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Westinghouse Molecular Electronics Laboratory, Elkridge, Md. Architect: Vincent Kling, FAIA, Philadelphia.

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P/A's Art Director yields to the current fascination with Pop Art in this memorialization of the new school environment, featured in this issue.

Our readers' comments on the architectural scene.

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This month's quote is from the President's State of the Union Message.

The old school bell is still with us. Shown here is a view into the cupola of the Gordon School; the bell, more than a touch of the picturesque, is used to mark class changes. (Photo: William Gerold.)

P/A's Editor comments on the President's State of the Union Message.

A presentation that examines the spaces in five new schools and their arrangement.

Pyramidal roofs over the major interior spaces of the Gordon School give it the appearance of a village. W.D. WARNER, ARCHITECT.

The General George S. Patton, Jr., Elementary School, which won an Award in the 10th P/A Design Awards Program, was commended by the jury for its "sense of enclosure." WALLACE HOLM & ASSOCIATES, ARCHITECTS.

The treatment of the rooms and corridors marks a break with precedent in the Skinner Road Elementary School. WILLIAM MILETO, ARCHITECT.

Bay Window, Skinner Road Elementary School.

To accommodate the program, the architects provided buildings separated by
164 LOFT PLAN HUMANIZED: A variation of the loft plan results in an informal layout composed of several buildings, pierced by interior light courts, arranged around two major courts. REID, ROCKWELL, BANWELL & TARTIS, ARCHITECTS.

168 CLASSICAL FORM FOR COMMUNICATIONS CENTER: As the focal element of an eventual three-building complex, Pei’s School of Journalism is a forceful architectural statement in the classical idiom. I.M. PEI & ASSOCIATES and KING & KING, ASSOCIATED ARCHITECTS.

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Harold J. Rosen discusses the treating of clayey soils with lime, a technique that has now been adapted for stabilization of building foundations.

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Architecture without Architects

Dear Editor: The significance of the Museum of Modern Art exhibit "Architecture without Architects" (Editorial, December 1964 P/A) seems to me to lie in the fact that it is one of the manifestations that could help to reorient both the public and the architect from presently accepted concepts of architecture of technocratic eclecticism toward wider understanding of architecture as a discipline concerned with urban form. I had the audacity to call it "urbatecture," and defined its realm as the creation of an environmental conception of urban habitat—not in terms of separate and competing buildings, but in terms of harmonious scope, whether landscape, seascape, or aircscape.

This reorientation is desperately needed, since the acclaimed arbiters of today's modern architecture, the "great" architectural practitioners, whether collaborative or individual, seem unaware of what architecture should be about. Mr. Rudofsky sees their practice as a "narrow world of official and commercial architecture" conceived in the name of "business and prestige"—quite true—but even those "masters" who aspire to be motivated by "true causes" of architecture go about creating their edifices as though they were designing some super "Barcelona Chairs." They do so in the name of the cult of a single building for a specific occupancy—a form for a function—prima donna-type, large-scale detail, so to say, which claims to be oriented toward the "industrial process" but actually is craft-derived form masquerading as modern technology.

"Architecture without Architects" (unfortunately so named because there always is an architect, whether single or collective, sophisticated or primitive, known or unknown) does not confuse the public but perhaps removes the wool that has been pulled over our eyes by those who are confused as to what architecture must be about in the context of today and tomorrow.

Will architecture be orderly, all-embracing forms of physical environment based on the eternal needs of man, wisely making use of modern technology yet to come; will it preserve natural heritage and not abuse the face of the earth; will it transcend the utilitarian purpose of its edifices and become timeless; will it be the highest art form; will the spirit enter it; will it become a way of life; or will it perpetrate the borax sterility of its edifices and become timeless; will it be the highest art form; will the spirit enter it; will it become a way of life; or will it perpetrate the borax sterility of Park Avenue edifices, the gluttony of Los Angeles freeways, the deadness of Levittown?

I think that is what "Architecture without Architects" is all about.

J. Lubitz-NY

Sullivan's Dooly Block: Some Words Out of the Past

Dear Editor: Regarding the demolition of Louis Sullivan's Dooly block in Salt Lake City (December 1964 P/A), may I pass along these comments from 1907 by Montgomery Schuyler, the great architectural critic, made in 1907:

"... this is a sober and discreet performance, very exemplary in a place where monotony is by no means the besetting sin of the local designer ..."

"It asserts itself as unmistakably the work of an architectural artist, by the fenestration, the disposition in tiers of stories, the projection of the piers, sufficient though slight, the punctuation given to the crowning member by the triplets over the large arches and the projection of the roof beams. The author..."
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would hardly do it now, I suppose, with the new lights he has since seen, and the courage to which they have emboldened him. But Salt Lake City has reason to be grateful that he did it then.

Apparently, Salt Lake City was not grateful for the Dooly block, and neither held him. But Salt Lake City has the new lights he has since seen, and I suppose, will hardly do it now, I think.

Dear Editor: A paper on Mayan Slnnr was its chapter of the AI A. I have read other articles concerning several of the projects individually and often found myself floundering in a sea of words which the author had invented yet failed to define or explain. Therefore, I firmly believe a laconic comparison of this nature is truly of more importance than the sometimes meaningless expounding of a person with a personal vocabulary.

May I take this opportunity to compliment Associate Editor Ellen Perry on her well-prepared discussion.

DONALD L. HOFFMANN
Kansas City, Mo.

Virtuoso Performance

Dear Editor: The discussion on possible, and, of course, plausible urban configurations (OCTOBER 1964 P/A) was excellent because the information compiled was concise and not reiterative or circumlocutory.

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FEBRUARY 1965 P/A

Forrest Wilson plays his scholarship on a violin.

DONELI IRVINE
New York, N.Y.

Makes Case for Conciseness

Dear Editor: The discussion on possible, and, of course, plausible urban configurations (OCTOBER 1964 P/A) was excellent because the information compiled was concise and not reiterative or circumlocutory.

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May I take this opportunity to compliment Associate Editor Ellen Perry on her well-prepared discussion.

K E N N E T H S. N A K A R A
Los Angeles, Calif.

Finds Scholarly Myopia in Review of Sullivan Book

Dear Editor: It is the scholar's virtue to focus on clearly delimited fields of investigation; the defect of this virtue is his frequent difficulty in adjusting his focus to a new perspective. I believe it is important to protect against this scholarly myopia whenever it shows up in a book review as an inability to report a book's purpose correctly, before judging its success or failure (in attaining some other purpose, more to the reviewer's taste?)

In the case of Professor Grant Man­son's review of The Testament of Stone (OCTOBER 1964 P/A), I will not quarrel over his evaluation of the book, such as it was; but I do object to his failure to give the reader any idea of what I, as the book's editor, actually set out to do.

By an insistent exercise of that literal-mindedness which artists like Sullivan (and Wright) always found so stultifying, no doubt one can argue, as Professor Manson does, that my selection of writings by Sullivan on social and philosophical themes is mistitled, since it does not focus directly on the art of building. Yet a testament is any written witness to important truths, addressed to later generations; Sullivan's testament, as he said repeatedly, derived from his attempt to apply to society lessons he had learned through handling the builder's stone and steel. About half the book deals explicitly with architecture in relation to American democracy, and vice versa.

It is true that my selection does not compete with the many studies of Sulli­van's achievement as an architect, from Schuyler through Morrison to Condit. It is also true that Sullivan was insistent that architects should think in terms of their social role in its widest sense, and that society should consider what its buildings say about its inner character. These topics are what The Testament of Stone is mainly about, and it is disheart­ening that an architectural historian, and
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three-dimensional view and the movement through its elements. When the camera tries to supplant the living experience, we must hold our breath.

The true answer in this instance, then, (and the reason that I support your position) is that P/A has demonstrated a respect and an understanding and has as a general rule shown the architecture on its pages to best advantage. This should be no call for censorship, but rather a mutual understanding of the concept and intent of the architecture.

Let this then be an extension of the ancient saying that the doctor buries his mistake while the architect can only plant ivy ... or use a photographer of consummate skill and one possessed of a portable philodendron, several gracefully leaning palm trees, and a collection of flexible lighting units.

BAILEY M. CADMAN
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First National Bank Building Plans Unveiled

CHICAGO, ILL. Plans were announced last month for an 800' office building that will also be a distinctive headquarters for the First National Bank of Chicago. When completed at an estimated cost of $60 million, it will reputedly be the tallest building outside Manhattan. The sweeping curve of its steel and glass walls give it a 55,000-sq-ft base, which tapers to a 29,000-sq-ft tower. In all, its 60 stories will total 2,000,000 sq ft. The larger area at the base is needed by the bank to house its savings department, which (with deposits of about $800 million) is said to be the world's largest commercial savings bank operation under a single roof. Present plans call for the bank to occupy the lower half of the building, with the remaining space to be available for rental. Instead of a single central elevator core, the building will have twin cores at opposite sides. Slightly reminiscent of William Zeckendorf's rejected proposal by I. M. Pei for New York's World Trade Center, the building will rise at the geographical center of the Loop, on a site now partially occupied by the Morrison Hotel. With the new Brunswick Federal Civic Center and Inland Steel Buildings, the bank building gives the Loop a concentrated high-rise silhouette that lower Manhattan might envy. Architects are C. F. Murphy Associates and the Perkins & Will Partnership.

Place Victoria Nears Halfway Mark

MONTREAL, QUEBEC, CANADA Almost completed in the heart of downtown Montreal is the first of two twin 47-story office towers, which, among other tenants, will house the Montreal and Canadian Stock Exchanges. Designed by Pier Luigi Nervi and Luigi Moretti, the complex will be known as Place Victoria, (for original design, see p. 63, FEBRUARY 1962 P/A). When both towers are completed, at an estimated cost of $45 million, they will provide 2 million sq ft of rentable space. According to its sponsors, the first tower (and, eventually, its twin) will be the tallest—at a height of 624'—reinforced concrete office building in the world. Its concrete corner columns are clad with a precast reinforced concrete shell to keep them from expanding and contracting with Montreal's extreme temperature variations. These columns form triangles, roughly 14' a side at street level, tapering to about half that size at the top. The structural framing system consists of a central spine made up of two perpendicular shear walls, running the full height of the building. At each of the three mechanical floors (fifth, nineteenth, and thirty-second), the shear walls are extended by horizontal frames of reinforced concrete, which are as thick as the floor level and are cast monolithically with the four large corner columns. This framing carries all the horizontal wind and earthquake forces. In addition, vertical loads are carried by two additional peripheral columns on each face of the building. The column-free interiors are planned on a 4'-8" module. Bronze-toned aluminum and glass curtain walls form the façade. Construction of the second tower is scheduled to get under way following the Montreal Expo '67. Associated with Nervi and Moretti on the project are Greenspoon, Freedlander & Dunne, Montreal architects; Jacques M. Morin is architectural consultant.

Geddes to Princeton

PRINCETON, N.J. Robert Geddes, partner in the Philadelphia firm of Geddes, Brecher, Qualls, Cunningham, has been named Dean of the School of Architecture at Princeton University. A 1950 Graduate of the Harvard Graduate School of Design, Geddes has been on the faculty of the University of Pennsylvania's School of Fine Arts since 1951, and has also
been Chairman of the Philadelphia Board of Design for Center City Redevelopment and a member of the AIA National Committee on Urban Design. His firm has been honored on numerous occasions: Gold Medals from the Philadelphia Chapter, AIA, in 1958 and 1963; First Design Award, in the fifth annual P/A Design Awards Program, for the Public Housing Project in Chester, Pa. (see pp. 82-83, JANUARY 1958 P/A); First Honor Award in the 1960 AIA Honor Awards for the Moore School of Electrical Engineering at the University of Pennsylvania.

After 41 years as a Philadelphian, Geddes leaves for his post as Dean this fall with high hopes. "Probably each generation has to rediscover for itself roots of architecture, the kind of functionalism that is our reality," he remarks. "I hope to improve the connections between architecture and science and technology on the one hand, and the humanities and social sciences on the other; to make a continuity of architecture and urban design; and to make of architecture a more humane social art."

How Geddes works toward this end is shown on pp. 210-213 (in this month's P/A Observer), where his firm's Science Center for Philadelphia's University City is discussed. Two of his more recent projects will be analyzed in the April 1965 P/A: a mental hospital study done under his guidance by second-and third-year students at the University of Pennsylvania; and a Residence Hall Group, designed by Geddes' firm, to be built at the University of Delaware. In both these latter cases, Geddes collaborated with New Jersey psychiatrist Dr. Humphry Osmond.

Among the 150 guests who watched P/A Editor Ian Rowan present the awards were representatives of 14 of the 16 architectural firms honored, including Pietro Belluschi; Kenneth DeMay, Hideo Sasaki, and Stuart O. Dawson (Sasaki, Dawson, DeMay Associates, Inc.); and Lloyd Kent (Kent/Cruise and Associates), who were architects and landscape architects for the First Design Award winner, Stage II of Housing Complex for the University of Rhode Island, Kingston, R.I. Also attending were Dr. Walter Gropius, Benjamin Thompson, Joseph Maybank III, Allan Chapman and Thomas Green of the Architects Collaborative, Inc., designer of the award-winning Bennington Regional High School, Bennington, Vt. The winner who traveled the farthest was Fred Bassetti of Fred Bassetti & Co., who came from Seattle to receive his Citation for the design of the Ridgeway Dormitories, Phase III, Western Washington State College, Bellingham, Wash. Among those present from the Boston area were Edward Logue and David Crane of the Boston Redevelopment Authority and Jose Luis Sert, Dean of the Graduate School of Design at Harvard.

Addressing the luncheon audience, Philip H. Hubbard, President of Reinhold Publishing Corporation, quoted Ada Louise Huxtable, architectural critic of The New York Times, as having called the P/A Design Awards Program an architectural crystal ball and as having stated, furthermore, that "The magazine's January announcement of award-winning projects has proved, for the last dozen years, to be an almost uncanny forecast of trends, styles and emerging personalities at the top level of architectural design." The Design Awards Jury Chairman, Serge Chermayeff, explained that the jury, in granting awards, had been looking for "viable, living architecture instead of frozen monuments." Philip H. Hubbard, Jr., Associate Publisher of P/A, welcomed the guests and thanked the jury for its work.

In an informal seminar following lunch, Kenneth DeMay presented his firm's First Design Award winning dormitories for Rhode Island University; Dean Joseph Passoneau of Washington University's
School of Architecture offered a critique of the design. Robert Lee Browne (Gassner/Nathan/Browne) explained the group's design of a Citation-winning office building for the State of Tennessee to be built in Memphis, and Boston consulting engineer, William J. LeMessurier, gave the critique. Finally, Benjamin Thompson talked about The Architects Collaborative's work on the Bennington Regional High School, which was followed by a critique by Richard D. Butterfield, Butterfield & Associates, Farmington, Connecticut.

Hi--jinks at Penn

PHILADELPHIA, PA. Today's youth, which Look magazine with partial insight calls the twisted generation finds a Cause around every corner. Recently, at the University of Pennsylvania, which like most major universities is in the midst of an extensive building program, architecture was a Cause. Sparked by the removal of a dying tree, several hundred sign-swinging students protested the planned construction of a fine arts building on an open area of the campus at 34th and Walnut Streets. Although plans for the building had been public knowledge for almost two years, the students' ire was aroused by several factors: the proposed removal of 13 trees to make way for the building; by the plans themselves, which 76 student members of the Graduate School of Fine Arts, in a letter to the student paper, called "utterly undistinguished architecture"; and by the choice of architects (Sydney Martin of Martin, Stewart, Noble & Class, instead of Louis Kahn of the Fine Arts faculty; Martin is a Trustee of the University). Part of the up roar arose of course, as a result of youthful hi-jinks. But whatever the issues at Penn, they were further muddied because the building, which will be adjacent to the Furness Building (the former University library, a great, buttressed, rose brick Victorian monstrosity, a sad site for any respectable building) is being financed by the General State Authority (GSA). The GSA, which selected the architect, is handling construction, and when the building is completed will lease it to the University. Both the

University and the architects, when asked for statements by P/A, refused to comment on the controversy (other than to say that the students were hot headed) and referred questions to the GSA. Construction is scheduled to begin about March.

Obviously, the building proposal is not being judged on aesthetic grounds—and perhaps not entirely on rational ones. For what urban educational institution can afford to spurn the feeling of serenity and temporary calm engendered by 13 trees on a bustling campus?

