft, and



At the foot of Telegraph Hill, nine-story apartment structures at Telegraph Landing look out over four-story double-duplex units toward a 210-degree view of the Bay. A private plaza, with controlled access, leads to apartment entrances.



The Telegraph Hill apartments, (above) by Karl Treffinger & Associates—a Sangiacomo project are also wood-framed above a concrete garage.



Northpoint, by Wurster, Bernardi & Emmons, is notable less for its stern façades (above) than for its internal garage-roof gardens.





James K.M. Cheng

Telegraph Landing, San Francisco

40 ft, plus the use of different colors for high-rise and lowrise, have further reduced a potential and undesirable monolithic effect. The irregularity of the building envelope gracefully assimilates inset windows, bay windows, solariums, angular glass areas, and balconies.

As for the units themselves, the 133 condominiums which occupy the high-rise buildings provide 19 different floor plans, offering the prospective buyer a feeling of custom design impossible in the usual linear, boxy plans.

The 50 two-story "townhouses" are stacked double in the low-rise buildings, with bedroom floors providing a buffer zone between the living floors. Outside space, either on the roof or on the ground is available to all townhouse units. According to architect John Field, this responds to buyer expectations that in San Francisco, if nowhere else, there will be a reasonable amount of indoor-outdoor living.

Condominium sales at Telegraph Landing have been slower than the sponsors must have hoped. Perhaps the proportion of large units is too high for a market that includes very few families. And the two-city-block separation between this site and the nearest existing housing has no doubt been a handicap, even though key business, shopping, and entertainment areas are within reasonable walking distances. Subsequent development on adjoining sites will probably cure that problem.

All in all Telegraph Landing deserves the approval of its prospective market. If there is any light at the end of the dark economic tunnel it should not be both the first and last of its kind. Yet, optimism is hard to come by in these times. Architects and developers in San Francisco are both caught in the bind between the environmentalists and spi-



raling land and building costs, which make the consumer the end loser and thereby diminish his numbers. But the interstices of the city where the projects on these pages were built still clearly do exist, we can, at least on paper, salute them and dream about their future. [Sally Woodbridge]

Data

Project: Telegraph Landing, San Francisco, Calif.

Architects: Bull, Field, Volkmann, Stockwell, San Francisco; John Louis Field and Henrik Bull, architects in charge; David Paoli, project director. **General contractor:** Cahill Construction Co.

Client: Sansome Street Associates; subsequently The Travelers, Real Estate Investment Dept.

Program: 189 units, 56 in low-rise "townhouse" buildings and 133 in 7-9story apartment buildings. Private central plaza; parking under entire complex—one car/unit; clubroom with kitchen; steam rooms, sauna, gym; roof garden on mid-rise buildings; commercial unit on Lombard



Solarium of a top-floor unit at Telegraph Landing (left) yields dramatic bay views. Complex interior layouts (plans opposite) include staggered living-dining spaces (below left). Roof gardens on mid-rise units (bottom) embellish view from hill. Brick-paved plaza (right) has a focal fountain. Tall wood fences between plaza and private gardens (below) are relieved by cut-outs that can hold potted plants.





John Dixon



Street (now used for sales office). Areas: activity rooms, about 3000 sq ft; commercial, about 3000 sq ft; average apartment, 1326 sq ft; total, 250,736 sq ft.

Site: 2.17 acres, nearly level, at northeast foot of Telegraph Hill; surrounded by wharves, new and rehabilitated commercial structures, and vacant parcels.

Structural system: low-rise buildings, wood frame; mid-rise buildings, cast-in-place, post-tensioned columns and slabs with non-bearing masonry walls.

Mechanical system: heating (only) from central gas-fired boiler, individual air-handling units in each apartment.

Major materials: exterior of low-rise buildings, painted stucco; exterior of mid-rise buildings, grooved concrete block, with heavy duty acrylic emulsion coating; sliding aluminum-framed windows and doors; brick plate paving in plaza; gypsum board interior surfaces.

Consultants: Royston, Hanamoto, Beck & Abey, landscape architects; L.F. Robinson & Associates, structural; Montgomery & Roberts, mechanical; A.J. Zarcone, electrical.

Cost: approximately \$10 million (construction only). **Photography:** Rob Super, except as noted.



James K.M. Cheng

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Technics: Specifications clinic

Architecture by team

Martin Martensen

'A team is an association of people sharing common goals, who are willing to cooperate, and who can communicate with each other. An architectural team exists when the prime goal is to create architecture.'

Being part of the team is an exercise in mental calisthenics, jumping from idea to idea until the most appropriate solution to the problem is reached. Being a team member is to specialize, knowing more about a particular phase of the total process and its implications to the product than anyone else knows. It is being accepted as an expert. At the same time, however, it is essential for each team member to have a general understanding and genuine concern for the total project goals.

The team provides the client with the documents necessary to communicate his needs to the construction industry, thus setting up a pathway for contract relationships. It is toward this purpose that the specifications writers are involved through their specialized understanding of the many legal documents and requirements that are acceptable to the construction industry, to assist the client in avoiding legal pitfalls.

The master specifications is the tool spec writers use to evaluate new products, new systems, and new processes. Working within the total concept of the project, they are able to assist the team in judging the quality, serviceability, and compatibility of products and systems within the limits and goals established for the project. It is their function to assist the client and management personnel of the team to organize the materials and documents within the specifications, to make them compatible with varying and changing methods of construction, with varying project management methods, construction management methods, fast track, and conventional construction methods.

The research and evaluation involved in developing our master specifications provide us with our prime tool, the starting point to work from. Our process allows us the flexibility to permit team members to make suggestions and recommendations, which if they survive our research and evaluation process, are merged into the project documents. In the process of adapting the master specifications

to project specifications, each team member puts forth his best arguments concerning his concepts of the project goals. Team interaction thus comes into play to produce the final result. The specifications writers' goal of defending our concepts and our master specifications then becomes not so much a matter of retaining the materials and products in the master specifications, but a matter of defending a process of research and evaluation, determining what is most appropriate for the project. The spec writers' contributions to the team effort are thus involved in a process of constant interaction with other team members, be they fellow employees or outside consultants, instead of being restricted to the written work towards the end of the process. There is much room for debate, disagreement, and argument concerning alternate solutions in the process of writing specifications. We frequently dispute with other team members in the process of developing the project, resulting in better solutions for the project, not a compromise.