Cruciform Crucible for Learning

BUFFALO, N.Y. As part of the planned expansion of the State University of New York College at Buffalo, the Perkins & Will Partnership has designed a lecture hall center that is formed essentially like a cross formée. The form came naturally out of the requirement that the center contain 11 lecture halls of varying sizes, seven of these to be larger with stepped seating, and four smaller with flat floors. Each hall is to have rear screen projection and preparation areas, arranged so that four projection areas could be set up in a 10-minute class break. Access to both lecture halls and projection areas is to be separate but direct. Since the Center is to stress visual aids, room was needed for a darkroom and television studios. Dimensions of the lecture halls are defined by optimum horizontal and vertical viewing angles and maximum and minimum viewing distances worked out by research at Rensselaer Polytechnic Institute.

By placing four large lecture rooms on the first floor, with exhibition gallery space in an open control area, Perkins & Will formed the points of the cross, which gives the building its shape. The convex backs of the halls are the cross's arms. Projection rooms are on the mezzanine level at the periphery of the cross's center. On the second floor are seven more lecture halls, surrounding a student commons, with four small halls situated over the largest of the first-floor halls. In the larger halls, with their stepped seating, one can enter the rear rows of seats directly from the vertical, free-standing stairwells, and the front seats from the building's central areas. Workrooms and studios are in the basement.

The exterior of the building expresses its interior spaces. Because most of the campus's existing buildings have brick facing, the architects used a clinker brick with a weathered joint for the façade. Lobbies have gray glass panels, providing light for the heart of the building and articulating the lobbies without detracting from the building's essentially cruciform shape.

Tunnel in the Sky

NEW YORK, N.Y. As controversy and politics threaten to swamp plans for expressways to carry arterial traffic across Manhattan Island, a New York architect has been thinking about what might be considered a compromise solution. The architect, Maurice W. Kley, who once worked with Le Corbusier, is not sure just how...
to clear up Manhattan’s traffic woes, but he thinks his plan is feasible. He proposes enclosed elevated roadways supported every 300’ to 400’ by pylons. These pylons would raise the elevated roadways supported woes, but he thinks his plan is off a good deal of the noise mammoth airborne tube might be needed to give it a that only every fourth lot would be simple enough so its structure, Kley believes, enough to clear most existing buildings in many areas; and its structure, Kley believes, would be simple enough so that only every fourth lot road from 75’ to 200’, high enough to clear most existing buildings in many areas; and its structure, Kley believes, would be simple enough so that only every fourth lot would be needed to give it a land base. Although such a mammoth airborne tube might blight the skyline much as elevated tracks do, it could funnel off a good deal of the noise and fumes of traffic. Kley believes he could filter all the air through gigantic charcoal filters at a cost of about $50,000 per lane per mile. And he also believes that some of the blight of an elevated road would be eliminated by making his high enough to let lots of sunlight and air flow under it. Kley readily admits that Corbu had the idea of such sky tunnels first (his plans for Algiers in the 30’s showed roadways crossing the tops of tall buildings); but he stresses the fact that his plan is an architectural tactic, which, if given a chance, might get traffic out of sight if not out of mind.

Poles Win Bay of Pigs Memorial Competition

HAVANA, CUBA Although the Bay of Pigs “invasion” was less an invasion than a trespass at which the neighborhood kids were caught, the Cuban government has tried to make its people believe that, in slapping the trespassers, Castro’s forces could be compared to the Greeks turning back the hordes of Persia at Marathon. Hardly had the dust settled over the Bay of Pigs when Castro, among other gestures, called for an inter-national competition to design a memorial to mark the site. The winning entry was the work of a Polish group—two architectural students, two Warsaw architects, and an engineer. Their solution was elemental. Castro wanted the site marked by a museum and a “victory” memorial. To preserve the battlefield, the designers suggested the museum be a subterranean structure in the form of a slit trench with varied interior spaces for exhibits. The memorial consists of five massive reinforced concrete forms lined up in the bay facing the museum, slanting toward the land as if moving out of the water. These represent the five tanks that landed at Playa Giron. Writing P/A about the competition, Julian E. Kulski, visiting professor of urban planning and architecture at the University of Notre Dame, said: “The result is strong, crude, and unsophisticated. Although attempting abstract qualities, the end result is crudely realistic. There is little subtlety about it.” He believes that “to make a genuine critical architectural appraisal of the winning entry calls attention to an important fact: the level of architectural and artistic achievement in a non-affluent, non-individual-oriented society where the artist has only a limited field for the expression of his talents. This particular competition illustrates the difficulty today’s architect has in finding a meaningful form for expressing our complex, fast-moving life.”

Yamasaki Opens in Minneapolis

MINNEAPOLIS, MINN. Long abuilding, Minoru Yamasaki’s design for Northwestern National Life Insurance Company’s headquarters was finally opened for business last month. Located in the heart of a 17- acre urban renewal area in downtown Minneapolis, the building provides 220,000 sq ft of space (80 per cent of it usable) in its six stories at a reported cost of $26 per sq ft. Its exterior arches are formed by 63 columns faced with white quartz concrete. Between the columns on sides and back are Verde Antique marble panels. “The buildings necessary for our society should not be objects to awe and impress us,” states Yamasaki, “but should be part of an environment to enhance our way of life.” In the lobby is a 14’x46’ sculpture, “Sunlit Straw”; sculptor Harry Bertoia, shown here peering through it, spent a year forming the maze of brass-coated welded steel rods. It connotes the life and growth of a field of grain.

A Chapel in the Garden

LOS ANGELES, CALIF. Spiritual renewal is the aim of this small chapel, which was designed for the grounds of the Salvation Army’s Booth Memorial Hospital in Los Angeles. In it will gather the some 125 unwed, pregnant girls from all social, economic, and religious groups, whom the hospital harbors during the last two or three months of their pregnancy. Designed by Coate & McLane, the chapel is a priority project of the hospital’s director; she realized that the existing chapel is too small (with space for only about 85 persons) and that its location, a small room in one of the hospital’s old original buildings, hardly provides a proper atmosphere for spiritual rehabilitation. The new chapel, to be built as soon as sufficient funds are raised from private donors, will be set in a garden atmosphere, surrounded by a high hedge. The architects have wisely chosen wood for much of the interior and exterior, giving the structure a chance to generate the warmth which the institutional type buildings of the hospital do not. Although small in size (1700 sq
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the interior is spacious: 24' wide, 72' long, and 35' at the highest ceiling point.

Twenty-two Douglas fir "bents" form a double row of columns around the exterior. Between these columns, on the sides of the building, will be solid panels of Western red cedar, at the ends of the building panes of thick tinted glass, possibly amber colored. Floor and exterior podium on which the building rests will be red brick. Estimated cost is between $60,000 and $70,000.

On the Good Ship Lollypop

HOUSTON, TEXAS. The problem of providing Houston with an intercontinental jet airport that will initially service 35 jet aircraft daily and ultimately 85-100, with facilities for supersonic jets, was solved by Houston architects Goleman & Rolfe and George Pierce-Abel B. Pierce. They have proposed a unit terminal concept, with individual units sprouting lolly-shaped plane stations, much like the solution found for the Newark airport (p. 45, January 1965 P/A). Although each terminal unit will have 20 plane gate positions (five for each lollypop), one of the first two terminals built will have only 15, leaving room for the addition of five more once passenger traffic warrants it. Terminal facilities will be on the first two floors of each unit and parking areas on the third and fourth, each upper floor holding 400 cars. As designed, the terminal area will be an oasis in a bare and level desert of runways. Access roadways will tunnel under runways and taxi ramps, emerging at the terminals.

Papal Podium

BOMBAY, INDIA When Pope Paul VI visited Bombay early this winter to attend the XXXVIII International Eucharistic Congress, he said Mass on the main altar shown here. Designed by Suraj P. Subherwal, Bombay architect, the altar rose from the center of the 1200-acre Oval Maidan, the venue of the Congress. The altar and its soaring canopy stand on a four-tier wooden podium, which covers 25,000 sq ft. The canopy was constructed of stressed skin plywood panels.

Fountains by Callery

NEW YORK, N. Y. Mary Callery, whose fountain graced the area in front of Edward Durell Stone's U.S. Pavilion at the Brussels World Fair, is exhibiting her latest creations this month in Manhattan's Knoedler Gallery. She has put together working models of what could become large-scale fountains. Standing on bases about 3' high, the brass models, which are fully mechanized, spout and gurgle with abandon. Water recirculates, and even as small-scale models, they could provide wonderfully decorative highlights for lobbies or foyers.

Instant Renewal

NEW BRUNSWICK, N.J. A half-block long row of store-fronts in downtown New Brunswick has become a colorful abstract mural. What makes the transformation most impressive is that, before it took place, the stores were the charred relics of a severe fire. Realizing that the buildings would stand grotesquely empty for some time before they could be cleared away, the New Brunswick-Raritan Valley Chamber of Commerce asked local architects Goldwasser-Heinrich to do something in the meantime to improve the area's appearance.

Raymond Heinrich solved the problem by arranging with a neighbor, Richard Stetser, an instructor of design at the Philadelphia College of Art, to have Stetser's students come to New Brunswick and decorate the facades with their own painted designs. The students, 50 sophomores, spent a day transforming the burned-out area into a Joseph's coat of colored patterns—what Heinrich describes as "a 7000-sq-ft temporary mural." Grades were given to individual efforts, coffee and sandwiches were served, and the
ACOUSTI-SEAL
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Chamber of Commerce provided bus service to and from Philadelphia. Heinrich sees the project as an ideal artist-architect relationship, which it was. And he notes that the effect of the area on people passing through it was kinetic: "For example, signs later put up in the area were placed with a certain respect for total appearance; children hop around the colored covers on the sidewalk, and during a recent snowfall a pattern of snowballs grew around one of the design elements. We think that art that can be abused without suffering like architecture, enhances with use."

Ronchamp West

BERKELEY, CALIF. When Corbusier finished his church at Ronchamp, "the pearl of my career," he remarked that "the acoustic architecture in the shape of a musical instrument will make it 'sing' among the Vosges mountains." Singing on the crest of a wooded hill overlooking Berkeley is the chapel of the Pacific Lutheran Theological Seminary, whose construction will be completed by May 1965. Unlike Ronchamp, the seminary chapel is hidden from view, never fully exposed to the visitor until he crosses the brick-paved entrance court. But like its inspiration, it has a sweeping prow-like roof whose highest point is directly over the altar. Walls are topped by a slab of glass, and glass runs from ceiling to floor in all corners of the building. The dark red brick of the entrance court continues into the building, forming the chapel's floor. Glass and door frames are of rough-sawn, weathered redwood; the sedilia is leek, cantilevered from the wall by the altar, and the altar is rough-cut marble. Set in the granite outside the building stands an 85-ft cross resembling a shepherd's staff. It is of Cor-Ten steel which will weather a rich dark brown. The architect was James Leee of Leee & Ehrenkrantz, Architects.

The Case of the Munificent Marquesa

NEW YORK, N.Y. Two stately Park Avenue homes designed in the early part of the century by McKim, Mead & White were literally wrested from the clutches of the wrecking crew here last month. Scaffolding had begun to rise around the homes, which, with two other houses, form an architecturally unified block front between 68th and 69th Street on the west side of Park Avenue, known locally as Pyne-Davison Row, when suddenly it was announced that an anonymous patron, described as a "person of immense goodwill," had bought the houses from Sigmund Sommer, who was razing them to make way for a 31-story cooperative apartment house. A reported $2 million changed hands, the wreckers' scaffolds came down, and the patron announced that the houses would be preserved. New Yorkers remember the corner house, the former home of the Soviet Mission to the United Nations, as the place where Khrushchev made impromptu sidewalk pronouncements on a 1960 visit to the UN. And the city's Landmarks Preservation Commission has called the blockfront the finest, architecturally, of its type and period in the country.

Jubilant at the news of the salvation, the New York Chapter, AIA, awarded a citation to the anonymous patron, whose identity remained unknown until a week later, when it was revealed by The New York Times. She turned out to be a 68th Street neighbor of the landmark, as well as a patron: the Marquesa de Cuevas, a granddaughter of John D. Rockefeller, Sr. The Marquesa, whose friends describe her as "utterly charming," plans to turn the structures over to the city. As the New York Chapter, AIA, pointed out, last minute cliff-hangers such as this are thrilling, but if the City Council would pass the Landmarks Preservation Bill, which it has been contemplating for over two months, the city could act in the interest of its citizens, instead of the reverse, as is presently the case.

Measure of the Past

PHILADELPHIA, PA. The Philadelphia chapter AIA is ferreting through architectural files throughout the country to find publishable examples of architectural drawings of historically significant American buildings. Financed by a grant from the Samuel H. Kress Foundation, the project is a mammoth one, complicated because the U. S. has no set, significant file of architectural drawings. As planned, the Catalog of Original and Measured Drawings of Historic American Buildings will include drawings of buildings ranging in age from the 17th Century to World War I, and will list both single sheets and sets of drawings, provided that the building has architectural merit and its architect is no longer living. Only existing drawings can be included. Drawings by unknown architects, amateurs, and master carpenters in colonial days will be listed if the editor and his committee of advisors feel they are unquestionably important in the history of American architecture. Original measured drawings of historic
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buildings will be listed, with their repositories; photostats will be listed, but no attempt will be made to list all their repositories. To be eligible for listing, measured drawings must have been made by an expert delineator, under approved sponsorship, from measurements taken from the actual building. Measured drawings done without a sponsoring organization will be accepted for listing if the director of the repository vouches for their accuracy, completeness, and quality. The editor reserves the right to omit drawings of buildings that do not have architectural merit, judging from the photographs that are to be submitted with all unsponsored drawings.

Compilation and editing of the manuscript is covered by the Kress Foundation grant of $70,000 over a three-year period. The University of Pennsylvania Press has agreed to publish the work, hoping to cover their publishing costs through sales at a reasonable price.

Further information about the catalog may be obtained from the editor, George S. Koyl, 4400 Spruce Street, Apt. D 17, Philadelphia, Pa.

Downtown Detroit Bank

DETROIT, MICH. In the Midwest and West, where land for urban expansion is often more plentiful than in the more crowded East, commerce and industry have often moved rapidly away from the centers of towns. Now, as these expanding urban areas push beyond an optimum size, business is beginning to shift toward the center. Opened in Detroit early this winter was a new headquarters for the Detroit Bank & Trust, the nation's twenty-fourth largest bank (assets $1.2 billion). The bank occupies the first seven floors of the building; the remaining space is leased, making the building (according to its owners) the first new building to offer major space for public occupancy in downtown Detroit in more than 30 years. Interestingly enough, the contemporary-looking steel, marble, and glass building is linked to the neighboring three-story building, which formerly housed the bank's trust department. This smaller building is designed in the old Parthenon Bank style, with a pillared portico and a frowningly dignified, almost forbidding exterior. Strangely, the two seem to go well together, like a chair-bound, cigar-smoking, bearded old-time banker and his young, energetic crew-cut protegé. Architects were Harley, Ellington, Cowin & Stiron, Inc.

Köln Column

COLOGNE, GERMANY. West German architect Joseph Küpper thinks he has an answer to one of the problems facing today's suburban developers, who are probably wondering (not worrying) where they will put housing developments once we run out of farmlands and forests. Stack the houses in beehive-like clusters, suggests Küpper. He has a model of his tower-like "house of houses," formed of 250 individual homes, each with approximately 1100 sq ft of living space. Although it is only a concept to Küpper, with it he seems to be proving scientifically what Polly Adler knew instinctively about house and home.

Modest Hostelry Opens in Puerto Rico

FAJARDO, PUERTO RICO. When the design for the Hotel Delicias won a Citation in P/A's Eighth Annual Design Awards Program (p. 136, JANUARY 1961 P/A), the jury called it "a simple solution lacking the usual gimcrackery." Recently inaugurated, the hotel still deserves that praise, and Architect J. E. Amaral, of Amaral y Morales, who designed it, gives part of the credit to P/A. "We are sure that this Citation was a major factor in helping us carry the project to completion without any changes. Everyone connected with the project felt a responsibility to carry through the original idea," he writes. The two-story hotel surrounds an open patio with guest rooms in the accepted Carribean manner, on the upper floor, opening on a balcony that overlooks the patio. Public spaces, including a restaurant and bar, are on the ground floor. The bar is surfaced with tiles specially created by artist Macolino Maas, and original prints by local artists hang in all guest rooms. Construction is of reinforced-concrete beams and columns on an 11' module. Dining room and patio are partially enclosed by screens of narrow wood strips.

"From England, an Industrious Hand"

GIBRALTAR The above quote, from Henrik Ibsen's Peer Gynt, about sums up the design of a hotel for one of the last outposts of Empire, the nine-story "Top Rank" hotel in Gibraltar by Howard B. Lobb & Partners (Jan Bobrowksi, Engineer Consultant). The "industrious" façade is the result of providing a lower floor for shops, three floors for parking behind a structural screen, and five upper, sun-shaded floors of guest rooms. Two different concrete forms are to be fabricated in England and shipped to Gibraltar for assembly on site, thus cut-

South Atlantic AIA Awards

GREENVILLE, S.C. Thirteen projects were honored in a bi-annual awards program at the AIA South Atlantic Regional Conference in October, 1964. A jury of three—Morris Ketchum, who was chairman, Lawrence Perkins, and John Parkin—chose four Honor Awards and nine Awards of Merit from approximately 44 entries. According to Honor Awards Chairman George C. Means, Jr., the entries were categorized by cost, but there were no set criteria for judging. The judges commended the high quality of the entries, which came in about equal number from each of the three states in the area. All Honor Awards (listed below) have been entered in the National AIA Awards Program: Toombs, Amisano & Wells with Abreu & Robeson and Ack Associates, the Pharmacy Building, University of Georgia, Athens, Ga.; Toombs, Amisano & Wells, The Winter Park Center, Winter Park, Fla.; Martin & Bainbridge, Residence for Mr. and Mrs. William H. Benton (shown); W. E. Freeman, Jr., & Associates, The K Mart, Plaza Bay Station, Greenville, S. C.
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Louisville Renewal Finalists

LOUISVILLE, KY. Five finalists for the Louisville Urban Renewal Competition for the redevelopment of 34 acres of land in the West Downtown Renewal Area of Louisville were announced recently. They are: McCulloch and Buckel of Louisville, Ky.; Lorenz, Paski, Begrow and Brown of Detroit, Mich.; Cerny-Gilyard-Martinson of Minneapolis, Minn.; Cerny Associates, Inc., of Minneapolis, Minn.; Allan Chap- man and Harold Guyette of Cambridge, Mass. The competition, conducted for the agency by the West Kentucky chapter, AIA, is the first urban renewal competition of this type in the United States to be approved as "Primary Class A Competition" by the AIA.

Structure for Scriptures

NEW YORK, N.Y. Religion is scheduled to join the arts (Lincoln Center), education (Fordham Law School), and health (Red Cross Building) on New York's central West Side. The American Bible Society is planning to desert a charming old brick building on the corner of Park Avenue and 57th Street to move into this Skidmore, Owings & Merrill-designed Bible House at Broadway and 61st Street.

City-Planning Brochure

NEW YORK, N.Y. The Ruberoid Company has filed an application for a franchise to set up a community antenna television system in Manhattan. TV reception in New York's canyons is often poor because tall buildings block the TV waves. Reaching high into the sky, the community antenna would offer perfect reception to members who hooked their sets by cable to the system. The five companies are: R.K.O. General Inc.; Teleprompter Corp.; Teleglobe Pay-TV System, Inc.; Sterling

Greenbacks on the Green

LOS ANGELES, CALIF. A 26-story bank and office building will mark the move of a good-sized banking interest (assets of $500 million) into the heart of downtown Los Angeles, an area eschewed in recent years by many expanding businesses. Designed by Dan Saxon Palmer & Associates, the building, which will face Pershing Square, will provide a gross area of 317,000 sq ft, plus parking space on four under-
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Close the Roof, We’re Wasting Dough

The Pittsburgh Post-Gazette has reported that that city’s famous open-and-shut Civic Arena by Mitchell & Ritchey (it has a dome roof of metal leaves that open and close electrically, as everyone must know by now) would have finished its latest fiscal year with a profit if they had not opened the roof 50 times. Since the dome is a source of civic pride and a tourist attraction, it is doubtful whether it will remained closed in the future. Maintenance and labor cost of the closed dome are less than the open-close version, according to Philip Baskin, acting chairman of the Public Auditorium Authority.

New Design Style is a Winner

SEATTLE, WASH. “Split level,” “ranch style,” and even “bungalow” are terms which the homesteads of suburbia have carried with more or less verve. Now we have a new term, “frontier modern,” the fighting name given to a homestyle developed by Louis M. Bruinier & Associates of Portland. A Bruinier frontier modern home, under construction in Bryant Park at Lake Oswego, Wash., was chosen the “1965 model home” by the Western Red Cedar

San Diego Tower

Lumber Association. In making the selection, the Association pointed out the beauty of the waterfront lot with oak and ash trees, and stated (of course) that the design highlighted the advantages of building with Western Red Cedar to achieve serenity. Interior dining room paneling and even garage door surfacing is of Western Red Cedar.

Bank a la Dole

HONOLULU, HAWAII. The model building of the 15-story building above represents a $4.5 million structure to be built for the Bank of Hawaii. Designed by Wimberly, Whitesand, Allison & Tong Architects, Ltd., it has a tower containing 10 floors of office space. Below it are three floors of parking space to accommodate 250 cars, and, at street level, a bank and stores. The building’s façade of precast multiple arches is said to be patterned after decorative motifs of early Hawaii. These were obviously copied from a pineapple.

Puerto Rican Pagoda

SAN JUAN, P.R. Looking a little as if it might come off an assembly line in Detroit or in Peking—if Peking has assembly lines—this 14-story, $15-million office building will soon emerge in the heart of San Juan. Located near the Banco Popular building on the Avenida Ponce de Leon, it reflects more temporal frivolity than eternal youth. Architects are SACMAG of San Juan. Victor H. Bisharat of Stamford, Connecticut, is Consulting Architect.

Plotting New York’s Future

NEW YORK, N.Y. To garner advice on making New York a nice place to live in and an even nicer place to visit, the New York City Planning Commission, under Chairman William F. R. Ballard, recently sponsored a symposium called, perhaps overoptimistically, “The Future by Design.” Although the conference’s very existence was commendable, it failed to accomplish much. Most of its speakers only pointed out New York’s already too well-known problems. There were few suggestions on how to solve them. What New York needs is over-all planning. For plans that solve only one problem create others. None of the conference offered solutions on a grand scale.

Commissioner Ballard told P/A that the City Planning Commission is now working on a master plan for the city. One hopes it can synthesize
SPLEN-DOOR

Steel or aluminum partitions in architecturally compatible colors. Rich, vibrant shades of Alcoa's new Duranodic* 300 finish. An electro-chemically produced oxide coating that resists corrosion and abrasion. Anodized gold and silver and twelve baked enamel finishes complete the broad selection. Hinge colors can match, harmonize or contrast with the panels. Steel paneled Splenddoors are ideal for economical closures. Aluminum models are perfect for cafeterias and other abuse installations, with single widths to 60' 0"; heights to 25' 0". Both models stack in minimum space, and are hinged with tough vinyl for added strength.

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solutions to New York's monstrous problems of housing and feeding its mammoth population, with its host of ethnic groups, into a workable plan. If the Commission is successful, one hopes that the city administration has enough vision and backbone to adopt the plan.

Junior High Classroom-Auditorium

MIAI, FLA. Architects were probably not surprised when P/A's annual business survey (p. 52, November 1964 P/A) showed that almost one-quarter of their work was in education. Burgeoning school populations should mean heavy school design and construction work for several years. But if the numbers of schools are increasing, so are the cost of putting them up, and most school boards are trying to find more efficient ways to use classroom space. The job is complicated. One source estimates that classrooms are empty 40 per cent of the time. To cut down this waste, at least one school—in California—is using a computer for scheduling classes. Elsewhere, architectural solutions are being sought.

Working without a computer, a Florida architectural firm, Pancoast, Ferendino, Grafton & Skeels of Miami, have designed a junior high school auditorium that incorporates six classrooms. The results of a study they undertook for the Dade County School Board showed that auditorium space in four local junior highs was unused an average of 73 per cent of the time. To avoid this waste, they worked classroom use into their design of an auditorium for Miami's Rockway Junior High. Partitions separate three classrooms on each of two levels from each other and from a 200-seat main auditorium. When the motor-driven, moveable partitions at the front of the classrooms are opened, the building becomes an auditorium seating 800 persons. Although, with the partitions open, the distance from proscenium to the rear of the auditorium is only 45 ft, the space is not entirely successful because partitions between the classrooms prevent the audience from forming a single unit. It is arranged in pockets, rather than as a unified, open area.

Another problem is that the moveable partitions between classrooms cut off views (from the rear) of the side stage areas, confining activity before the entire auditorium to the 17-ft. center stage. But aside from these drawbacks, Rockway Junior High will, in a space-use sense, have its cake and eat it too.

Space is provided for educational TV planning and preparation, and so is storage space for TV books and equipment. The architects have secured a grant from the Ford Foundation's Educational Facilities Laboratories to help with construction costs.

Entrance to the Boss's House

SACRAMENTO, CALIF. The California State Division of Beaches and Parks designed the proposal shown here for a concession development in the visitor center area of the Hearst San Simeon State Historical Monument. Even though it's neo-gothic approach to hot-dog stands, souvenir shops, and washrooms could be disastrous if not handled dexterously it...
SQUIGGLE: A light baffling puzzle by Luminous

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Military Stronghold in Michigan

GREENVILLE, MICH. In an age when many of New York City’s beutru tetted, castellated armories are threatened with demolition to make way for nobody’s-decided-what, Greenville (Mich.) is building a modern fortress for its 126th Infantry Company. Like many armories these days, it will double as a civic center, and accordingly is being built on a five-acre site next to the Montcalm County Fairgrounds. Budgeted at $335,-000, the building will be two stories high, and will have a steel frame with gray brick enclosing walls. On the first floor will be administrative offices, drill hall and kitchens, and on the second, locker rooms, classrooms, and show­ers. Lyn Graziani of Eberle M. Smith Associates, Detroit, was the architect.

Corbusesque Cinema

Respectful attention has been given the style of the creator of Chandigarh in the design of a cinema to rise in the Civic Center of New Delhi. Shivanth Prasad, the architect, writes that “the whole structure is visualized to be in exposed concrete formwork.” Such familiar Corbusier elements as pilotis, disparately spaced sun loungers, and very deep window reveals are well-knit into Mr. Prasad’s design; and the form of the building announces its purpose interestingly. The pilotis raise the 1000-seat auditorium above the ground, where there will be parking for 100 cars, 500 bicycles, and 50 scooters. The main auditorium will be supported on six main columns and a reinforced concrete shaft containing mechanical equipment. The shell roof will have a span of 110’ by 143’.

New Style

P/A, which likes to keep abreast of such matters, is happy to announce the advent of a new architectural style. According to a release from the Southern Pine Association, it is “Palladium style design,” and is represented by the remodelling of the Los Angeles tower for the Riverside campus of the University of California was the Los Angeles firm of A. Quincy Jones & Frederick E. Emmons. The jury report states that the design fulfills the program requirements “with strength and simplicity expressed in an architectural form with ease, delicacy, and grace. The detail of the tower surfaces results in a degree of transparency which permits changing views of the campus from the stairways, allows the fine as­sembly of the carillon to be seen, and provides a spectacu­lar night lighting design.” The 176’-9” tower will be of concrete with precast concrete grilles. It will sit in a sunken plaza lined with sitting steps and containing pools, sculp­ture, and grassy areas. A bal­cony part way up the tower can serve either as a speaker’s podium or can be used more conventionally for observing the view.

Jury included architects John Lyon Reid, Allen Siple, and Paul Thiry, and university regents Philip L. Boyd and William E. Forbes. Profession­al advisor was George Ver­non Russell.

Los Angeles, Calif. Winner of an invited competition for the design of a clock and bell tower for the Riverside cam­pus of the University of Cali­fornia was the Los Angeles firm of A. Quincy Jones & Frederick E. Emmons. The jury report states that the design fulfills the program requirements “with strength and simplicity expressed in an architectural form with ease, delicacy, and grace. The detail of the tower surfaces results in a degree of transparency which permits changing views of the campus from the stairways, allows the fine assembly of the carillon to be seen, and provides a spectacu­lar night lighting design.” The 176’-9” tower will be of concrete with precast concrete grilles. It will sit in a sunken plaza lined with sitting steps and containing pools, sculp­ture, and grassy areas. A bal­cony part way up the tower can serve either as a speaker’s podium or can be used more conventionally for observing the view.

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Circuitous Approach to Health

COLORADO SPRINGS, COLO. When Colorado College (enrollment 1441) decided to replace the half-century old, three-story, frame building that had been their campus health center for almost 20 years, they had a man on the administrative staff who knew what he wanted: Dean of Men, Juan Reid, co­ordinator of a study of small college health centers for the Educational Facilities Labora­tories. Last month, the college dedicated its $275,000 Boett­cher Health Center, and it contains some logical but often omitted improvements. In his study of health centers, Reid had noticed that the typical infirmary stay of an ill student was two or three days, a long time to be away from classes. “So,” remarks Reid, “we de­signed the new facility as a ‘study-while-you-are-ill’ infirmary.” Two study lounges (one for men, one for women), contain­ing sofas, lounge chairs, and desks, adjoin the patients’
Robbins *permacushion* Northern Maple Floor guarantees satisfaction in activity rooms

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*National average, installed cost for 33/32" 2nd and Better Grade.

West Memphis Senior High School, West Memphis, Ark.
Architects: Stuck, Frier, Lane, Scott, Inc. Installer: Austin Flooring Co., Kansas City, Kan.

For more information, turn to Reader Service card, circle No. 386

February 1965
Celebrating Landmarks

WASHINGTON, D.C. November marked the end of the American Landmarks Celebration, which began in August. Its aim was to alert public opinion to the need for swift, decisive action to safeguard America's architectural, historical, and natural heritage. Last July, Mrs. Lyndon B. Johnson, who served as Honorary Chairman, initiated the program by designating the Woodrow Wilson House here as a National Historic Landmark. Similar programs have been held since then in about 31 states.

In a message to the celebration chairman, Lewis Mumford commented: "The monuments of our past have something to say to us that no book, no microfilm, no motion picture will ever be able to record. Through them, each generation reminds us of its values, its achievements, its hopes. Every significant structure that is torn down or recklessly improved, every fine bit of landscape that is massacred and ruined forever for some ephemeral purpose, such as shortening a motor route, impoverishes our common heritage. Not age but significance and beauty is what makes a landmark worthy of preservation: some of the buildings of last yesteryear should be marked for preservation no less than the most venerable colonial structure. The fact that Independence Hall was once auctioned off at the highest bidder, and that in our time we permitted our most ancient monuments, the great Redwood groves, to be sold off as mere timber, shows the need for an American Landmarks movement. Without these historic monuments, our land will exist only in the one-dimensional world of the present, dynamic but insensitively destructive; a present that will soon be past, leaving as its chief reminder blasted landscapes and the memory of buildings wantonly destroyed."

Only one architect, Robert C. Gaede of Cleveland, was on the steering committee of the celebration. The American observance was part of International Monuments Year, sponsored by UNESCO.

Borschit Circuit Concrete

CATSKILL, N.Y. Near the upper Hudson River in Washington Irving country, the Alpha Portland Cement Company this fall held what it called the "Catskill Conference on the Future of Concrete." Alpha's concern with this future is understandable, for they have just unveiled a completely automated cement plant here, which will turn out 3 million barrels of cement a year. Speaking at the conference, Roger H. Corbetta, Chairman of the Board of Corbetta Construction Company, which built Saarinen's TWA Terminal in New York and Dulles International Terminal in Washington, D.C., saw limitless applications for concrete. He pointed out that production of concrete almost tripled between 1950 and 1960, rising from 37 million cubic yards to 96 million cubic yards. And despite a 100 per cent increase in labor costs in the past 15 years, Corbetta believes that total cost of concrete construction will decrease, making it even more attractive as a building material. This will be accomplished, Corbetta thinks, by eliminating preliminary form work, by the use of improved strength materials for stressing, and by increasing economies in transporting concrete.

Ralph J. Johnson, Director of the Research Institute of the National Association of Home Builders, also voiced optimism for the future of concrete, but only after pointing out what he considers its drawbacks. Difficulty of use in bad weather led the list, followed closely by the cost of formwork, and the difficulty of joining concrete to some other materials. Dr. Allan Bates, Vice-President and Director of the American Concrete Institute and Chief, Division of Building Research, National Bureau of Standards, voiced confidence that concrete will be used widely in prefabrication. He foresaw complete concrete slab buildings emerging piecemeal from factories, like dominoes, with plumbing, windows, and doors cast in place. Concrete is "a process more than a material," he commented, and added that more control of the process should be achieved.

Erratum

Correct spelling of the name of one of the nine architects overseeing the plan for renewal of New York's Washington Square (p. 49, December 1964 P/A) is Norman Rosenfeld, not Rosenfield.