Just as the specifications writers are relied upon to provide specific services to the project team, each team member is relied upon by the specifications writers to provide specific information to be processed into the project specifications. This interaction is a two-way street. The client, through the management personnel of the team, in consultation with his attorneys, insurance counselors, and advisors, provides the specifications writers with information to be incorporated into the "Boilerplate." The client often makes suggestions and recommendations on the type of materials and finishes to be used and manufacturers and their service facilities with which he has been most satisfied. The designers provide the specifications writers with information regarding materials, their colors, textures, forms, and shapes which are to be included in the project. The technologists provide the specifications writers with information concerning building systems and components, and the relationships of the variety of materials to each other.

It is the responsibility of the specifications writers, within the team, to take the available legal documents, amending and supplementing them to produce a legal vehicle by which the client is assisted in his working relationship with the construction industry in producing the final product. The many past project documents which were created through the team effort indicate what has worked in the past. Each project, however, differs in its requirements and requires a rethinking and reworking of the master specifications. The spec writers thus modify, edit, and revise the master specifications to fit the present conditions.

The specifications supplement the drawings and are in turn supplemented by the drawings. The designers and technologists deal with concepts graphically; we deal with concepts verbally. The project specifications neither lead the drawings, nor are they subordinate to the drawings. The specifications delineate the who, what, and how of the project and the drawings delineate the what, where, and how much of the project. It is only through intensive team effort that all areas of the project and process can be thoroughly covered.

Author: Martin Martensen is a Specifier in the Specifications Group, Caudill Rowlett Scott, Houston, Texas.

¹William W. Caudill, Architecture By Team, Pg. 69.

Courts disagree on exclusionary zoning

Bernard Tomson and Norman Coplan

Significant constitutional questions are involved in determining under what circumstances, if any, a town, through zoning, may prohibit the construction of multiple residential housing within its borders. These issues have been litigated in a number of states, but the conclusions reached have not been uniform.

The Supreme Courts of Pennsylvania and New Jersey (Appeal of Girsh, 437 Pa. 237; Southern Burlington County NAACP v. Township of Mount Laurel, 67 N.J. 151) have struck down ordinances which excluded all multiple residential construction, whereas Florida courts have upheld the validity of such exclusionary zoning provisions without any qualifications (Blank v. Town of Lake Clarke Shores, 161 So. 2d 863; Gautier v. Town of Jupiter Island, 142 So. 2d 321). In Michigan, an ordinance excluding the use of mobile homes was invalidated (Bristow v. City of Woodhaven, 35 Mich. App. 205), but on the other hand, it has been held permissible in Ohio, Connecticut, and Missouri to exclude business structures from a community where adequate commercial services are available in neighboring communities (Valley View Village, Inc. v. Proffett, 221 F. 2d 412; Cadoux v. Planning & Zoning Comm. of Town of Weston, 162 Conn. 425; McDermott v. Village of Calverton Park, 454 S.W. 2d 577).

In a recent case in New York, that state's highest court attempted to set forth guidelines under which the constitutionality of the exclusion of multi-family residential housing could be determined (Berenson v. The Town of New Castle). The town involved is a quiet and undeveloped suburban community located 35 miles north of New York City. The town had experienced a 300 percent population increase over the past 25 years and the authorities sought to preserve as much of the Town's rustic atmosphere as was legally possible, and under the zoning ordinance excluded the development of any multiple family dwellings within the boundaries of the town. A developer who planned to build a large condominium development on 50 acres challenged the validity of the zoning ordinance. The proposed development was to include public water and sanitary sewers, a 5acre lake, swimming pools, and tennis courts. The community was intended for married couples and required either

the husband or wife to be at least 50 years of age.

The New York Court of Appeals pointed out that zoning ordinances are susceptible to constitutional challenge only if clearly arbitrary and unreasonable and having no substantial relation to the public health, safety, morals, or general welfare. In setting forth the applicable criteria in determining the constitutionality of exclusionary zoning, the Court reviewed earlier decisions on this subject. In one earlier case, a zoning ordinance excluding multiple dwellings from a village in order to preserve it as a secluded quiet community of one-family homes, was held "patently unreasonable." In another decision it had been held that a zoning ordinance limiting business and apartment house use to an area adjacent to areas where such development had already occurred was valid "since a locality may adopt plans suitable to its own peculiar location and needs." In still another case, the Court ruled that a 2-acre minimum lot requirement for one-family residential use was valid because of the "isolated geographical position" of the village in question. Also, the Court had upheld a zoning ordinance which had set forth a program for phased growth.

The Court stated that in considering the validity of a zoning ordinance excluding multiple family housing as a permitted use, the general purposes which the concept of zoning seeks to serve must be considered. The Court said:

"The primary goal of a zoning ordinance must be to provide for the development of a balanced, cohesive community which will make efficient use of the town's available land . . . By balanced, we do not mean to imply that a community must maintain a certain quantitative proportion between various types of development. Clearly, such a requirement would rub against one of the basic purposes of zoning, which is to provide in an orderly fashion for actual public need for various types of residential, commercial, and industrial structures . . .

"Similarly, the town is free to set up various types of use zones. There is no requirement that each zone must contain some sort of housing balance. Our concern is not whether the zones, . . . are balanced communities, but whether the town itself, as provided for by its zoning ordinances, will be a balanced and integrated community . . .

"While it may be impermissible in an undeveloped community to prevent entirely the construction of multiple-family residences anywhere in the locality, it is perfectly acceptable to limit new construction of such buildings where such units already exist."

The Court asserted that before the validity of the zoning could be determined, it was necessary to ascertain what types of housing presently existed in the town, their quantity and quality, and whether they adequately meet the present needs of the town. Also to be determined was whether new construction was necessary to fulfill future needs and, if so, what forms new developments ought to take. As part of the determination, consideration must also be given, stated the Court, to regional needs and requirements and that "there must be a balancing of the local desire to maintain the status quo within the community and the greater public interest that regional needs be met." The Court concluded that "until the day comes when regional, rather than local, governmental units can make such determinations, the courts must assess the reasonableness of what the locality has done."

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Books

Banham's view



Ludwig Mies van der Rohe





Walter Gropius



Frank Lloyd Wright

Le Corbusier

The Age of the Masters: A Personal View of Modern Architecture by Reyner Banham. New York, 1975, Harper & Row, 169 pp., 194 illus., \$15, \$5.95 paper.

Reviewed by Leonard K. Eaton, professor of architecture, University of Michigan, Ann Arbor.