Schools

"The all-things-to-all-men Renaissance man is difficult if not impossible to uncover in this age of specialization piled upon specialization." Thus opens the November-December 1964 issue of The Georgia Tech Alumnus in its special presentation on architecture. It continues, "The man with the mind, the background, the creative drive, and the personality to develop beautiful, efficient, and completely new concepts of organization is fast becoming the missing link in our civilization. But then, few professions demand such broad and lofty qualities in their practitioners. Architecture still does." . . . The Alcoa Foundation has announced an Alcoa Architectural Scholarship Program to be launched at the University of California at Berkeley, the University of Southern California, Carnegie Institute of Technology, Harvard University, Illinois Institute of Technology, MIT, University of Michigan, North Carolina State of the University of North Carolina at Raleigh, Stanford University and Yale. The program will provide a $625 scholarship to each school . . . Alan Burnham, architect and editor of New York Landmarks, will teach a course on "Architecture-USA" during the spring semester, beginning February 1, at the New School for Social Research, 66 West 12 St., New York, N.Y.

Personalities

HAROLD J. ROSEN, author of P/A's monthly column "Specifications Clinic," has joined
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the New York office of Skidmore, Owings & Merrill as Chief Specifications Writer; he formerly held the same position with Kelly & Gruzen, New York. Top award in the Concrete Industries' 1964 Honors Competition went to RUDOLF A. HERMEN of Cincinnati, Ohio. HENRY M. SHINE, Jr., Legislative Director of the National Association of Home Builders since 1961, has been named Director of the National Housing Center in Washington, D.C. The American Society of Architects, AIA, installed FREDERICK G. ROTH, an associate of Vincent G. Kling & Associates, as president for 1965. JOSE DE RIVERA has been commissioned by the American Iron and Steel Institute to create a stainless-steel sculpture commemorating the opening of the second century of steel production in the United States. The sculpture will be unveiled at the Institute's General Meeting in May of 1965. ROBERT T. NAHAS of Oakland, California, nationally known land developer, has been elected president of the Urban Land Institute. National Electrical Manufacturers Association, NEMA, has announced new officers in the Building Equipment Division: J. A. HERRMANN as Chairman of the Board of Directors and G. R. WEPPNER as Vice Chairman. GEORGE NELSON has been named program chairman of the 1965 International Design Conference in Aspen, Colorado, next June. The theme of the conference will be "The New World." Elected president of the New York Association of Consulting Engineers was EMMANUEL PISZEKNER, partner in the firm of Wieskopf & Pickworth. RALPH T. ROWLAND has been elected president of the Connecticut Society of Architects. Building Research Advisory Board announced the appointment of DR. ALBERT G.H. DIETZ as board chairman and chairman of the Executive Committee. Dr. A. ALLAN BATES AND MR. ROBERT B. TAYLOR became vice-chairmen of the Board and its Executive Committee. MIT's Department of Civil Engineering announced the appointment of DR. RONALD C. HIRSCHFELD as Associate Professor and DRS. JHESSET and PETER J. PAHL as Assistant Professors... NORMAN J. JOHNSTON and DANIEL M. STREISSGUTH, Professors of Architecture at the University of Washington, have been appointed assistant dean of the College of Architecture and Urban Planning and chairman of the Department of Architecture, respectively. The $22 million port facility for the City of Reston, Virginia. New York Architect, GORDON BUNSHAFT, designer of Lever House, the Beinecke Rare Books and Manuscript Library at Yale, will be honored by the American Institute of Architects at New York Hilton on January 28. ALBERT MELNIKER, has been elected president of the State Island Chamber of Commerce. A practicing architect since 1940, Mr. Melniker has served as president of the State Island Chapter, AIA, as vice chairman of the committee on the organization of the State Island Home Builders Association. EDMUND G. BROWN, Governor of California, has recently appointed FRED ROCHLIN, partner in Rochlin & Baran of Los Angeles, to the State Hospital Advisory Council. O'MARA, JOSEPH SHEFFET, HENRY KARRER have been elected by the Consulting Engineers Association of California Board of Directors as president, vice-president, and secretary-treasurer respectively. OWENS-CORNING FIBERGLAS Corporation announced the winners in its creative design contest: JOYCE CHOWN, first prize; JUDY DOUGAN, third; MELIHA KAVAK, special award for creativity. The design competition was open to senior weaving classes whose members were asked to create original and imaginative designs to be used in Fiberglas fabrics for curtains and draperies. JOSEPH B. MCGRATH will be heading the newly organized Division of Local Development Services of Action, Inc. DEMETRIOS ARMISTOS POLYCHROME has been appointed head of the department of architecture at Auburn University's School of Architecture and the Arts; Polychrome formerly taught at the School of Architecture at Georgia Tech clients. Newly appointed Professional Staff Consultant for the Building Research Advisory Board is HAROLD D. HAUF; Hauf is currently a Consulting Architect of Los Angeles and Professor of Architecture at the University of Southern California. CLINTON GAMBLE, FAIA, of Ft. Lauderdale, will serve as adjunct professor at the University of Miami (Fla.) School of Engineering this fall. PA's Washington Financial consultant, E. E. HALMOS, JR., has been made President of the Board of Commissioners (Mayor) of Poolesville, Md., a thriving colonial community of 350 souls about 35 miles from the capital. Recently appointed staff architect and coordinator of construction for University of Miami, Fl., is CHARLES J. COTTERMAN; Cotterman is currently assistant chief architect for Metropolitan Dade County. New faculty members at Harvard Graduate School of Design include: HANS H. BUCHWALD, Assistant Professor of Architecture; EDWARD S. GRUSON, Associate Professor of City Planning; WILLIAM ALONSO, Associate Professor Regional Planning; LOUIS B. BAKOWSKY, Associate Professor of Architecture; and NHal B. MITCHELL, Jr., Associate Professor of Construction. Winners of a student competition for a modular, pre-fabricated vacation cabin are TERRY GEORGE HOFFMAN (First Prize), University of Florida; Robert Gruber, University of Illinois; and Jack Donald Jackson, Oklahoma State University. Competition was sponsored by the Committee of Stainless Steel Producers, American Iron and Steel Institute... R. BUCKMISTER FULLER received an honorary doctor of science degree at the commencement exercises of the University of Colorado, in Boulder, Colo.

Calendar

The Maple Flooring Manufacturers Assoc. holds its annual meeting February 3 and 4 at the Sheraton-Chicago Hotel. A four-day program in San Francisco followed by a two-day conference in Hawaii highlights the American Concrete Institute's 61st Annual Convention to be held in March 1965. The San Francisco meeting will convene March 1-4 at the Sheraton-Palace Hotel; the Hawaii meeting scheduled for the 8th and 9th will be at the Hilton Hawaiian Village Hotel. The American Concrete Pipe Association will hold its 57th annual convention at the Fountainbleau, Miami, Florida, March 7-11. Ninety speakers, drawn from 15 states, will lead discussions at the Industrial, Institutional & Commercial (IIC) Building Conference at Cobo Hall, Detroit, March 8-11. The conference will be held concurrently with the IIC Building Exposition... A con-
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February 1965  P/A News Report 69
Obituaries
FRANCIS L. FRYBERGH, chief of specifications for Skidmore, Owings & Merrill, New York office, and former president of the metropolitan New York chapter of the Construction Specifications Institute, died on December 17. L. G. BLESSING, co-founder and former chief executive officer of The Bastian-Blessing Company, died on December 23. He was 91 years old and had been active in company affairs until his retirement in 1963.

COMPETITIONS

The Architectural League of New York invites applications for the 1965 Arnold W. Brunner Scholarship. Applications, which must be in by March 15, may be obtained from the League at 115 E. 40 St.

The Board of Trustees of the University of Illinois announced the 34th annual competition for the Kate Neal Kinley Memorial Fellowship. Applications should reach the Committee not later than April 15. Information is available from Dean Allen S. Wellner, College of Fine and Applied Arts, 110 Architecture Building, University of Illinois, Urbana, Ill.

Information and details are available from the NIAE, 115 East 40 St., New York, N.Y. on the Paris Prize Travelling Fellowship. Through the NIAE also, there are three competitions sponsored by the National Association of Architectural Metal Manufacturers and the Ohio Association of Architectural Metal Manufacturers for the design of a chair in a museum, a chair in a two-story garden apartment, and a chair in a two-story office building. The contest is open to students in junior and senior grades, graduates and draftsmen under 30 years of age. All entries must be in the NIAE, 115 East 40 St., New York, N.Y. or on the Paris Prize Travelling Fellowship. Through the NIAE also, there are three competitions sponsored by the National Association of Architectural Metal Manufacturers and the Ohio Association of Architectural Metal Manufacturers for the design of a chair in a museum, a chair in a two-story garden apartment, and a chair in a two-story office building. The contest is open to students in junior and senior grades, graduates and draftsmen under 30 years of age. All entries must be in the NIAE, 115 East 40 St., New York, N.Y. or on the Paris Prize Travelling Fellowship. Through the NIAE also, there are three competitions sponsored by the National Association of Architectural Metal Manufacturers and the Ohio Association of Architectural Metal Manufacturers for the design of a chair in a museum, a chair in a two-story garden apartment, and a chair in a two-story office building. The contest is open to students in junior and senior grades, graduates and draftsmen under 30 years of age. All entries must be in the NIAE, 115 East 40 St., New York, N.Y. or on the Paris Prize Travelling Fellowship. Through the NIAE also, there are three competitions sponsored by the National Association of Architectural Metal Manufacturers and the Ohio Association of Architectural Metal Manufacturers for the design of a chair in a museum, a chair in a two-story garden apartment, and a chair in a two-story office building. The contest is open to students in junior and senior grades, graduates and draftsmen under 30 years of age. All entries must be in the NIAE, 115 East 40 St., New York, N.Y. or on the Paris Prize Travelling Fellowship. Through the NIAE also, there are three competitions sponsored by the National Association of Architectural Metal Manufacturers and the Ohio Association of Architectural Metal Manufacturers for the design of a chair in a museum, a chair in a two-story garden apartment, and a chair in a two-story office building. The contest is open to students in junior and senior grades, graduates and draftsmen under 30 years of age. All entries must be in the NIAE, 115 East 40 St., New York, N.Y. or on the Paris Prize Travelling Fellowship. Through the NIAE also, there are three competitions sponsored by the National Association of Architectural Metal Manufacturers and the Ohio Association of Architectural Metal Manufacturers for the design of a chair in a museum, a chair in a two-story garden apartment, and a chair in a two-story office building. The contest is open to students in junior and senior grades, graduates and draftsmen under 30 years of age. All entries must be in the NIAE, 115 East 40 St., New York, N.Y. or on the Paris Prize Travelling Fellowship.
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February 1965
for the fledgling group, while it seeks its own funds and place in the scientific sun. Heading the new Academy is Dr. Augustus B. Kinzel, of Union Carbide Corporation; with Dr. Eric A. Walker of Pennsylvania State University as Vice-President; and Dr. Harold Work of New York University and Dr. Thomas C. Kavanagh, New York Civil Engineer, as Secretary and Treasurer, respectively.

Capital Architecture

With the return of Congress and the ending of the annual "recess doldrums," Washington's own architectural pot begins to give signs of coming to a boil again. On the local level, the District of Columbia's government was advised (by the "Committee for the Rights of Washington, D.C., Business Community") that it must take immediate action to obtain rapid transit and raise building-height restrictions (now controlled by the 345-ft height of the Capitol dome). The town fathers of a suburban community (the town of Somerset, right on the city's borderline) got into a hassle with some residents and city planners who designed a private builder's plan for twin, 30-story apartments that would dominate the entire skyline. Interior Secretary Udall (with the backing of city commissioners) came up with a plan to make the city's Mall a pedestrian haven, with refreshment stands, kiosks, benches and the like. And the President's new budget showed a sharp curtailment of plans for new Federal buildings—notably the long-planned "little Pentagon" complex, which might house some 15,000 now-scattered Defense Department workers in the city's southwest redevelopment area.

Measure for Measure

Driving another nail into the coffin of the perennial Congressional attempt to impose the metric system on the U.S. system of measurements, the American Society of Mechanical Engineers has come out in flat opposition to metrics. Said ASME: "The Society is of the opinion that legislative action directed to an alternate system of dimensional standards—such as the metric—will be at this time confusing and disturbing to the productive capacity of the United States . . . and is not . . . in the best public interest."

Financial

The year 1964 apparently rocked to a close just about on target, as far as the financial analysts were concerned anyway. The Census Bureau reported work put in place in November, for example, at $5.8 billion—as expected, down about 5 per cent from October, but just about even with November of a year ago. The strength remained in industrial and commercial (and Governmental) work, as it has for some months; housing again showed a substantial drop (6 per cent) below year-ago figures.

Over-all, however, the actual figures seemed to support fully the predictions of a $66-billion year for 1964, and predictions of an added slow rise to a little over $68 billion for 1965.

Strongest taxpayer support continued to be for educational construction; voters approved more than $1 billion worth of bonds for this purpose alone, turned down only $103 million worth; and for water and sewer projects, where $401 million were approved, $54 million given thumbs down.

A disturbing note in the November elections, however, was voter disenchantment with public housing: they knocked down bonds for $179 million for this purpose, approved only $21 million worth.

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Condensation Reduced

"Series 200" aluminum casement window reduces condensation by as much as 77 to 80 per cent, according to the manufacturer. It is double weather-stripped window with swing-out panel. Double weather-stripping seals air-tight, eliminating binding, rattling, and leak-air of conventional casement windows. Series 200 has no muntin bars that obstruct vision. All glass can be easily replaced from inside without putty.

Window is available in various sizes. Royal Jalousie Mfg. Corp., 151 Babylon Turnpike, Roosevelt, Long Island, N.Y. On Free Data Card, Circle 101

Air/Temperature

Electric Heating

"Thermalux" electric radiant heating system uses ceiling heating panels comprising large area electrical resistor and sheet of gypsum board. System has low operating temperature of 100°F, or lower, with heat output of 15 w or 50 Btu's per sq ft. It eliminates additional equipment such as registers, ducts, and furnaces. Both ceiling and Thermalux are put up at same time. There are no moving parts in flameless system. It has been approved by UL and meets Electrical Code requirements. Panels are 4' wide and are available in standard lengths of 12'. U.S. Gypsum Co., 101 S. Wacker Drive, Chicago, Ill. On Free Data Card, Circle 102

Glass Strengths

Second series of glass test strengths (for report on first series, see p. 76, JANUARY '64 P/A) show that square light of glass is as strong as oblong light of same thickness and area when length is as much as five times the width. Tests proved that widely accepted empirical formula for predicting strength of small thick plates (relationship of width to length affects strength and oblong plates withstand greater loads than square ones of equal areas) does not apply to glass. Furthermore, thickness and area, rather than ratio of width to length, are most important factors governing the strength of glass. Total of 2280 lights of plate and sheet were tested. With completion of second series of tests, all thicknesses of sheet glass and plate glass up to 3/8" have been evaluated. Sizes tested were as small as 6 sq ft for sheet glasses and up to 200 sq ft for "Heavy Duty" plate glasses. It was further determined that glass strength cannot be accurately related to wind velocity in mph but only to wind pressure in psf. Strength data can properly be applied only after total design load for glass has been determined. Testing program employs design factor of 2.5, which means that choice of glass size and thickness recommended is based on average breaking pressure divided by 2.5. Libby-Owens-Ford Glass Co., 811 Madison, Toledo, Ohio. On Free Data Card, Circle 103

Bronze Curtain Wall

Standard bronze-clad steel curtain wall, called "Fenclad," has recently been developed. Basic grid units are galvanized 12-gauge carbon steel, prime painted inside and out for maximum corrosion resistance. They are strong enough to allow verticals to be placed 6', 7', or 8' apart and still carry required wind loads. Bronze cladding components are channel shaped, brake-formed from Muntz Metal sheet supplied by Anaconda American Brass Co., which assisted in development of this system. Bronze cladding is fastened to steel curtain wall units after exterior construction is completed, thus avoiding possible damage from debris and falling mortar. All fastenings are hidden. System is self-draining, so condensation cannot be trapped inside units. Architectural Products Div., Fenestra Inc., P.O. Box 1085, Buffalo, N.Y. On Free Data Card, Circle 104

Glass Reduces Heat

Shatterproof, two-ply glass, called "Twi-Lite," contains amber plastic interlayer that absorbs sunlight and heat "60 to 80 per cent more efficiently than clear glass" according to manufacturer. While clear glass admits 85 per cent of direct sun rays, dark tinted Twi-Lite has only 10 per cent light transmission; light amber Twi-Lite only 25 per cent. Tinted interlayer absorbs 65 to 84 per cent of solar energy, compared to 8 per cent absorption of clear glass. From 43 to 48 per cent of total energy is excluded, while clear glass excludes less than 12 per cent. Amerada Glass Corp., 3301 S. Prairie Ave., Chicago, Ill. On Free Data Card, Circle 105

Nonskid Plywood

"Skid Guard," a nonskid plywood deckig, is unaffected by
Sandwich Wall
Curtain wall sandwich of aluminum and polyurethane is used in two-story addition to existing structure whose masonry walls could not support extension of same type. No new footings were needed to install non-load-bearing wall to 36" high x 44" wide x 25 3/4" thick of steel and brick structure. Wall is constructed of "Permawall" panels (12" wide x 7/8" long produced by Hunter Douglas Ltd. of Quebec and consists of 2" sandwich of non-burning "Hetrofoam" polyurethane foamed-in-place between two factory-finished aluminum skins. Finishes are triple-coated, baked enamel. Manufacturer states that 2" core of polyurethane has insulating value equal to 36" of masonry. In this application, panels have U factor of .11 for the 2" wall. Permawall has double vertical joints separated by polyurethane, providing uninterrupted thermal break between interior and exterior along entire wall. Hooker Chemical Corp., Niagara Falls, N.Y.

On Free Data Card, Circle 107

Electrical Equipment

Molded Aluminum Fixtures
Extruded aluminum lighting fixtures are offered in 56 standard models. Unit has unlimited installation flexibility for mounting to slope, arch or sawtooth poles, pendants, rails or millions; alone or in clusters; and indoors or out. "Controlux Cone" produces near total darkness in glare zone. Interior adjustment bracket offers three lamp-recessing positions, plus 360° rotational adjustment on horizontal plane and 20° angular adjustment. Wide range of durable anodized colors and baked enamel paint finishes are available. Moldcast Mfg. Co., 236 South St., Newark, N.J.

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Finishes/Protectors
Preventing Cracking
"Resyn 2802" self-curing acetate binder for plywood primers eliminates problem of checking or cracking in painted plywood. Primer "stretches" to bridge gap, maintaining uniformity and smooth appearance of top coat. Resyn 2802 is used for painted plywood kitchen cabinets, wall paneling and doors. National Starch and Chemical Corp., Resin Div., 750 Third Ave., New York, N.Y.

On Free Data Card, Circle 109

Aggregate Coating
Recently formulated coating, called "Sonotex," may be applied to forms or to fresh plaster concrete during construction to produce decorative and firmly imbedded exposed aggregate surfaces. Sonotex also roughens concrete, providing better tooth for chemical or mechanical bonding of new concrete in cement mortar or construction joints. Coverage rate of coating when applied directly to concrete is 200 to 300 sq ft per gal. It may be applied by brush, spray, or roller to forms of plywood, Masonite, steel, or polyester. Sonneborn Building Products, Inc., 1700 S. Mount Prospect Rd., Des Plaines, Ill.

On Free Data Card, Circle 110

Furnishings

Cantilevered Table Top
Sheer weight of 3/4"-thick, plate-glass coffee-table top fixes it sturdyy upon cube base of mirror-polished stainless steel. May be ordered in sizes 24", 42", or 48"-square, with marble top if preferred. Harvey Probber, Inc., 155 E. 56 St., New York, N.Y.

On Free Data Card, Circle 111

Elevator Desk
Push two buttons and the back half of a seemingly conventional desk becomes a multi-shelved cabinet. The 20"-high concealed file is raised or lowered electrically. Available in single or double pedestal models with fitted or overhanging "Textolite" top, Elevator Desk is constructed of steel with brushed or polished chrome legs. Mosler-Harbor Metal Products, 320 Park Avenue, New York, N.Y.

On Free Data Card, Circle 112

Stacking Chairs
"Astro Tablet Chair" solves many seating problems for multipurpose classrooms. Chair safely stacks 20 high within easy reach, and can be transported conveniently on special dolly for ease of handling. It can be ganged side by side for more seating per room. Chair features self-forming thermoplastic seat that molds to any body shape for individual comfort. It carries five-year guarantee and is highly resistant to knives, cigarettes, stains, weather, and impact. Fixtures Mfg. Corp., 1645 Crystal, Kansas City, Mo.

On Free Data Card, Circle 113

Upholsteries from Union Carbide
Union Carbide has entered the furnishings field with a line of vinyl upholsteries, called "Vil- eau". A line of wall coverings is to follow shortly. Three printed upholstery patterns are on an embossed, textured ground. Architects may prefer a plain treatment. A line of antique leather in nine colors and plain vinyl in 23 good colors are coordinated to be highly serviceable. Eleanor Way is the stylist-designer. Fiber & Fabrics Div., Union Carbide Corp., 270 Park Ave., New York 17, N.Y.

On Free Data Card, Circle 114

Products

February 1965
"There is virtually no limit to the design effects possible with Armstrong Luminaire Ceiling Systems.

"Here the staggered rows of modules fulfill the visual and acoustical requirements of this lecture hall; provide a textured but unobtrusive contrast to the other smooth planes of the room."

For free technical data on the Armstrong Luminaire Ceiling System and a construction drawing of this "stepped" Luminaire Ceiling, write to Armstrong, 4202 Watson Street, Lancaster, Pennsylvania.

Ceiling Systems by Armstrong

For more information, circle No. 300
Partitions Convert to Tables
Portable partitions that can be locked together to form classrooms and disassembled for conversion to banquet tables seating eight have been introduced for church and institutional uses. "Porta-Class Table/Wall" units, 3' x 7', form classrooms or shape dividers when banquet tables are stored on end. Panel surfaces of cherry-grained "Duolux" (hardboard material developed by the Masonite Corporation) are mounted to warp-free 1/4" honeycomb core and framed with solid oak. When used as free-standing partitions, panel sections are tightly joined by tension rotary lock, using either 90° or T directional posts. No floor or wall attachments are necessary. Church Interiors, Inc., 1515 South Tacoma Way, Tacoma, Wash.

Insulated Panel
Insulated translucent structural panel has recently been developed. Panel, used for walls and roofs, is standardized sandwich structure made of glass fiber sheets bonded to aluminum grid core that contains interior mat of reinforced "angel hair" glass fiber. It has u-factor of .25, which is equal to 40" of concrete construction. Manufacturer claims that "no other standardized light transmitting material can equal this insulating factor.
Panels with lower u-factors are available on special order. Panel permits transmission of evenly diffused, glare-free light, controlled at 28 to 20 per cent. Light transmission ranging as low as 5 per cent is possible on custom orders. They are available in widths of 4' and 5', at a depth of 2 3/4", and with lengths up to 27'. Kalwall Corp., 88 Pine St., Manchester, N.H.

Reduced Installation Costs
High temperature block insulation reduces installation costs. It is designed for insulating surfaces operating continuously at maximum temperature of 1000 F. Unlike conventional products that must be drilled or sawed, this insulation may be easily fabricated with a knife or simply impaled over studs or similar projections. It is used for insulating equipment such as boiler water walls, heating furnaces, ovens, kilns, annealing furnaces, breechings, and air ducts. Insulation is available in 24" x 48" blocks in single layer thicknesses of 1", 1 1/2", and 2"; and in double layer laminated thicknesses of 2 1/4", 3", 3 1/4", and 4". Owens Corning Fiberglas Corp., 717 Fifth Ave., N.Y.

Vinyl Insulation
"CF-30" vinyl-faced insulation with improved flame resistance has been developed for use in insulating metal buildings, thereby qualifying them for lower insurance rates. Insulation is combination of glass fiber faced with specially formulated .004" vinyl film produced by Goodyear Tire & Rubber Co. Insulation has UL flame spread rating of 30, which, according to manufacturer, is lowest rating obtainable anywhere for this type of film. CF-30 is similar in appearance to regular vinyls and is available in green, gray, and white. "Pres-tabs" are used on this material for joining abutting rolls of insulation during installation. It replaces conventional methods involving hand application of adhesives or stapling. Cleveland Fabricating Co. Inc., 2917 E. 79, Cleveland, Ohio.

Architectural Ceramics
Since 1961, Raymond Loewy/Wm. Snaith, Inc., has been retained by the Puerto Rico Economic Development Administration to develop and supervise a program of training local craftsmen in the art of ceramics and to provide outlets for their work both in San Juan and the U.S. Finally available in this country in quantity, the results of this venture—planters, sand urns, tiles, and accessories—have incised or perforated over-all geometric patterns brushed over or filled in with glaze. Some planters are angled to be used catty cornered. Custom orders will be accepted for large architectural projects. Raymond Loewy/William Snaith, Inc., 425 Park Ave., New York, N.Y.

Op Art Screens
At last some contemporary wood grilles that are imaginatively produced and have decorative interest are available. Panels in walnut, poplar, and limba-korina are machine-made but with enough ingenuity to look sculptural, almost hand-carved. Design appears on both faces. Panels can be combined to make screens, doors, interior shutters, and a variety of decorative elements. Penberthy Architectural Products, 5858 S. Boyle Ave., Los Angeles 58, Calif.

Coffer Module
Ceiling coffer module offers simplified, lay-in integral ceiling system that controls amount of air, light, and sound absorption. Unlimited flexibility of standard components permits choosing of various types of module size and depth, air supply and return system, lighting fixture, acoustical material and pattern.

February 1965
How to keep your building from getting the subway shakes

The clatter and roar of subways literally shake the earth. Wherever they run close by building foundations, the vibrations can be transmitted by structural members right to tenants' ears. This common cause of complaints can be easily prevented.

Lead-asbestos pads, placed beneath a building's supporting columns during construction, significantly diminish subway vibrations. This method of vibration isolation has been successful at New York's Metropolitan Opera House and Philharmonic Hall, the Brooklyn Savings Bank, the Brooklyn Union Gas Company office, and the Barton Candy Company... to name only a few in one city alone.

Lead-asbestos pads not only damp down vibration but also carry the heaviest loads encountered in foundations, and outlast the buildings they support. They are equally effective in isolating vibration from air conditioning or other machinery within buildings.

If you have a problem in vibration suppression or sound attenuation, look into lead. We will be glad to give you full information on lead-asbestos pads... and work closely with you in applying them efficiently. Just write, detailing your problem, to Lead Industries Association, Inc., Dept. N-2, 292 Madison Avenue, New York, New York 10017.

LEAD INDUSTRIES ASSOCIATION, INC.

Look Ahead with Lead

February 1965

For more information, turn to Reader Service card, circle No. 428

P/A News Report 83
New Vinyl Patterns

“Appian wall/floor vinyl tile in ¼” thickness is said to give appearance of hand-hewn marble strips set in deep beds of grout. Wall tiles are 36 square and floor tiles are 12 square. Appian is available in black, white, beige, or plain terra cotta. “Beacon Hill” wall/floor vinyl tile (shown), ¼” thick, is said to look like real brick and is cut into actual brick shapes to allow it to be laid in all classic paving patterns. It is available in white, beige, red, and pink colors, in sizes of 3”x9” as well as in 9” square tiles. Amicro Flooring Div., American Bilitrue Rubber Co., Trenton, N.J.

Computer Steel Detailing

Seven recently devised computer programs developed by engineering firm Emelco, Ltd., of Toronto, Canada, save from 30 to 60 per cent cost of detailing steel reinforcing rods. Because computer handles most of repetitive arithmetic and geometric problems, human errors are reduced. “Standet” program details steel rods for any kind of structural engineering or construction project. “Column” and “Slab and Beam” programs are up to 30 per cent more efficient than Standet. (With Column program, buildings can be detailed in blocks of as many as 49 types of columns located on as many as 16 floors at one time. With Slab and Beam, buildings can be detailed in blocks of as many as 75 kinds of slabs or beams at one time. “Lister,” “Ordret,” “Tagger,” and “Standet” programs are employed to simplify bookkeeping aspects of detailing. Costs of detailing are reduced by these programs from $4 to $10 a ton to $1 to $2 a ton. C-E-I-R Inc., 1180 Avenue of Americas, New York, N.Y.

Precision-Sized Tile

Precision-sized “Romany-Spartan” 4½”x6” and 4½”x8½” glazed wall tiles can reduce installation time as much as 20 per cent over conventional tile, according to manufacturer. Gridding tile to size eliminates glazed edges, which usually occur on two of four sides of given tile. Considerable space is left for grout between tiles because of unique beveled edge. In addition, tiles have grout lock feature that aids in effectiveness of grout. They are available in wide range of colors and complete range of trim and angles. U.S. Ceramic Tile Co., Canton, Ohio.

On Free Data Card, Circle 122

ARIZONA
Phoenix
H. D. M. Johnson Co.
416 N. 16th St.
416, 870-3034

CALIFORNIA
Los Angeles
H. D. M. Johnson Co.
417 W. Jefferson Blvd.
412, 686-1387
Sacramento
Phil Maguire Co.
200 51st St.
200, GI 9-1242
San Mateo
861 Bayshore Operating
Equipment
467 Pacific Blvd.
412, 870-3284

COLORADO
Denver
Bill H. D. Service Bureau
3218 Washington Blvd.
3218, YA 2-2414

DELAWARE
Wilmington
Transit Electric
Hartford (exchange)
Transit Electric Co.
52 Hampton Avenue
Northampton, Mass.
209, GI 0-2256

FLORIDA
Miami
Maintenance, Inc.
780 N. E. 2nd Ave.
780, 873-4435
Orlando
William A. Slater
723 Brookhaven Drive
723, 423-6050

GEORGIA
Atlanta
Marine Auto Company
540 Forrest Road, N.E.
404, 873-2021

HAWAII
Honolulu
Thomas H. Davies Co., Ltd.
P. O. Box 2070

ILLINOIS
Franklin Park
Jed Products Company
1045 W. Pasfield Ave.
812, 768-3111

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Jed Products Company
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3220, 876-1660

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816, 331-5250

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801, 843-2980

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G. W. Rosenau Co., Inc.
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827, LA 6-1111

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Needham Heights
Stanley Sales Company
95 Hampton Avenue
617, 444-7540

MICHIGAN
Royal Oak
Jed Products Company
101 Detroit Commerce Hvy.
313, JD 7-3993

MINNESOTA
Minneapolis
Jed Products Company
2090 Thomas Ave., No.
612, 220-6241

MISSOURI
Bridgeton
The J. F. Paxx Co., Inc.
12400 St. Chas. Rock Rd.
314, 894-1251

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Great Falls
The House of Glass
411 E. 3rd St.
406, 445-1977

NEBRASKA
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The Roland Co.
1014 N. Military St.
402, 534-3622

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713, 803-4483
Buffalo
225 Delaware St., Hahsler
225, 432-4916

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1122 Commerce Blvd.
315, 977-4000

Cleveland
Jed Products Company
5181 Garfield Blvd.
5181, 841-1140
Columbus
Jed Products Company
609 King Ave.
609, 926-2227

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Murray E. Winkle Co.
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T.A. 7-1417

Tulsa
H. W. Winkle Co.
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514, 8L 4-614

OREGON
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Garland-Hawkins Co.
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240, 725-0404

PENNSYLVANIA
Blawnox
Pittsburgh
Jed Products Company
510 Frequent Road
712, ST 3-4434

King of Prussia
The Sellers Company
515 E. Church Road
515, GI 8-1903

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Snuffy and Company
107 South 2nd Avenue
107, GI 4-7241

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511 Newell Ave.
511, 272-2414

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2022, 8I-8741

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3925 Macay Street
416, 841-2487

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J. W. DeLong Co., Inc.
200 South Waverly
200, WE 5-7501

Tulsa
W. R. Goodwin Co.
1111 North Broadway
906, 921-1149

Tulsa
E. H. Brown Co.
1313 North Broadway
313, 812-2818

Salt Lake City
J. C. Weaver Company
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881, 444-3111

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Richmond
The Roanoke Company
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713, 322-0898

WASHINGTON
Washington
Automatic Doorways
Refrigeration Engin. Co.
1718 Broadway
309, RA 5-4311

Spokane
John K. Donald, Inc.
South 12th Wall St.
509, 456-2588

MINNESOTA
St. Paul
Gambel-Hawkins Co.
121 N.E. 26th St.
121, 286-2200

STANLEY
Boston
211 Washington St.
211, 427-4600

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G. W. Rosenau Co., Inc.
6101 Chillum Place, N.W.
202, PU 4-0416

CANADA
Toronto, Ontario
Pilkington Bros. Ltd.
55 Eglington St.
416, 817-3411

New York City, N.Y.
1075 Marine Drive
604, 856-2221

Computer Steel Detailing

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On Free Data Card, Circle 122

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On Free Data Card, Circle 124

February 1965
Stanley automatic sliding entrance... a new concept that combines functional efficiency and design excellence

Stanley Automatic Sliding Entrances save floor space, offer modern, clean-line appearance and efficient two-way traffic flow through a single entranceway.


Model 5000 — SLIMLINE automatic sliding entrance. Lighter, more compact. Especially suitable for small shops and lower traffic applications. Priced within virtually any client's budget. Write for Folder No. M74.