Among critics and historians of modern architecture, no one has a higher standing than Reyner Banham. For many years one of the outstanding figures on the English academic scene, he has been a prolific contributor to architectural journals, has taught in Norway, Germany, and the United States, and has made numerous television appearances on the BBC. The American publication (or rather, revision) of this volume, whose first version appeared in England in 1962, is therefore an event of substantial interest.

For Banham, the Age of the Masters is essentially the period dominated by the four men: Mies van der Rohe, Walter Gropius, Frank Lloyd Wright, and LeCorbusier. Toward these giants, he has an essential reverence which is tempered by a shrewd realism, as in his assessment of the late work of Wright. The structure of the book, however, does not revolve around the careers of the "big four." In the first chapters on theory, function, form, construction, and space and power, he sets forth his own interpretation of the development of the Modern movement, with due attention to the historical complexities which are involved. These difficulties, as we all know now, are substantial, and Banham does not underrate them. Indeed, he has unquestionably absorbed almost all of the significant critical writing about

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modern architecture in English, French, German, and Italian, during the last generation.

One of the criticisms that might be made of the book is the lack of a formal bibliography. If one had been included, it would have been enormous. It should be stressed that this is essentially an extended essay, and as the subtitle indicates, a personal view. Hence there is justification for the omission. Because of the richness of his thought, a summary of Banham's critical position is really impossible. Suffice it to say here that in this book he is primarily concerned with the aesthetic qualities of architecture. This is a consideration of great importance, since the author was a pioneer in calling attention to environmental factors as design determinants in his earlier *Well-Tempered Environment*. Structure, and the possibilities of a brave new air-conditioned world, play some part in his thinking, but aesthetic affect is primary.

What we have, then, is Banham's personal selection of those buildings done in the last two generations which he has himself *visited* and found architecturally notable. The first qualification is especially important. One of the best qualities of the book is that one feels immediately that Banham has *seen* almost everything he is writing about and that he is truly fascinated with contemporary architecture. It is, as a matter of fact, a real pleasure to read a book on modern architecture that does not discuss the Barcelona Pavilion. It isn't that Banham doesn't admire Mies; on the contrary, he gives the full treatment to the Fransworth House, the Seagram Building, Crown Hall, and the Berlin Museum. He couldn't visit the Pavilion, so he didn't write about it. More people should follow that example.

Banham's selection of important buildings has a pleasantly idiosyncratic and extremely English quality to it. There is also a great deal of leaping about in time and space. A rather little-known factory at Merlo, Argentina, of 1964 by the Italian architect Marco Zanuso is followed by Charles Eames' house in Pacific Palisades of the early 1950s. which is succeeded by Bruce Goff's Ford House in Aurora, III. This is indeed a mixed bag, and it is to Banham's enormous credit that he is able to see the virtues in all these buildings and take each on its own terms. Many of the Classics of the Modern movement are here-the Schroeder House at Utrecht, the Schocken Store at Stuttgart, and of course, the Bauhaus-but others are curiously missing, and for an American, there are some strange inclusions. For this writer the huge Park Hill housing block in Sheffield appears to be positively sinister in its scale. Further, if one is going to choose a single building to represent the late Aalto, why select the church Imatra? One could go on at great length in this vein, but this is precisely the charm of the book: it is witty, well argued, and makes one want to sit down and spend an evening talking architecture with the author.

It remains to be noted that the pictures are generally of high quality and that the typography is excellent. There are a few spelling errors, but these are inconsequential. The book is available in both paper and hardback editions, and one hopes that it will have a wide readership in both formats. Final note: Reyner Banham is moving to the U.S. to teach at the Buffalo branch of the State University of New York, and we can all be grateful.



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Now, after years of research into the strengths and weaknesses of pioneer open office systems and the requirements of modern by Alma presents Ad-Infinitum. An illuminated open plan office system that lets you start with any budget, any space, and create an office system that lets you start with any budget, any space, and create an office system that lets you start with any budget.

meets today's needs and tomorrow's requirements; an office that provides customized work space for every level of the corporate Designed by ISD, engineered by Alma Desk, and shown for the first time at NEOCON '76, Ad-Infinitum may be seen at our showrooms in Chicago, New York, and High Point. See it there. Or write for more information to Alma Desk Company, P.O. Box 2250, Dept. 51, High Point, N.C. 27261. Then create the ultimate office with Ad-Infinitum.



Showrooms: 280 Park Avenue, New York; 1140 Merchandise Mart Plaza, Chicago; Southern Furniture Exposition Building, High

Products continued ed back died back dual locks for atients in semiontrolled bed; iging top. Simmons

rvice card

1.V. support systems. Bae single examination section examination section series. Both

serve examination section series. Both single and dual lighting modules are provided, as standard, with a complete I.V. support assembly. A choice of either perimeter or U-shaped track support is available. The units include an adjustable, high-intensity examination section, patient activity light, and module for general room illumination. Center examination module uses four individually adjustable spot and flood lamps. The Miller Company. *Circle 136 on reader service card*

'Cement in A Roll' is a cement-coated fiberglass fabric that is fire-resistant and may be applied to any relatively smooth wall made of concrete, cinder block, gypsum board, tile, plaster, wood, glass, metal, or any rigid exterior or interior surface. It is manufactured in 44-in.-wide rolls and is available in several styles and many colors. Incombustible Class "A" Fire rating. Flexi-Wall Systems.

Circle 137 on reader service card

Prefinished interior paneling. Dappled undertoning on birch veneered plywood surface creates mottled pattern of Oxford paneling. Three colortones are available: Ivy, with a subtle greenish hue; Burgundy, with a hint of a deep wine-red undertone, and Heatherbrown, with an overall nut-brown appearance coupled with the look of a leather overprint. Available in standard 4'x8' size. Georgia Pacific.

Circle 138 on reader service card

Handrails. All components are a high pressure laminate pre-veneered to a high density particle board with mechanically formed gripping surfaces. Attaches continuously to the wall for user safety. It is available in a wide range of colors and woodgrains. Vanguard Corporation. *Circle 139 on reader service card*

Fire alert. Provides sprinkler supervision, smoke detection, manual alarms, fan, elevator and door control, public communications, fire department communications, background music, everyday paging, and a central control console to monitor these functions. Taped voice evacuation messages are a major feature of the system. Compatible with existing HVAC systems, each system is specifically designed for its application. To prevent failure, the entire system is electrically supervised. The Audio Corp.

reader service card



Tempo hospital group



Cement in A Roll

and a urethane core, fitted inside an extruded aluminum frame. A 4'x8' panel is said to weigh ten pounds, be totally distortion free, and unbreakable. If it becomes badly dented or scratched, it can be completely resurfaced. Glassless mirror panels have self-adhering foam mounting pads, but they can also be hung from ceilings at odd angles. Flammability characteristics for the polyurethane foam core are rated "self-extinguishing." Kamar Products, Inc. *Circle 141 on reader service card*

Uni-Cast assemblies consist of reinforced resinous concrete cast with preformed uni-truss steel framing members of required size and shape. Finish and surface design is selected by architect. Fiberglass fabric adds strength to the plastic and ties the material to the frame. Section sizes and shape can be varied to the needs of the structure. Uni Systems Corporation. *Circle 200 on reader service card*

Concealed switch pivot contains a magnetically sensitive reed switch that can be wired to set off an alarm circuit or other device when the door is opened a predetermined amount. It was developed especially for those applications where a warning is necessary when the door is opened a very slight amount. Rixson-Firemark.



Ceiling lighting and I.V. support systems



Prefinished interior paneling

Safety system for fully supervised energy, se curity, monitoring, and control applications, tem provides sophisticated electronic fire d tion, notifies fire department instantly. It fe remote sensing devices and control mec nisms. Kinney Safety Systems, Inc. *Circle 202 on reader service card*

Reversible spring hinge. Identical j regular hinges, it can be installed fr hand doors. Features include a cr friction bearing which takes later tal loads. Hinge meets building ments, and is UL tested and lir and B labeled fire doors. S. F Mfg. Corp. *Circle 203 on reader serv*

Bath hardware and acr

features two basic peri in either all brass or ir lain, in plain white or pink or blue. Each lavatory sets, 4-in shower sets and binations, and r Matching bath Brass. *Circle 204*

Products continued from page 99

On-off sprinkler automatically discharges water when it senses the heat and turns itself off when the heat subsides. Sprinkler passes all the standard sprinkler tests for Factory Mutual and Underwriters Laboratories, Grinnell Fire Protection Systems Co., Inc.

Circle 205 on reader service card

'Isowall' sandwich panels consist of two selected skins permanently bonded with a heat polymerizing adhesive to a core of EPS. The skins are stressed under heat and pressure and permanently bonded to the insulating core with a two-part epoxy. Panels are manufactured in approximate widths of 48 in. to any length. Kysor/Isowall.

Circle 206 on reader service card

Literature

Plumbing products for hospitals, nursing homes, clinics, and institutions are featured and illustrated in 56-page catalog. Included are sitz baths, wheelchair lavatories, surgeon scrub sinks, service sinks, energy water saving showerheads, and emergency standby power systems. Specifications and dimensional data are given. Kohler Co.

Circle 207 on reader service card

Patient service console systems. Technical brochures describe surface or flush-mounted and semi-recessed systems which provide telephone service, nurse call, night light, entertainment control, medical gas service connections, and many types of electrical receptacles. "Centron" Consoles are available in 24-, 28-, and 39in. sizes and numerous combinations for semiprivate and private rooms and intensive care areas. Suggested specifications, options, and other pertinent information are covered. Keene Corporation.

Circle 208 on reader service card

Clean room diffuser. Literature gives complete information on perforated supply air diffusers which are designed for non-aspirating air flow requiring minimum cleaning and/or sterilization. Charts provide data on operating room clean room air flow patterns, and suggested clean room designs. Test data provides CRD requirements for air conditioning, ventilating, and other forced air systems. Tuttle & Bailey. *Circle 209 on reader service card*.

Clinic design guide. Sixteen-page illustrated planning guide on medical/dental facilities outlines design considerations, provides floor plans, and explains various material programming options. Butler Manufacturing Company. *Circle 210 on reader service card*

Corspan. Material is said to combine the qualities of permanence of masonry with the economies of light weight. Bulletin explains how ma rial was used in construction of two medical buildings. Johns Manville. *Circle 211 on reader service card*

Medical environment control systems. LFPI (Laminar Flow Patient Isolation) system combines a physical barrier with an air barrier to isolate the patient and continually clean his environment. The system functions by the continuously repeated cycle of circulating air in a predetermined pattern and at a precise rate. The air is cooled to remove blower heat, humidified as required, filtered and then redirected to the patient area. Patient controls include nurse call (2-way communication), entrance drapery control, window drapery control, temperature, reading lamp. In addition, three 110 v outlets are provided for radio, phono, tape recorder, and other patient conveniences. Brochure describes unit, gives typical facility plans. SCI-Med Environmental Systems Inc.

Circle 212 on reader service card

Modular medical walls. Illustrated, 24-page bulletin is written as an application and planning guide for use by the architect, hospital administrator, or consulting engineer in designing medical care facilities. It gives major features as well as technical characteristics, step-by-step installation, a design guide, and typical specifications. Square D Company.

Circle 213 on reader service card [continued on page 102]





The beautiful way to cut onstruction costs

The fact that Pella Wood Folding Doors can help you save money on building materials and labor is worth thinking about in today's economy. For example . . . by using Pella folding doors as closures or partitions, you eliminate the expense of dropped headers and stub walls. And to add even more sales appeal to closets, you can build additional shelves closer to the ceiling. Your customers are pleased because they have gained extra storage space, plus the equivalent of an attractively paneled wall. Choose from genuine wood veneers (factory-finished or ready-to-finish) or vinyl. Stable wood core construction keeps panels straight and true. Use Pella Wood Folding Doors for that *extra* sales feature in the homes you build.



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Mail to: Pella Windows & Doors, Dept. **T3516**, 100 Main St., Pella, Iowa 50219 Also available throughout Canada.

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Literature continued from page 100

Sentronic series is a complete line of concealed and surface mounted closer/holders with fail safe automatic release for life/safety applications. Brochure contains wiring diagrams, conduit layout diagrams, technical data. LCN Closers.

Circle 214 on reader service card

Custom electronic alarm systems. Four-color brochure covers capabilities of Moduplex 4000, its basic and extended system features as a modular, flexible electronic security system. Mosler.

Circle 215 on reader service card

'Fire protection systems and equipment' brochure discusses methods of treating hazards by custom-designed carbon dioxide systems. Typical applications include electrical hazards, flammable liquid and gas hazards, and carbonaceous materials. Walter Kidde & Company, Inc. *Circle 216 on reader service card*

'The Security Blanket,' a management guide for security planning discusses fire detection devices and access control systems. Notifier Company.