And a complete line of famous MAGIC-DOOR® operators (pneumatic, hydraulic, electric), controls and accessories for doors that swing, slide or fold. Write for Folder No. M67-COM, or look us up in Sweet's.

STANLEY DOOR OPERATING EQUIPMENT DIVISION of The Stanley Works, New Britain, Connecticut.

February 1965
Manufacturers’ Data

Acoustics

Sound Control
Booklet, 12 pages, discusses sound-conditioned floor and partition systems for both single and multifamily construction. Sixteen systems are illustrated and described, each of which is rated by Sound Transmission Class to signify relative efficiency in sound transmission reduction. Cost index for each provides accurate method of estimating costs of sound-control construction as compared to standard construction. Booklet covers sound-control test results, floor-ceiling construction, wood stud partitions, wood stud and resilient channel partitions, and metal stud partitions. Celotex Corp., 120 S. LaSalle St., Chicago, Ill. On Free Data Card, Circle 200

Infrared Heaters
Infrared heating units for high ceiling industrial buildings with large cubic content are described in 4-page folder. Each unit has inverted, cone-shaped emitter in stainless steel that hangs overhead and allows unit to beam infrared rays at a

wide, even angle. Emitter’s perforated surface extracts maximum amount of heat energy from gases, thus enabling “greater amount of high intensity of infrared heat output than comparable heaters.” Units are either controlled individually by remote thermostat or by a 24-V electrical system that controls as many as 40 heaters by one thermostat. Units have AGA input rating of 40,000 Btu per hr on natural, manufactured, or mixed gas and 38,000 Btu per

hr on LP gas. Space-ray Corp., P.O. Box 3485, 306 W. Tremont Ave., Charlotte, N.C. On Free Data Card, Circle 201

Construction

Stainless Steel Resists Acid Fumes
Stainless steel “No. 20Cb-3”, for use in duct work, provides protection against sulphuric acid fumes and other corrosives. It is light weight and strong enough to be self-supporting, eliminating need for costly supports and bracing. No. 20Cb-3 is highly ductile and has no coating or lining to chip, crack, spall, loosen, or absorb destructive agents. Sheet ranges in gages down to 28 gage or .016” and weighs less than two-thirds of a lb per sq ft. It is also available in plate, strip, pipe, and tubing. Booklet includes corrosion charts and other test data. Carpenter Steel Co., Alloy Tube Div., Union, N.J. On Free Data Card, Circle 202

Patterned Metals
“Rigid-Tex” patterned metals are described in 4-page brochure. They are used for panels, interior partitions, column covers, fascias, acoustical walls and ceilings, doors, and partitions. Rigid-Tex is produced in more than 60 standard patterns in widths up to 52” and in gages from .002” to .090”. Rigidized metal increases resistance to marring, scratching, denting, and fingerprinting. It is available in all ferrous and nonferrous metals and in a variety of finishes. Brochure shows several patterns. Rigidized Metals Corp., Dept. SW, 658 Ohio St., Buffalo, N.Y. On Free Data Card, Circle 203

Granite Facings
Colors and textures of 12 types of granite are illustrated in 4-page brochure. Finishes include sanded, honed, thermal texture, polished, and split. Samples for job specifications are available upon request. Georgia Granite Co., Elberton, Ga. On Free Data Card, Circle 204

Steel Joist Specs
1965 edition of standard specs and load tables for open-web steel joists has just been published. Four series of open-web joists are covered: “H-Series” establishes high-strength design based on minimum yield strength steel of 50,000 psi; “J-Series” provides balance design with A-36 structural steel and stresses based on component strength of 36,000 psi; long-span joists or “L-Series” provides structural and design advantages of 36,000 psi minimum yield strength and long-span “IH-Series” offers structural advantages of 50,000 psi minimum yield strength steel. For Steel Joist Institute, Dupont Circle Bldg., Washington, D.C. On Free Data Card, Circle 205

Wood Gluing
Guide, 6 pages, illustrates correct glue and gluing instructions for wood construction. Chart shows various glues which should be used for plywood, panel-to-frame, plastic tops, timber laminating and assembly gluing situations. Also explained are edge gluing with clamp carrier, hot plate, and high frequency and veneer splicing methods. Shown are 34 separate gluing situations, depending on waterproof or nonwaterproof bond, assembly time needed, equipment available, stainless bond requirements, temperature conditions at time of gluing, and Government or military specs to be met. National Casein Co., 610 W. 80 St., Chicago, Ill. On Free Data Card, Circle 206

Plastic Panels for Building
“Architecture Design Data” folder (PL-656) contains nine design details on use of “Plexiglas” acrylic plastic in building applications. Each one-page detail bulletin illustrates sample project and construction drawing showing method of installation. Among uses described are fascia panels, curtain wall panels, sunscreens, and dome skylights. One bulletin shows details of recently developed framing system that facilitates mounting of fascia and storefront panels. Another depicts mounting of Plexiglas facings with concealed clips. Rohm & Haas Co., Washington Square, Philadelphia, Pa. On Free Data Card, Circle 207

Long-Span Joists
Steel joists for spans up to 144’ and depths to 72” are offered in 12-page brochure. Steel specs and design stresses are given for “DLH” and “DLJ” series joists, which are simply supported uniformly-loaded trusses suitable for direct support of roof decks between masonry walls and/or structural supports. Minimum yield strength for DLH series is

February 1965
Sealing Joints

"Joint Design Digest" outlines basic principles in structural joint sealing and glazing applications that permit most effective performance of sealants based on polysulfide polymer. Relationship between sealant depth, width, function, and use of suitable back-up materials are discussed and detailed. Also shown are glazing applications for polysulfide-base sealants used alone or in combination with other glazing materials for various types and sizes of glass. Thiokol Chemical Corp., 780 North Clinton Ave., Trenton, N.J.

Louvered Curtain Walls

Walls, windows, spandrels, and disappearing exterior shading units are integral part of curtain wall system introduced in 4-page folder. "Kool/Wall" protects glass areas against heat gain and keeps interiors up to 50° cooler. One ton of air conditioning is equal to 100 sq ft of glass area in Kool/Wall system. Shading louvers maintain proper intensity values at window openings, minimize fall-off, and keep brightness ratios within recommended ranges of proper lighting balance. Louvers are woven, made of bronze, and are available in black and white as well as in 8 standard colors. Two types of shading louvers are: low sun angle with 23 louvers to the inch and standard with 17 louvers to the inch. By flipping switch, louver can be regulated. Koolshade Corp., 1705 Gardena Ave., Glendale, Cal.

Southern Pine

Descriptions and recommendations of standard grades of Southern Pine are contained in 12-page booklet. Among recommended grades are those for light-frame and heavy-timber construction, siding, paneling, concrete forms, and heavy falsework. Stress grade and dimensional charts are given. Southern Pine Assn., National Bank of Commerce Building, New Orleans, La.

Laminated Wood

Laminated wood structures for industry are described and illustrated in 12-page booklet. They resist most acids, chemicals, salts, and humidity. Several structures are described that use laminated wood arches and truss systems. Included are details and photos of each installation. Koppers Co., Forrest Products Div., Peshtigo, Wis.

Watertight Concrete

Study of basic requirements for watertight concrete is presented in 6-page brochure. Field problems in producing watertight concrete are reduced by using "Pozzolith" (water-reducing agent and plasticizer that improves workability and reduces permeability and shrinkage) and "Embeco" (metallic aggregate grout and mortar for counteracting shrinkage and for providing lasting method of sealing honeycombed and other defective areas). Pozzolith is claimed to reduce uncombined excess or pore-producing water up to 33 per cent, thereby producing concrete of exceptional density and watertightness. Martin Marietta Corp., Master Builders Co., Div., 2490 Lee Blvd., Cleveland, Ohio.

Globes/Cylinders

Series of three brochures presents outdoor plastic lighting globes, indoor plastic lighting globes, and cylinders of metal, plastic, or glass. Each brochure includes dimensional data, photos of each type, as well as possible arrangements of fixtures, and separate price lists. Habitat, Inc., 336 Third Ave., New York, N.Y.

Incandescent Lighting

Booklet, 36 pages, describes commercial and industrial fluorescent and incandescent lighting fixtures. Incandescent fixtures include recessed square, recessed round, surface, decorative and outdoor, and swivel units. Dust- and moisture-resistant units are also described. Photos and description charts are given. Miller Co., 99 Center, Meriden, Conn.

Flush Wall Devices

"Flushplate" permits switch, receptacle, telephone, and other device surfaces to be placed flush with finished surface of walls and paneling. Receptacles can be covered with wall paper, wood veneer, or
Specify a U/L Rated Vapor Barrier that meets the National Building Code...

Chemicals, used to make some vapor barriers flame resistant, leach out when exposed to moisture, allowing the barrier to burn. This cannot happen to Pyro-Kure as shown here:

1. Barriers are exposed to moisture.
2. Barriers are then dried out.

SPECIFY THESE OTHER CONSTRUCTION PAPERS AND VAPOR BARRIERS FOR MAXIMUM PROTECTION IN CRITICAL BUILDING AREAS

Copper Armored Sisalkraft®
For concealed flashing with pure copper at 1/5th the cost of heavy copper:
COPPER ARMORED SISALKRAFT. A combination of electro-deposit copper and reinforced Sisalkraft that provides lifelong protection against moisture penetration at vulnerable points in the structure.

Moistop®
To prevent moisture migration through concrete slabs:

Curing Papers
For maximum protection and curing of concrete:
SISALKRAFT® CURING PAPERS. Reinforced, waterproof papers prevent damage and soiling of newly placed concrete slabs. Retards hydration, provides a maximum cure for harder, denser concrete floors.

Pyro-Kure® 600
Flame resistant, abrasion resistant vapor barrier for Class I roofs:
PYRO KURE 600. More than twice the moisture resistance of vinyl film. Will not burn when hit with hot asphalt. Approved by Factory Mutual for use with asphalt and Fiberglas® insulation on metal decks.
This demonstration shows that Pyro-Kure will always resist flames, even after subjection to a moisture environment. Its U/L Flame Spread rating of "25 or less" will not be altered because the flame-extinguishing adhesive used in the laminating process is permanent.

This is not the case with other "rated" barriers where moisture conditions can cause salts, used to impart flame resistance, to leach out. These salts can also corrode aluminum.

As a result of this permanent flame resistance, Pyro-Kure complies with the National Building Code standard for NONCOMBUSTIBILITY as defined by the National Board of Fire Underwriters.

Specify Pyro-Kure Vapor Barriers. Give your clients maximum protection against fire hazard, and against condensation. Various grades are available, including aluminum foil to kraft, vinyl film to foil, and kraft to kraft, from leading insulation manufacturers under their own brand names, or through insulation contractors for local application. All grades are reinforced with glass fibers for strength. Complete specifications are in Sweets' Catalogs.

Send for Samples and Technical Data Kit which includes perm ratings and other physical property information. Write: Sisalkraft, 41 Starkey Avenue, Attleboro, Mass. 02703.
Office Furniture Layout

"SCO" series of office furniture and its layout is described.

Prefab Pipe Blocks

"Thermal Blok" prefab insulating blocks for hot and chilled water piping is described in 2-page folder. Block is flame-resistant foam plastic insulation for working temperatures of 190°F with special blocks for high temperatures. With minimum ¾" thickness, it is (according to manufacturer) about 50 per cent more effective than other commonly used insulating materials. It is available in four standard sizes and suitable for insulating 11 standard pipe sizes from ¾" to 6" in copper or steel pipe. Preferred pipe raceways in blocks space pipes automatically. Thermal Blok Co., 115 N. Water, Wichita, Kan. On Free Data Card, Circle 221

Masonry Insulation

"Permalite" masonry fill insulation is described in 4-page brochure. It is permanent, non-combustible, roof-proof insulation that reduces heat loss and sound transmission. When Permalite is used, it is possible to plaster direct to concrete-block-walls without danger of sweating. U-value charts for both insulated and uninsulated walls are given. Great Lakes Carbon Corp., Mining and Mining Products Div., 630 Shatto Place, Los Angeles, Cal. On Free Data Card, Circle 222

Special Equipment

Partitions for Churches/Schools

"The Mathematics of Space in Churches" and "The Mathematics of Space in Educational Buildings" are two booklets that aid architects in planning maximum use of available space by employing folding doors and partitions. Actual installations, illustrated in color photos, show how various types of folding doors and partitions serve as sound and/or sight barriers to provide versatility in use of church and school facilities. New Castle Products, Inc., Box 353, New Castle, Ind. On Free Data Card, Circle 223

Fire/Smoke Detection

Three booklets deal with "Pyr-A-Larm" fire/smoke detection systems for schools, air conditioning and ventilation, and high-rise buildings. It is only detector to operate on ioniza- tion principle to detect fire in earliest possible stage. Fire detection system is activated by invisible combustion gases as well as by smoke, heat, or flame, allowing a few extra minutes for evacuation. When system is integrated with a building alarm system that is also connected with local fire department, it is "preferred" over other systems that depend on flame, heat rise or heat-rate-of-rise methods of detection. Each booklet discusses various installations and applications of Pyr-A-Larm systems. Pyrontronics, Div. of Baker Industries, Inc., 2343 Morris Ave., Union, N.J. On Free Data Card, Circle 224

Horizontal Mail

"Series 50" horizontal aluminum mail boxes in modular construction for high-rise apartment buildings and dormitories are described in 1965 brochure. Boxes are installed 16" deep in wall. More horizontal boxes can be installed in a given wall than vertical boxes. Front and rear loading types are used. In both types, tenants remove mail from lobby front side of mail receptacles with their own key. Anodized aluminum or brass finish is available. Auth Electric Co., 34-20 45 St., Long Island City, N.Y. On Free Data Card, Circle 225

Skylights

Extruded aluminum and glass skylights are discussed in booklet entitled "Dimensions Unlimited." Information is given on standard and custom dome, pyramid, and rigid skylights. Included are actual photos of installations and technical data and details on application of windows. On Free Data Card, Circle 226

Laboratory Planning

Booklet, 16 pages, deals with planning and installation of laboratory furniture. Sketches depict best way to measure room for lab facilities. Chart lists properties of 12 lab bench top materials. Also included is comprehensive checklist that describes all types of facilities needed when planning new lab or remodeling present facilities. Guide gives series of general suggestions and basic bibliography on school science lab planning. Booklet is available at 25¢ per copy.

Insulation

Prefab Pipe Blocks

"Thermal Blok" prefabricated pipe insulating blocks for hot and chilled water piping is described in 2-page folder. Block is flame-resistant foam plastic insulation for working temperatures of 190°F with special blocks for high temperatures. With minimum ½" thickness, it is (according to manufacturer) about 50 per cent more effective than other commonly used insulating materials. It is available in four standard sizes and suitable for insulating 11 standard pipe sizes from ½" to 6" in copper or steel pipe. Preferred pipe raceways in blocks space pipes automatically. Thermal Blok, 20 North Wacker Drive, Chicago, Ill.

Furnishings

Stretch Upholstery

Unika-Vaev of Denmark has introduced 26 upholstery and drapery fabrics designed to blend with its correlated color system. Architect Verner Pantone has contributed two versatile wool stretch fabrics for upholstery; Nanna Ditzel is represented by two wool fabrics, also for upholstery, each available in a wide choice of colorways. Unika-Vaev Corp., 305 E. 63 St., New York, N.Y.

Walnut Framed Tables

Catalog-price list of aluminum walnut framed tables presents nine table series. Included are coffee tables, end tables, dining tables, and conference tables. Shown is "KF" series glass top table with aluminum base. Dimensions are 24" x 48" x 16½". JG Furniture Co., 160 E. 56 St., New York, N.Y.

Laboratory Planning

Booklet, 16 pages, deals with planning and installation of laboratory furniture. Sketches depict best way to measure room for lab facilities. Chart lists properties of 12 lab bench top materials. Also included is comprehensive checklist that describes all types of facilities needed when planning new lab or remodeling present facilities. Guide gives series of general suggestions and basic bibliography on school science lab planning. Booklet is available at 25¢ per copy.
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For more information, turn to Reader Service card, circle No. 432
You can get as far as 247 miles from

Most of you remember when nobody talked about parts and service. “Don’t be negative,” the Boss used to roar . . . “want people to think we’re selling junk?”

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Onan parts and service... *but it isn't easy!*

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We certify that when properly installed and operated this Onan electric plant will deliver the full power and the voltage and frequency regulation promised by its nameplate and published specifications. This plant has undergone several hours of running-in and testing under realistic load conditions, in accordance with procedures certified by an independent testing laboratory.