Circle 217 on reader service card

Fire alarm and security systems. Color brochure illustrates and describes various components of Alpha/Delta Series 1000 electronic system, and discusses their application. System can begin in small increments and be expanded as needed. The Alpha 3000 series is a centralized security management center that brings all safety, security, and control functions together in one place. Its use is described in brochure, "Honeywell Can Help You Reduce Patient Care Cost." Honeywell.

Circle 218 on reader service card

Fire dampers. Brochure describes and illustrates UL classified dampers, supplies dimensional information, gives suggested specifications and installation information. United McGill Corporation.

Circle 219 on reader service card

Fire and smoke door controls. Brochure describes and illustrates electric hold open controls, fire and smoke controls, controls with integral electronic ionization detector, and life saver sliding door controls, accessories, and suggested specifications. Dor-O-Matic. *Circle 220 on reader service card*

Pneumatic distribution systems designed to meet the small cargo transportation requirement of health care facilities are covered in an eightpage catalog. Two basic system designs are described and illustrated—single tube for use in small low-traffic installations; and two-tube multiple-loop for handling the heavy loads. Catalog also features pharmaceutical distribution systems and computer-controlled systems which provide sophisticated management data while monitoring system operation. Request PDS-2508, "Hospitals Concerned with saving Valuable Staff Time." AMSCO/American Sterilizer Company.

Circle 221 on reader service card

Patient overbed luminaires. Two 4-page brochures illustrate and describe "MedicaLine" fluorescent fixtures designed for low brightness reading and general room illumination. Fixture dimensions, photometry information, and suggested specifications are included in brochures. Keene Lighting.

Circle 222 on reader service card

Electro-pneumatic door holding and releasing devices. Literature describes and illustrates, by diagram, a typical system, gives dimensions, and suggested specifications. Reading Door Closer Corp.

Circle 223 on reader service card

Fire Guard is a combination door closer and door holder release, with the option of an integral smoke detector. It features fail safe operation, positive mechanical hold-open, and pilot lamp that provides visual observation of normal operation. Brochure gives mounting details and suggested specifications. Sargent and Company.

Circle 224 on reader service card [continued on page 104]



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Circle No. 334, on Reader Service Card

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nes E. Rolfing Memorial Library, Trinity Evangelical Divinity School, Deerfield, Illinois Architect: Walter C. Carlson, Elk Grove Village, Illinois

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For assistance call your local J-M sales office or John Busch, Johns-Manville Sales Corp., Holophane Division, Greenwood Plaza, Denver, Colorado 80217. Phone 303/770-1000 ext. 2521.



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Fundamentals of Salesmanship — Learn six basic skills: 1) good sales presentation, 2) effective product presentation, 3) probing for information, 4) handling customer complaints, 5) closing the sale, 6) managing time and territory. Regular price — \$14.95

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Literature continued from page 102

'Firesafety Systems' and 'Hospital Auto-

mation.' One is an idea book to help you cope with changing codes; the other discusses compact modular control centers. Johnson Controls, Inc.

Circle 225 on reader service card

Electromechanical closer-holders. The Yale and Norton closer/holders are available with or without built-in smoke detectors. Units can be installed on any door listed for smoke or fire control. Devices can maintain hold-open at any desired angle by manually opening the door to that position. Brochure gives construction features. The Eaton Corporation. *Circle 226 on reader service card*

Building operations control center. Brochure explains the advantages of computer control centers, their application and the options available. "Emergency Communications for Life Safety" covers the following: Firefighters' Emergency Communications System, Emergency Public Alerting System, and Public Emergency Communications System. Robertshaw Controls Company.

Circle 227 on reader service card

'Fire Early Warning System.' Brochure describes UL listed system that can monitor up to 100 products of combustion detectors in five zones of 20 detectors each. Basic No. 625 master control can monitor one zone of 20 detectors. Up to four additional 20-detector zone modules may be added. An alarm condition activates alarm bell loop, alarm light at the detector, and zone lamp at the master control. Alarm Device Manufacturing Co.

Circle 228 on reader service card

Acrovyn wall covering is a vinyl/acrylic alloy sheet which has been given a Class 1 Fire Rating. It is available in a complete range of colors and includes coordinated or contrasting moldings, contact or mastic adhesive, installation tools, and complete working drawings. Illustrated literature is available from Construction Specialties.

Circle 229 on reader service card

Fire sprinkler system handbook. The all-copper life-safety concept places priority on saving lives rather than being primarily "property-oriented." The handbook has been prepared for the use of professional engineers and sprinkler system designers. It has been compiled from information supplied by testing, research, manufacturing, standards, and consulting organizations. Copper Development Association Inc. *Circle 230 on reader service card*

Hospital casework is made up of the "E" and "H" series in steel or the "P" series in plastic laminates, depending on the use factor involved. Complete color coordination is possible in custom designed wall and base units, wardrobes, lavatories, and dressers. Brochure illustrates line, gives dimensions, descriptive data, and suggested specifications. St. Charles Manufacturing Company.

Circle 231 on reader service card



Life Safety Closer/Holders with automatic release for fire and smoke barrier doors (4)



LCN CLOSERS, PRINCETON, ILLINOIS 61356

American architects in the Middle East Against a background of recession in the West, American architects have been in great demand for projects of all kinds in the oil-rich Middle East. P/A in October will review this area of opportunity for architects, builders, and manufacturers, reporting on accomplishments to date and on the current outlook for more Middle East activity.

Los Angeles architecture: The "Silvers" In recent years, a sleek, machined kind of archtecture has become more and more evident in Los Angeles and environsa high-tech style by designers who have been dubbed "Silvers" in relation to the White and Gray factions of the East Coast. Articles outlining the historic background and current activities of the Silvers will be followed by a feature presentation of the Pacific Design Center, a major new Silver landmark, which is actually blue.

High intensity discharge (HID) lighting Light sources have evolved gradually over the decades, and the latest generation of HID lamps are just now beginning to reach their full

potential for architectural use.

AinOctobel

Already familiar for street lighting and stadiums, HID is now finding its way into interior lighting, with new possibilities architects ought to know about. P/A will brief them fully.

And coming in the November P/A

A comprehensive look at an area of growing activity: restoration and recycling.

The incomparable ouch of Townsend.

You can't beat Townsend genuine hardwood plank paneling. For texture. Richness of finish. Appearance. Shaping. Grooving. Design convenience.