ONAN

Division of Studebaker Corporation
2515 University Ave. S.E.
Minneapolis, Minnesota 55414

February 1965

For more information, turn to Reader Service card, circle No. 423

P/A News Report 93
Wood-Like Finish

Recently produced simulated wood finish in over 100 wood grains, called "Fresco," is presented in 12-page booklet. It is a nonporous heat- and stain-resistant, high-pressure, decorative laminate that can be easily cleaned with a damp cloth and ordinary soap. Booklet contains charts of types of wood grains and illustrates various colors and patterns available. Nevamar Co., Odenton, Md. On Free Data Card, Circle 227

Materials for Models

Precision-milled basswood materials for construction of scale and display models are illustrated in catalog. Featured are several hundred basswood strips, sheets and structural shapes including angles, tees, zees, columns, I-beams, channels, flanges, and quarter rounds. Also included are more than 50 items of siding materials such as clapboard, capped (board and batten) and corrugated siding, scribed sheathing, concrete with form imprint, concrete and cinder block, red and yellow brick, and three-color flagstone. Items are listed in fractional, decimal, and metric scales. Northeastern Model Materials, P.O. Box 173, Andover, Mass. On Free Data Card, Circle 228

Refuse Handling System

Automatic refuse handling system replaces trash burning with trash compaction into containers. It eliminates need for separate incinerator stack and destructor room and can utilize metal chute feeding system. Refuse from various floors falls on top of packing platen in hopper, thereby interrupting electric beam and initiating packing cycle. Packing platen moves to rear allowing refuse to be pushed with force of about 40,000 lbs into container. Debris is compacted to less than 25 per cent of its original volume. When container is loaded, system automatically shuts off and indicator light goes on. Containers are emptied on regular schedule by local trash removal contractor. Specs and dimensions are given in 2-page folder. Auto Pak Co., 2708 26 St., N.E., Washington, D.C. On Free Data Card, Circle 229

Floor Grating

Aluminum 1-bar open floor grating is described in 4-page folder. Grating weighs more than one-third less than other aluminum gratings, 75 per cent less than steel grating, and is reversible for long wearing. Grating units will not open up and rattle, because compression is permanently locked in. Liskey Aluminum Inc., P.O. Box 506-K1, Glen Burnie, Md. On Free Data Card, Circle 230

Door Closers

Catalog, 76 pages, presents door closers. Two tables of contents include one according to subjects and other by numerical designations of closers and accessories. Educational section tells how to select closers for various types of doors and locations. LCN Closers, Princeton, Ill. On Free Data Card, Circle 231

Lab Furniture

Catalog "No. 6-C," 66 pages, details over 500 different types of sectional laboratory equipment and furniture. Sectional units provide flexible building block approach which enables additions, reductions, modifications, or extensions at any time. Illustrations, specs, and applica-

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For more information, turn to Reader Service card, circle No. 453

February 1965
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For more information, turn to Reader Service card, circle No. 365

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For more information, turn to Reader Service card, circle No. 339

Lots of Locks

Exit fixtures lock sets, and door closers are illustrated in 8-page booklet. Master key operates all lock cylinders (except 2614 type) while building is under construction, but does not operate once regular master or change keys have been used in cylinder. This is achieved without removal of cylinder from locks. P. & F. Corbin Div., American Hardware Corp., New Britain, Conn.

On Free Data Card, Circle 233

Floor Matting

Catalog presents floor matting for commercial, industrial, and institutional use. Descriptive information and illustrations of mats, runners, stair treads, and floor tile are given. Included are nonslip matting to provide safety underfoot; scrapeage matting to effect better sanitation; standing mats for comfort underfoot; and
floor and entrance mats in various designs and colors. American Mat Corp., 2003 Adams St., Toledo, Ohio.
On Free Data Card, Circle 234

Drapery Tracks

Drapery tracks are described in 16-page booklet. Tracks have anodized or natural aluminum finish. "Contrack" line features carriers that ride closer to front track, all parts hidden, and three points of support. They can be completely assembled and installed after plastering. Pulley housing can be mounted through splice directly to ceiling—no special brackets or extra clips are required. Each pulley housing has its own return clip, so drapery headings can be returned around track ends to wall to completely enclose track ends. Details, photos, and specs are given. Graber Co., Graber Rd., Middleton, Wis.
On Free Data Card. Circle 235

Hand-Made Mexican Tile

Imported Mexican hand-made ceramic wall tiles are shown in 4-page brochure. Standard sizes range from 4"x4" to 6"x6" and include light and dark blue, yellow, terra-cotta, green, and brown colors. Any variation in size, design, or color can be accommodated. Wide variety of plain or decorated trim are available. Elon Imports, 1428 Lexington Ave., New York, N.Y.
On Free Data Card, Circle 236

TerraFino

the floor with "the best of both worlds" for school corridors

...because
a) it has the beauty, durability and low maintenance requirements of true terrazzo, and
b) it installs in exactly the same manner as resilient tile.

Architects Eggers and Higgins, of New York City, specified some 9,000 square feet of TERRAFINO flexible terrazzo tile for lobby and corridor areas of the Newark Academy (above). As we understand it, the client's only regret concerning TERRAFINO is that it was not used throughout. Other recent installations for architects Eggers and Higgins include Manhattan College (15,000 sq. ft.) and Syosset High School (23,000 sq. ft.).

Each TERRAFINO tile is a combination of real #1 and #2 marble chips and tough, flexible epoxy resins. Ten terrazzo plates are available in two sizes 9" x 9" x ⅝" and 12" x 12" x ⅝".

For descriptive literature and samples, fill in and mail the coupon below.

For more information, turn to Reader Service card, circle No. 465
Leather Walls

"Corium," a full-grain, genuine leather for use on walls and floors, is illustrated in 4-page pamphlet. It resists staining, moisture, and abrasion. Corium can be laid on plywood, smooth plaster, well-cured concrete and steel. It is approved by the New York City Board of Standards and Appeals. Leather is available in 4½"x4½", 4"x8", 4½"x9", and 4"x12" sizes. Finishes are natural, dark walnut, light walnut, and pigskin. L. Farber Co., Worcester, Mass.

On Free Data Card, Circle 238

Ceramic Tile Specs

Spec-charts for all types of ceramic tile over all structural materials are offered in 4-page brochure. Types include glazed wall, ceramic mosaics, quarry, glass mosaics, and cement body. Sizes, colors, patterns, uses, availability, surface finishes, grades, and nonslip characteristics are given. Ceramic Tile Institute, 3415 West 8 St., Los Angeles, Calif.

On Free Data Card, Circle 470

Vinyl-Tweed Carpet

"Royal" vinyl carpet is flame-resistant, waterproof, vermin-proof, and lint-free. It can be installed over practically any surface, either indoors or out. Tweed pattern is available in brown, white, gold, beige, green, gray, black, and apricot colors. Solid pattern comes in turquoise, charcoal - brown, green, apricot, white, and beige colors. Brochure gives one sample of each pattern as well as photos of other colors. United States Rubber, Floor Covering Products, 58 Maple St., Naugatuck, Conn.

On Free Data Card, Circle 471

Tile Study

Comparative life costs of floor and wall finishes with respect to ceramic tile are discussed in 8-page study. Comparisons were made among ceramic tile, quarry tile, terrazzo, carpets, vinyl, vinyl asbestos, and asphalt tile. Results showed that: (1) ceramic tile has long life and costs less to install than Leather Walls

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February 1965
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For more information, turn to Reader Service card, circle No. 333

P/A News Report 99
any other finish with comparable usable life; and that (2) ceramic tile requires little maintenance. Tile Council of America, Inc., 800 Second Ave., New York, N.Y.

On Free Data Card, Circle 472

**Tile Specs**

Latest technical developments for installation of ceramic tile are included in 1965 handbook. Shown are detail drawings and explanatory notes on correct methods of installing both interior/exterior tile floors and walls by using such setting materials as Portland cement, Dry-Set portland cement mortar, organic adhesives, and epoxy resins. Also detailed are installation procedures for countertops, shower receptors, swimming pools, tile bathtubs, refrigerator rooms, and steam rooms. Various setting and grouting materials as well as thickness measurements of different setting systems are given. Handbook indicates that ceramic tile costs from 1½ to 20¢ per sq ft a year less than substitute surfacing materials.

Tile Council of America, Inc., 800 Second Ave., N.Y., N.Y.

On Free Data Card, Circle 473

**Electric Tiles**

Electrically conductive ceramic tile is presented in 4-page brochure. It is used for anesthetizing areas to reduce hazards of explosions caused by static electric sparks. Tiles are imperious, unglazed, dust-pressed porcelain with straight edges and moisture absorption factor of less than one-half of 1 percent by weight. They are available in colors of taupe brown and spice brown and in three different patterns. United States Ceramic Tile Co., 217 Fourth St., N.E., Canton, Ohio.

On Free Data Card, Circle 474

**Custom Carpets**

Greeff Fabrics, Inc., has extended its custom carpet program to offer over 30 qualities and 300 colors for wool, Acrylic-an acrylic fiber, and cotton rugs. Merchandising aids include a "pom box" of sample yarns and 3 large sample books of 18 qualities, plus an installation planning form. Greeff Fabrics Inc., 155 E. 56 St., New York 22, N.Y.

On Free Data Card, Circle 475

**Wool Fabric**

"Woolsuede," a 100 per cent virgin wool, nonwoven fabric, is offered in 4-page brochure. Fabric is soil-, fade-, and flame-resistant as well as moth-proof. Woolsuede is available as flocked wallcovering, upholstery, and drapery. Brochure illustrates various colors and patterns. Felters Co., 393 Seventh Ave., New York, N.Y.

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In the March issue of PROGRESSIVE ARCHITECTURE, the editors explore the new role of architects in the design of churches and church interiors. No longer can designs reflect merely the subjective view of the architect or his client. At stake now is the projection of the sweeping changes in theosophies that are taking place in catholicism, protestantism and Judaism. What these changes are and how they affect today’s architectural commissions is of vital interest to professionals who will be designing religious buildings this year and in the future.

There is rich reading awaiting you in the March issue of PROGRESSIVE ARCHITECTURE. If you will send your $5 check immediately, you’ll receive the March issue plus eleven more, including the exciting January Design Awards issue. Address: Circulation Department, PROGRESSIVE ARCHITECTURE, Reinhold Publishing Corp., 430 Park Avenue, New York, N.Y. 10022.
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"The first phase of the Pennley Park urban renewal project in Pittsburgh involves 8 apartment structures ranging from 4 to 10 stories. Several factors influenced the choice of structural systems and materials. The program called for repetitive spaces with 20 to 24-foot spans. Subsoil was soft. We wanted a markedly residential character with pleasing scale, pattern, and texture. We wanted superior resistance to fire and sound transmission. We wanted economy."

"Solution: Transverse walls of exposed brick bear the building loads. The walls interact with 8-inch precast concrete floor planks to create stiff diaphragms. Brick walls are 12 inches thick. Structurally, they could be thinner in the upper floors, but 12 inches provides a substantial sound barrier. The spread footings solve the soil problem and, sweeping inward and upward to form the cross bearing walls, express the structural concept clearly."

"This transverse cross-section shows relationship of walls and floors. The precast floor beams turn upward; the utilities are run through the corridors. On-site labor and materials handling are reduced. Total building structure is accomplished by a mason and precast concrete floor system. FHA requested a comparison of this system with steel frame and bar joist. The steel system, including necessary fireproofing, additional partitions, and painting, came in nearly 20 per cent higher in cost than the brick bearing wall. Concrete might have provided many of the same advantages, but it would have required finishing. The exposed brick bearing wall gave us six elements: structure, separation, economy, acoustics, fire protection, and finish."

"The section at left is through floor and corridor. At right, it is through floor and cross bearing wall. The precast floor system bears four inches on bearing walls; precast spandrels frame into bearing walls to carry corridor walls and exterior curtain wall."

"Typical floor plan shows how flexibility of plan and cross bearing wall structure can coexist. Reading from left to right at top are a 2-bedroom, efficiency, and two 1-bedroom units. The 12-inch brick walls create superior sound barriers, not only between apartments, but between rooms in many apartments. We have 296 apartment units and 22 commercial units in the 8 buildings which constitute the first phase. A similar number of units will exist in the second phase, involving seven buildings. The brick bearing wall concept solved our problems very nicely. Faced with the same kinds of needs and problems, we will undoubtedly use this system again."
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Here's the thickness needed in various materials to obtain this same low C factor:

<table>
<thead>
<tr>
<th>Material</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urethane</td>
<td>1.0&quot;</td>
</tr>
<tr>
<td>Glass fiber</td>
<td>1.8&quot;</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>2.0&quot;</td>
</tr>
<tr>
<td>Fiberboard</td>
<td>2.4&quot;</td>
</tr>
<tr>
<td>Cellular glass</td>
<td>2.7&quot;</td>
</tr>
</tbody>
</table>

Easy-to-handle Barrett Urethane saves on application costs, too. Compare what a roofer would handle on a 500-square job: only 43,500 lbs. of Urethane against 210,000 lbs. of fiberboard insulation. At an average handling cost of $5 per ton, this is a saving of over $400 or nearly $1 per square. Barrett Urethane comes in large, thin, lightweight panels. You get a tough walk-on, workable surface that won't bend, buckle or melt when mopped on with hot pitch or asphalt. There's only one way to get all the advantages of Barrett Urethane. Specify it by name. Merely to call for "1 inch of insulation" is inadequate with today's wide variations in insulating efficiency. For a detailed booklet, write to Barrett Division, Allied Chemical Corporation, Dept. PA-2, 40 Rector Street, New York, N.Y. 10006.
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PRESIDENT JOHNSON, IN HIS STATE OF THE UNION MESSAGE
I propose we increase the beauty of America, said President Johnson a few weeks ago in his State of the Union Message to Congress. These are not, in all likelihood, mere empty words, since although portions of the President's speech were generalities that could be thought of as platitudes, he also referred to specific problems bearing on the future of our man-made environment.

"Ahead now is a summit," the President said, "where freedom from the wants of the body can help fulfill the needs of the spirit. . . . We want to grow and build and create, but we want progress to be the servant and not the master of man. We do not intend to live in the midst of abundance, isolated from neighbors and nature, confined by blighted cities and bleak suburbs, stunted by a poverty of learning and an emptiness of leisure. The Great Society asks not how much, but how good; not only how to create wealth, but how to use it; not only how fast we are going but where we are headed."

The goal he has in mind, then, is not merely the old placebo of a chicken-in-every-pot, but, more deeply, how "to protect and restore man's satisfaction in belonging to a community where he can find security and significance." As means of achieving his goal, President Johnson announced that he intends to convene soon a White House conference on natural beauty, and also to create a national foundation of the arts in order to "help, promote and honor creative achievement."

More direct proposals in the message included studies of high-speed rail transportation between urban centers; the establishment of a department of housing and urban development (though a Cabinet post for urban affairs was not mentioned); the landscaping of highways and city streets; providing recreation areas along the highways; the improvement of open areas in cities; elimination of air and water pollution. "The first step," the President said, "is to break old patterns—to begin to think, work and plan for the development of entire metropolitan areas."

The last two generations of Americans have seen broad programs submitted by five Presidents. Roosevelt's "New Deal" was designed to pull the nation out of its severest depression; Truman's "Square Deal" sought the extension of his predecessor's social and economic programs needed by a country readjusting after a world war; Eisenhower's "Great Crusade" had as its main aims the achievement of increased prestige abroad and material security at home; Kennedy's "New Frontier" ventured into fresh paths and sought encouragement for people in many and varied fields, including architecture, planning, and the arts. Now President Johnson's "Great Society" not only continues the Kennedy goal of improving our cultural life as well as our economy—it also begins to tackle the specific means of such improvement.

This direction will inevitably result in a continually increasing emphasis on planning and design—a situation most gratifying to all architects, whatever their political persuasions.
Except for the rapidly disappearing one-room schoolhouse, today's schools,—old or new, conventional or avant-garde—have one characteristic in common: they are all made up of spaces that vary widely in size and shape.

Most of us started school in buildings composed mainly of classrooms, corridors, and assembly rooms—along with some smaller but equally important sanctums: stairwells, toilet rooms, and principal's office. For many of us, the dimensions of the larger spaces were awesome—the volume of the gym or the length of the corridors.

The sequence of spaces in these traditional schools was not very exciting. We generally entered the building through stairwells or corridors, which were ruthlessly uniform in dimensions and in rhythm (of landings, in one case, and doors, in the other). Classrooms were uniform, too, except for the varied panorama seen through the wall of windows opposite the door.

All of that has changed for many—unfortunately not most—of today's schoolchildren. The classrooms of today may have windows anywhere or nowhere at all; they may change dimensions at the roll of a movable partition; they may not even be separated from the corridor.