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Airborne

These architect-designed, pre-engineered steel buildings were cited by the Metal Building Dealers Association for 1975. **1**, Airborne Freight Terminal, Seattle, Wash. Architects: Douglas Mulvanny, Seattle, Wash. **2**, Bethlehem Church, Dover, N.J. Architects: Layer-Godsall Associates, Ridgewood, N.J. **3**, Boys' Club of Brownsville, Tex. Architects: Swanson, Hiester, Wilson & Claycomb, Brownsville, Tex. **4**, McGraw-Edison Co., Portable Appliance & Tool Group, Columbia, Mo. Architect: Ralph Broughton, Design + Inc., St. Louis, Mo. **5**, Ingersoll-Rand Co., Western Distribution Center, Tucson, Ariz. Architects: ADECO, Tucson, Ariz. **6**, Laurel St. Elementary School, Ft. Collins, Col. Architects: Robb and Brenner, Inc., Ft. Collins, Col.

LOOK WHAT'S HAPPENING IN PRE-ENGINEERED STEEL BUILDINGS.



Now more than ever, there are compelling reasons for you to consider the pre-engineered steel building.

As these award-winning designs show, its visual vocabulary has expanded dramatically. Quality is high, and there are more options to choose from. What's more, the pre-engineered steel building has become a rich source of systems and subsystems.

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For all these reasons, now is the time to look into the pre-engineered building. For low-rise construction, of course. But for more complex, medium-rise projects, as well.

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Notices

New firms

B. Robert Axton, AIA and Robert E. Foster have merged to form Axton-Foster & Associates, Architecture-Planning, 5650 Van Nuys Blvd., Van Nuys, Calif. 91401.

Dennis D. Dewulf has established Dewulf Associates, Inc. AIA/SARA, 27938 Worthington Court, St. Clair Shores, Mich. 48081. John H. Hadley, Jr., AlA has formed Hadley/Architects, 335 N. La Cienega Blvd., Los Angeles, Calif.

Nick Primiani, AIA and Conley Weaver, AIA have established **Primiani-Weaver, Architects,** One Market Plaza, San Francisco, Calif.

Glenn A. Kahley Architect, 67 S. Orchard Rd., Vineland, N.J. 08360.

Murray B. Kasman Associates Architects, 310 S. Michigan Ave., Chicago, III.

Noel S. Musial, AIA and James R. Guerra, AIA have established Musial/Guerra AIA Architects-Planners, Hersh Tower, 125 Broad St., Elizabeth, N.J.

The Yale Series 3000 Door Closer.



It can be anything an architect wants it to be.

We've made the Yale[®] Series 3000 closer as versatile and flexible as a closer can be to make a complicated job a whole lot easier for architects, specifiers and installers.

The problem: special design factors that can make it necessary to specify as many as three or four different closer series in a single building.

The Series 3000 Yale Door Closer is the solution. Need that check, power adjustment and full cover? Specify the 3500. Need a closer with a narrow cover for an entrance door? Specify the 3300. Want that check, but don't need power adjustment or a cover? Specify the economical 3000-BC.

No question about it. The Series 3000 Yale Door Closer is the most versatile closer that can be specified on a job.

For more information, contact your Yale representative. Or contact Eaton Corporation, Lock and Hardware Division, Yale Marketing Department, PO Box 25288, Charlotte, N.C. 28212. We have a 3000 series catalog we want you to have.



Security Products & Systems

Appointments

Mitchell/Giurgola Architects, Philadelphia and New York City, has named the following associate architects: Paul Broches, AIA; J. Brooke Harrington, AIA; John M. Kurtz, AIA; and Dart Sageser, AIA.

Glenwood L. Garvey has been elected president of William L. Pereira Associates, Planners, Architects, and Engineers, Los Angeles, Calif. Otto H. Kilian, AIA is new senior vice president.

S.I. Morris Associates, Houston, Tex., has elected the following associates: David R. Sears; Robert A. Sherwood; Donald Springer; and Gary W. Wilson.

Harold R. Varner, AIA has been elected principal and executive vice president of Sims-Varner & Associates, Architects, Detroit, Mich.

John S. Crane, James B. Gwin, Jr., and Allen Rice have been named partners of Golemon & Rolfe, Architects, Houston, Tex.

Edward R. Jones, Jr., AIA and Richard C. Niblack, AIA have been appointed senior vice presidents, members of the executive committee of Charles Luckman Associates, Los Angeles, Calif. Samuel M. Burnett, Jr., AIA, Richard A. McKnew, and Ronald R. Meza, AIA have been named vice presidents.

Burton W. Berger has been named a senior associate of Gruzen & Partners, New York City and Newark, N.J. Michael P. Kolk has been appointed an associate, and Howard H. Juster, AIA has joined the firm as partner and director of the Health Care Facilities Division.

Bernard Horovitz, RA has been appointed associate of The Smith, Korach, Hayet, Haynie Partnership, Miami, Fla.

Lonn LeMarr Frye and Jesse D. Horvath, AIA have been elected associates of Metz Train Olson & Youngren, Inc., Chicago. III.

Thomas L. Hand has been named a principal of Everett/Zeigel Associates, Boulder, Colo.

Albert Gregor, AIA has been appointed executive vice president and design principal of Lawrence D. White Associates, Inc., Fort Worth, Tex. James R. Jones, PE has been named vice president and engineering design principal.

[continued on page 112]

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Skirvin Tower in Oklahoma City t a hotel anymore (it isn't even rvin Tower anymore), but it is, ce again, a useful, profitable Iding.

t was completely remodeled m the ground up and from the de out.

Now, it's the 101 Park Avenue ilding, home of some of the

poshest offices in the city, and headquarters of Continental Federal Savings & Loan.

It's a beautiful, modern office building. And PPG <u>Solarban</u>® 480 <u>Twindow</u>® reflective insulating glass played an important part in the transformation.

First of all, it looks sensational. Seeing the blue Oklahoma sky and



dazzling sunsets reflected in this building, it's hard to remember the dowdy, old bricks.

But, perhaps more important, the glass is incredibly practical. Its reflective coating reduces glare and solar heat gain. And during the burning summers on the Great Plains, this is a welcome relief to the air-conditioning system.

The glass is also double glazed for insulation. So when those bitter cold snaps blow down from the north, everybody stays warm and cozy.

Not all old buildings can or should be remodeled. They shouldn't all be destroyed either. Some, like the Skirvin Tower Hotel, present a genuine architectural opportunity. Not to mention a challenge.

We think there's no better way to meet the challenge and take advantage of the opportunity remodeling offers than with PPG reflective glass.

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Circle No. 368, on Reader Service Card

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Bellevue Hospital Center's new 21 story tower in New York is equipped with the finest hospital facilities available. And there you'll find over 70,000 square yards of Sheet Rubber Flooring in use today.

Why? Because rubber flooring is homogenous, providing top-to-bottom wear. It is dimensionally stable, doesn't shrink, so it can be laid in virtually seamless sheets — thus eliminating germ-breeding cracks. And, since it's flexible, it can be coved up the wall to base height.

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New addresses

Mitchell/Giurgola Architects, 12 S. 12 St., Philadelphia, Pa. 19107. Glave Newman Anderson & Asso-

ciates, Inc., Architects and Planners, 1011 E. Main St., Richmond, Va.

Steven Winter Associates, Building Systems Consultants, 475 Park Ave. South, New York City 10016.

Clovis Heimsath Associates, Inc., River Oaks Shopping Center, 2017 W. Gray, Houston, Tex. 77019.

James Follensbee & Associates, Ltd., Architects, Planners, Engineers, 311 W. Hubbard St., Chicago, III. 60610.

Frost Associates Architects and Frost Interior Design, Inc. have opened a new office at 503 Grasslands Rd., Valhalla, N.Y. 10595.

Ezra D. Ehrenkrantz & Associates, PC, 19 W. 44 St., New York, N.Y.

Judith Kovis Stockman and Lee Manners have established Stockman & Manners Associates, Inc., interior and architectural designers, 2061 Broadway, New York City 10023.

Lewis/Wisnewski & Associates, Ltd., 605 Prince St., Alexandria, Va.

'Fanning & Howey has opened an office at 600 E. Ninth St., Michigan City, Ind., with Lee J. Brockway, AIA as principal-in-charge.

Scott O'Brien, 5051 La Jolla Blvd., San Diego, Ca. 92101.

Building materials

Major materials suppliers for buildings that are featured this month, as they were furnished to P/A by the architects.

The Pyramid Oceanfront Condominium, Ocean City, Md. (p. 64). Architects: William Morgan Architects, P.A. Carpet: Burlington Industries. Roof surfacing system: Epelastic Deck by Robson Corp. Sliding glass doors and fixed sash and vertical sliding windows: Howard Industries. Elevators: Otis Elevator. Locksets and door closers: Sargent. Butt hinges: Lawrence. Kitchen equipment: Stuart Kitchens, Inc. Sealed beam flood, incandescent surface lighting fixtures: Stonco. Fluorescent lighting: Keystone Lighting Corp. Recessed incandescent lighting: Light Caster. Interior surface incandescent lighting: Light Caster, Peerless. Electric distribution: Federal Pacific Electric Co. Water closets: Briggs Mfg. Co. Bathtubs: American Standard. Lavatories: Briggs. Air conditioning: Borg-Warner Corp., Baltimore Aircoil Co. Virginia Sheetmetal Corp (ductwork).

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Architect or Architectural Engineer: University of Petroleum & Minerals, Dhahran, Saudi Arabia. A newly established Architectural Engineering Department at the University of Petroleum & Minerals, Dhahran, Saudi Arabia, has a faculty position opening for an architect or architectural engineer with teaching and/or practical experience in architectural design. Minimum two-year renewable contract, competitive tax free salaries plus housing, transportation to and from Dhahran each two-year tour with annual two months' paid vacation plus other allowances and benefits in policy. Apply immediately with complete resume indicating marital status, home and office addresses and telephone numbers to: Dean of Faculty & Personnel Affairs, University of Petroleum & Minerals, Dhahran, Saudi Arabia.

Architect or Civil Engineer: U.S. firm has position available in Central Africa. Job consists of architectural and construction supervision responsibilities on renovation and new structures. Ten years minimum experience required; must speak French. Salary commensurate with experience and abilities. 18 month project minimum; housing provided. Please send resume to P.O. Box 5551, Baltimore, Maryland 21204.

Dean: The University of Arkansas School

of Architecture Dean's search has been extended. Applicants must possess professional registration, be experienced in practice, teaching and administration, and hold a Master's degree in architecture or a related discipline or have a reputation based on unique qualifications. Salary is negotiable. The School has 300 students and 18 full-time faculty. It offers an accredited B. Arch degree and is in its first year of a B. Landscape Architecture program. Master's degree programs in Community Planning and in Architecure are planned. The appointment will be made effective July 1, 1977. Applications will be received until November 1, 1976 with selection to be made in early 1977. Interested candidates may send resumes and references to the Dean Search Committee, School of Architecture, 209 Vol Walker, University of Arkansas, Fayetteville, AR 72701.

Department Head: The Department of Architecture at Carnegie-Mellon University is seeking candidates for the position of Head. The position involves administration, teaching, and curriculum development. The Department offers both undergraduate and graduate professional degree programs. It also offers an interdisciplinary master's degree program and a Ph.D. program which emphasize research. The Department is part of the College of Fine Arts in a private university known for its professional education in the arts, management, engineering and science. Carnegie-Mellon University is an equal opportunity/affirmative action employer. Resumes should be sent to Charles Eastman, Chairman Search Committee, Department of Architecture, Carnegie-Mellon University, Schenley Park, Pittsburgh, PA 15213.

Director: School of Architecture, University of Waterloo, beginning July 1, 1977, normally for a three year term. The School offers a three year pre-architectural degree programme and a subsequent two year professional B.Arch. programme to approximately 250 students. The School is in the Faculty of Environmental Studies, with a School of Urban and Regional Planning, a Department of Geography, and a Department of Man-Environment Studies. Applications close on November 15, 1976. For further information or to apply with resume, write to: Peter C. Brother, Executive Assistant to the Dean, Faculty of Environmental Studies, University of Waterloo, Waterloo, Ontario, N2L 3G1.

Electrical Engineer: Immediate opening for Project Design Engineer to accept complete responsibility for design of electrical systems for major building projects, industrial and power. Potential for Chief Engineer. Daverman Associates, Inc., Architects/ Engineers, 200 Monroe Avenue N.W., Grand Rapids, Michigan 49503 – 616/451-3525. An equal opportunity employer, M/F.

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Faculty: Leading career education center has immediate opening for faculty in AIAapproved architectural technology program Baccalaureate degree in architectural and office experience desirable. Curriculum in cludes drafting, graphics, history, working drawings, design, engineering, estimating specifications. Send resume to: Dr. Eleand Bushee, Associate Dean for Academic Affairs, School of Technical Careers, Southern Illinois University at Carbondale 62901. An equal opportunity employer.

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Head: School of Architecture—Oklahoma State University. Nominations and applications are sought from architectural educaand practicing architects interested in providing educational leadership to approimately fifteen faculty members and threehundred students. Applicants should subcomplete resumes with references, and nominations should include complete addresses. Closing date is October 31, 19 Send inquiries and materials to Professor Alan W. Brunken, School of Architecture, Oklahoma State University, Stillwater, Oklahoma 74074. The University is an equipoper.

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Richard I. Morris, W.R. Grace & Company and President, Producers' Council and General Chairman of the BUILDING & CONSTRUCTION EXPOSITION & **CONFERENCE** Planning Committee.

Elliot L. Richardson, U.S. Secretary of Commerce, whose long-standing advocacy of the private enterprise system is well known in the business community will speak for Government.





Dr. Michael Tenenbaum, Pres., Inlaid Steel Company, will discuss industry's role as the key influence on our national economy now and in the future.

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Our energy dilemma is far from being resolved and usage vs conservation will continue to be one of the construction industry's hottest buttons. In this ENERGY KEYNOTE session, Dr. Robert C. Seamans, Jr., Administrator of the U.S. Energy Research and Development Administration (ERDA) provides an overview of where we stand today and what we can expect in the years ahead.

Special Note: This Energy Keynote session will be preceded by a Continental Breakfast - complimentary for all conference registrants at McCormick Place from 8:00 - 9:00 A.M.

THURSDAY, NOV. 18, 9:00-10:45 A.M.

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Today's building owner is a new breed. He is more alert to new construction techniques . . . more knowledgeable about produc more conscious of his building's design, construction management, le needs, energy considerations and life-cycle costing. Understanding new breed of owner makes it easier for the architect, engineer an tractor to design professionally and to respond effectively to his needs.

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Learn about new sources of money and how to tap them. This session identifies the do's and don'ts in creating for-sale and t

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NEW PROFIT IN OLD BUILDINGS Making the Decision to Remodel

Deciding between modernizing an old building and staying put or to a new building has many ramifications—structural considerations borhood, design specifications, energy consumption, plumbing, facilities, financial performance, and many, many others. Knowing t and cons makes it much easier to arrive at a logical decision. In t tensively illustrated session, experienced practitioners review th architects, engineers, designers and others must know when talking owners.

THE INTERNATIONAL MARKET: Its Profit Potentials & Pitfa

Discussions on the pros and cons of overseas construction-includi available from the U.S. government, and problems common to this marketplace-lead to an analysis of whether the profit is worth th involved.

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THURSDAY, NOV. 18, 1:30-3:15 P.M.

THE COMMERCIAL MARKET — PART 2 The Investors' Viewpoint

ey is construction's turnkey and, contrary to popular belief, more of it vailable now than at any time in recent history. However, underwriting tices today are more rigid than ever before and require documented ence as to a building's financial performance. In order to promote and sell ilding project, it is vital that every member of the Building Team underd what this evidence must be; how it is assembled and presented. Highed by an outstanding case history, this session features concise, layman's uage discussions by a lender, an appraiser and an accountant.

THE RESIDENTIAL MARKET — PART 2 **Coping With Restraints**

es . . . regulations . . . inspection . . . environmental impact . . . nowvth policies . . . are among a veritable laundry-list of restraints on new dential developments as acreage for them rapidly diminishes. In this sesan entrepreneur with vast experience in meeting these obstacles head-on s a panel of experts on how to overcome them.

NEW PROFIT IN OLD BUILDINGS Recycling: The Hottest Game in Town

re's a new public understanding of the value of old buildings in preserving character of our cities and towns. And, there's growing evidence that cling sold buildings makes a great deal of sense. One of the pioneer litects in finding new uses for old buildings leads a discussion on how the goes together, how the design problems differ from new work, and the sual and sometimes functation construction problems that arise. sual and sometimes frustrating construction problems that arise.

MARKETING YOUR SERVICES . . . PROFESSIONALLY

sidering the high cost of doing business today and rapid changes in the ketplace, few architects, engineers, designers, contractors or builders remain solvent very long by just waiting for building projects to happen. orrow's successful practitioners must be able to professionally promote r services and effectively sell themselves. In some instances, they must ally assist in making projects happen. In this session, successful intry principals provide first hand reports on their techniques.

FRIDAY, NOV. 19, 9:00-11:30 A.M.

PERFORMANCE & PROFITS IN ENERGY CONSERVATION

Energy conservation has an enormous potential—immediate and long-range—as a mar-ket for all parts of the building industry. Potentially, it is the biggest oppertunity in the construction industry for design professionals, developers, product manufacturers and building owners

In this session, experts in the energy-efficient design of non-residential, residential and recycled older buildings describe the designs properties to achieve energy efficiency.

THE COMMERCIAL MARKET — PART 3 Sensible Money-Saving Techniques

Cost cutting vs maintaining quality vs building faster vs life cycle costing is a constant challenge to every commercial building owner/architect/engineer/designer/contractor. Knowing how to meet this challenge is essential to designing and building profitably in today's marketplace. In this fact-filled session, long-time practitioners share their expertice. their expertise.

THE RESIDENTIAL MARKET — PART 3 Modernization: The New Market Boom

Home remodeling—from rec room to roof, kitchen to carport—is a burgeoning multi-billion dollar market. Knowing how-much-is-being-spent-for-what, by both pro-fessional contractors and do-it-yourselfers, is a boon to distributors, suppliers, manu-facturers—in fact, anyone interested in profiting from home modernization. In this session, successful remodeling contractors reveal how they have refined the art

PUBLIC BUILDINGS Getting Your Piece of the Action

Public project bidding methods and procurement procedures are changing rapidly. Staying abreast of these changes, knowing how to go after public building contracts and learning how to deal with the government client—federal, state and local—at all phases of the commission, particularly under the new ground rules, is essential to success in this highly profitable field. In this session, practitioners on both sides share their views and expertise.

MAKING THINGS HAPPEN IN YOUR HOME TOWN

Eradication of urban blight is essential to reversing the economic and structural decay of our cities, and case histories of how this has been accomplished are numerous. In this session representatives from four cities of varying size briefly present their own. and highly successful . . . case histories.



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