It is the circulation spaces, however, that link the rooms together into spatial sequences. Today's child may enter the school through a cloistered courtyard or over a bridge; once inside, he may find himself in a vast mingling space, a "demonstration area" or "assembly area." He may reach his classroom without passing through a corridor, or he may go through corridors that have walls of glass now on one side, now on the other, now on both. Skylights or clerestories may light his way and offer him meaningful views.

Where the climate is mild, much of this sequence may take place outside—in fact, all of it right up to the classroom door. The spaces in such a sequence, although not enclosed, may nonetheless be rooms.

The significance of these spatial sequences varies with the program. Where children spend most of their time in one room, no amount of spatial excitement along the way can compensate for a dull classroom.

In P/A's last major feature on schools (FEBRUARY 1964 P/A), we discussed space in terms of spatial modules—repeating units of volume, structure, and services out of which the actual, perceptible spaces can be formed. On the following pages, we shall examine the actual spaces in five new schools and the sequences in which they have been assembled.
As one approaches the Gordon School (photo overleaf), the forms and locations of the major interior spaces become immediately apparent. The uniform pyramidal roofs of the classrooms (1) are clustered around the larger, higher pyramid of the central, multipurpose space. This articulation of the roof, and the frequent jogs in the exterior walls, give the school the appearance of a village, compatible in scale and form with the neighboring houses.

At the entrance is a complex of exterior spaces that are similar in size and shape to the interior rooms. The colonnade at the entrance clearly expresses the module of the entire plan—the 3'-5" width of a concrete pier, on which the seemingly random dimensions of intermediate spans are based. A space in front of the administration entrance is roofed by a pyramidal construction identical in area to those of the classrooms, but of complementary slope (12/9 instead of 9/12), which is surmounted by a belfry.

Inside the school, each major room has a pyramidal ceiling rising up to a pyramidal skylight of white translucent plastic. The exposed concrete plank that forms the pyramids is supported on dark-stained wood beams that articulate the plan of the ceiling (partial plan, facing page). These beams rest on U-shaped concrete piers, the outer surfaces of which show the linear pattern of board forms (1, 3).

The width of these piers establishes the depth of alcoves at the sides of the rooms (3, 5), which have flat ceilings, generally of exposed hemlock decking. Other flat-roofed spaces have ceilings of exposed hemlock or fibrous, sound-absorbing panels. In some locations, plywood soffits flush with the bottoms of the beams (2) conceal mechanical plenums or recessed lighting fixtures; at other points, paper honeycomb sheets at that level shield recessed fluorescent fixtures. The flooring pattern also helps to articulate the spatial organization: flooring under the pyramidal ceilings is generally of bright-colored vinyl-asbestos tile, while surrounding flooring is of neutral cork color (2).

The architect has sought to express the traditions of the school with spaces that are varied but permanently enclosed, avoiding thin, light materials that give flexibility but create a "tentative feeling." Although most of the surface materials are rugged, they have no "tiled, anti-vandal look."

The dominant colors are the grays of exposed concrete and pumice block, the dark tones of the stained wood frame, and the russet of the asphalt roof shingles. Brighter colors, mostly vivid primaries, are introduced in some of the vinyl-asbestos floor tile, and in paint on doors, panel boards, and on the smooth inner surface of the concrete piers.

Classroom lighting is provided by the central skylights (4), which are adequate on all but the darkest days, when the indirect fluorescent cove fixtures at the base of the pyramid (3, 5) are used. The surfaces of the pumice block and the concrete plank provide adequate acoustical absorption.

The site, with its many fine trees, was left largely undisturbed. A small pond was created from the natural stream near the entrance drive and artificial mounds were built up to define two circular kindergarten play spaces.

Both the building and the program are designed to give the children a sense of participation. There is, for instance, no electrical bell or public address system; instead, a child rings the school bell for important functions. Use of chalkboard for toilet partitions provides an unconventional means of encouraging self-expression.
FEBRUARY 1965 P/A

Sequence of Spaces in Schools 149
THE GORDON SCHOOL, East Providence, Rhode Island • Architect: William D. Warner • Site: Seven acres of woods and meadow divided by a spring-fed brook; entrance from east • Program: Private school for 240 students, kindergarten through eighth grade. Long-standing emphasis on individual instruction for each child • Design Solution: One-story cluster of classrooms and a multipurpose space, each articulated on exterior by pyramidal roof; lower circulation and service spaces linking them together • Structural System: Exposed wood beams supported on poured U-shaped columns. Roof structure of hemlock T & G decking or concrete plank, exposed on the underside • Major Materials: Exposed structural materials: gray concrete, dark-stained wood, concrete plank, silicone-coated natural gray pumice block walls. Red asphalt shingles on pyramidal roofs; tar and gravel on flat roofs; vinyl-asbestos tile floors • Mechanical System: Heating by hot-water fin-tube radiation behind window cabinets or special mesh enclosures • Cost: About $16 per sq ft for building, excluding architect's fee • Specifications Consultant: Alfred Kozar • Electrical Engineer: Morris Stoller • Structural Engineers: Dormer & Mulcahy • Mechanical Engineers: D. H. MacLellan & Associates • General Contractor: F. N. Gustafson & Sons • Photographs: William Gerold (2, 3, 4, 5) and Charles R. Hauser (introductory page, and 1).
Sheltered Square

When the design for this school won an Award in P/A's Tenth Annual Design Awards Program, the jury commended it for its "sense of enclosure." The placement of classroom buildings to form a sheltered central court (model photo, 4) affords not only practical protection from the constant sea winds, but a sense of community for "army brats" who must move frequently from school to school.

The Design Award jury's principal reservation about the project—that it "might not hold its own from a distance"—seems to have been confirmed in the actual buildings. From outside the compound (3), one sees an apparently haphazard cluster of forms—no one of them dominant. Only from inside can one see that the dominant element—giving order to the entire complex—is the central open space (1), upon which all activity focuses.

The four buildings standing inside this court divide it into several areas assignable to different purposes. The paved central space—its implicit volume established by the façade of the multi-use building (1, 6)—serves as an active, social space, the largest activity space within the compound. (There are open playing fields outside.) One corner court accommodates the main entrance (1), another is the kindergarten play area (2), another—reached through a pergola—is a quiet library court (5); the fourth is planted with grass (8). In the original design (4), there were to be two progressive drops in level toward the central area, reinforcing the sense of shelter, but economy dictated that the court be largely at one level.

Covered walks leading to the classrooms surround the court in the form of a cloister (8). The buildings on either side of this walk (see plan) are so distributed that where the walks are open on the outer side, a building on the inner side serves as a buffer against wind; only at the corners are they exposed on both sides.

The interior spaces generally conform to their exterior envelopes (7, 9). Only the service spaces and classroom buildings have interior divisions not visible from outside. The classroom partitions are not considered permanent, but can be removed conveniently if other teaching systems should be adopted. Rooms of all types are windowless, except for glass in the entrance doors.

Adjustable louvers are used to direct some of the continual breeze through the interior. Classroom lighting is indirect, with troffers illuminating the concrete tee roof purlins. Squares of acoustical tile mounted on walls and ceilings provide adequate sound absorption.
GENERAL GEORGE S. PATTON, JR., ELEMENTARY SCHOOL, Fort Ord Military Reservation, Monterey County, California • Architects: Wallace Holm & Associates • Site: The 17.75-acre site is adjacent to a military housing development. The school has been located on the crest of a large sand dune, exposed to constant winds from the nearby Pacific • Program: Capacity of 900 students, kindergarten through eighth grade. Transient nature of local population results in very high rate of turnover—with arrivals and departures spread unpredictably throughout the school year—and wide diversity of scholastic background among pupils in a given class. Budget quite limited, based almost entirely on Federal and state funds. • Design Solution: Each grade in separate three-classroom building for rapid development of sense of "belonging" among new students, and to provide most convenient way of regrouping students within grade. Classroom buildings grouped around sides of interior court, in which kindergartens, library-administration building, and multi-use building are placed. Top of dune scooped out and banked around outside of school, reinforcing visual image of hill and helping to keep out wind. • Structural System: Tilt-up concrete frame walls with masonry infilling; tilt-up "sculptural" concrete walls; precast prestressed single- and double-tee roof beams. • Major Materials: Exposed structural materials; synthetic tile floors; tar and white gravel roofing; standard metal adjustable louvers. • Mechanical System: Individual gas-fired forced warm air units in each classroom. Central ducted system for multi-use and library-administration buildings. Air-conditioning unnecessary in this climate. • Cost: About $21 per sq ft (calculation includes one-half area of covered walks) • Architect-in-Charge: Edward H. Duerr • Project Designer: Delbert Highlands • Project Captain: Ronald C. Meredith • Associate in Charge of Structural Design: Laszlo Toldi • Landscape Architects: Lawrence Halprin & Associates • Acoustical Consultant: O. B. Wilson, Jr. • Electrical Engineers: Williamson & Vollmer • Mechanical Engineer: W. Perry Baker • General Contractor: Tombleson, Inc. • All Photos, Except Model Photo: Morley Baer; Model Photo: John Livingstone.
Taking the conventional double-loaded finger plan requested by the client as a starting point, the architect has disposed his forms on the flat site in a layout that is at once diagrammatic and classical (1). The broad symmetrical entrance colonnade leads around a sheltered forecourt into a rigorously symmetrical system of corridors.

Circulation routes in this scheme are long, but that is not a major drawback in a program where pupils move from room to room infrequently—never going from one classroom wing to the other. Glazed links between these wings and the central building (3) provide refreshing views and orientation along the way. The uniform section of the corridors has been relieved by the use of an undulating canopy of perforated metal sheet concealing an overhead raceway for pipes, ducts, and conduits. Backed up with rigid glass-fiber insulation, these ceilings provide necessary acoustical control. Their curving surfaces distribute the light of surface-mounted fluorescent fixtures and shield distant fixtures from view (from the usual eye-level of pupils and adults).

Concrete block bearing walls along the corridors are faced with small-scaled, matte-finished, off-white ceramic tile. These walls are interrupted every 12 ft by hollow wood chases that act as expansion joints and accommodate conduits, pipes, switches, and outlets, so that the masonry walls need not be penetrated. Ceiling-high transoms and skylights at classroom doors (4) introduce variety into corridor elevations and lighting.

The classroom window (SELECTED DETAIL, overpage) was designed to meet needs established by the building committee: natural light without need for sunshades or blinds; fresh air supply in any weather without disturbing drafts. The size and spacing of the projecting bays corresponds to the spacing of structural beams and to the need for expansion gaps in the concrete block walls. The windows effectively screen out distracting views from the pupils' seating area (4), yet do not produce a feeling of isolation. As one approaches the outside wall, wide views open up (6).

The distinctive character of the classrooms does not end at the window wall; the other three walls and the ceiling are also noteworthy. One wall is entirely of natural slate chalkboard—floor to ceiling and wall to wall (2); the corridor wall is entirely of fabric-covered tackboard; the rear wall has a neatly organized arrangement of utilities and storage (5)—pegboard doors above and below the sink counter are painted in red, orange, yellow, and black.

The sleekness of the classroom ceiling has been achieved using the most economical elements. The sound-absorbing ceiling surface is of rigid glass-fiber insulation panels set between the laminated beams. Steel diffusing grilles (identical in size and shape to the insulation panels) are suspended between beams to shield simple surface-mounted fluorescent lighting fixtures (4, 5). The appearance of the ceiling varies with the angle of view; at the usual oblique angle one sees only the dark-stained beams with isolated panels of luminous grille (2).

The meeting place of the school is the central multipurpose gym, which has clerestory windows similar in design to the classroom windows. A folding wall between the gym and the cafeteria allows the latter to be incorporated into the gym for additional seating or play space.

Although the spaces in this school are conventional in form and arrangement— as determined by program and budget— the architect has created spatial interest by several means. He has clarified the spatial sequence with revealing views as one moves through the building; he has sharply expressed the geometry of spaces by completely covering opposing surfaces with contrasting materials; he has treated some spatial boundaries, including classroom and corridor ceilings and classroom window walls (inside and outside), so that they change in appearance as one moves about in the spaces.
SKINNER ROAD ELEMENTARY SCHOOL, Vernon, Connecticut • Architect: William Mileto • Site: About 10 acres of level pasture land in an area of rapidly expanding suburban housing development • Program: Elementary school for 890 pupils; 22 classrooms and 4 kindergartens • Design Solution: Conventional double-loaded finger plan, to meet building committee's requirements; unconventional fenestration (SELECTED DETAIL, facing page) provides ventilation without drafts and natural lighting without need for blinds • Structural System: Wood plank roof on laminated wood beams; concrete block bearing walls (at exterior and along corridors), exterior wall resting on poured concrete wall to window-sill height • Major Materials: Exterior concrete block walls sprayed with white epoxy cement; wood framing and window frames dark-stained inside and outside; corridor and gym walls faced with off-white matte-finished ceramic tile; corridor ceilings perforated corrugated aluminum; classroom walls of natural slate, tuckboard (fabric-covered fiberboard), and painted block; classroom ceilings of exposed glass fiber insulation board; floors: vinyl asbestos tile on concrete slab • Mechanical System: Oil-fired steam heating system, perimeter fin-tube radiation; gym heated by forced air units; classrooms ventilated by roof-mounted units • Cost: Construction cost, $634,000, or $13.20 per sq ft • Mechanical Engineers: Hill & Harrigan • Electrical Engineer: Daniel Gaidos • General Contractor: Douglas Dahm Company • Photographs: David Hirsch.
SKINNER ROAD ELEMENTARY SCHOOL: Vernon, Conn.

WILLIAM MILETO, Architect

SELECTED DETAIL
BAY WINDOW
Nature Recaptured
The air-conditioned, almost windowless teaching spaces of this school are located in several departmental buildings (or "schools") linked together by a network of outdoor circulation spaces. These spaces have been conceived, according to the architects, not as corridors, but as "rooms without roofs."

"Coming out of classrooms with little view of the outside world," the architects hold, "students should be treated to delightful and encouraging sights as they move on to the next area of isolation and concentration. The time required to change classrooms is used to stimulate them by exposure to sunlight, changing weather, exhibits, and living plants."

To ensure that students will take advantage of these environmental treats—and the attendant opportunities for sociability—the largest courts (4) have central landscaped areas elevated 4 ft above the walks, so that students must walk around them—not across. This scheme has the additional virtue of preserving two areas of the original landscape where they can be seen and enjoyed but not trampled.

The several smaller "outdoor rooms" (2, 3) are largely paved in pebble-finished concrete, but each one includes a particular type of native flowering plant, after which the court is named so that students will learn to recognize it. All planted areas are simple in shape for ease of maintenance.

The "rooms without roofs" concept of the courts has been expressed by using wall materials in them that contrast with the red brick of the school exterior (1). Walls of concrete block painted white, with occasional areas of vivid color, are interspersed with panels of unfinished soft pine (2) "for posting notices and carving initials."

Student lockers have been placed in alcoves along the covered walks around the central administration-library building (3). In this location, they are convenient to main circulation routes, but not adjacent to classrooms, where they would cause disturbance in a program where all students do not change classes at the same time.

The decision to air-condition all interior spaces (except the gym) was based on studies indicating that the additional cost could be largely offset by eliminating conventional fenestration. The decision was influenced, of course, by the warm climate of El Dorado, which is only a few miles north of the Louisiana border. It was also influenced by the architects' conviction "that more and better schools can be bought with the school dollar if windows are not used as means of light and ventilation." They are equally convinced, however, "that daylight should not be completely excluded except as a last resort and in schools with the very minimum budget."

Accordingly, they have provided 3-ft-wide, floor-to-ceiling, fixed windows spaced so that each classroom will have at least one (7); there are also glass inserts between the roof beams where they cross the exterior walls. These glass areas are valuable for fire safety, for daylight in case of power failure, and for the "reassurance about the world outside."

The elimination of enclosed corridors and operable windows has reduced distracting sounds in the classroom. The sound of the unit air-conditioning has been subdued (to the level of useful acoustical perfume) by mounting the major part of the equipment above the glass-fiber insulated roof (where it is shielded by aluminum screens, 2, 4).

The modular layout of structure, mechanical equipment, fluorescent lighting, windows, and doors throughout the teaching areas makes it possible to move any of the block partitions over a weekend.

The buildings devoted to the two academic departments (or "schools") have central Instructional Service Centers, each of which includes a 150-seat tiered lecture hall, faculty work and office space, seminar rooms, a branch library, and individual study carrels. Future expansion plans call for these two academic schools to be divided in half according to subject, thus adding two more schools, each with its own Instructional Service Center.

The School of Fine Arts includes a tiered choral practice room and a Little Theater seating 300, which is conveniently situated for use by the community. Its intimate theatrical character is enhanced by bright red carpet and seating upholstery.

The Physical Education building is devoted largely to a single, vast interior space, the multipurpose gym (5). With its seating capacity of 1200, this space is intended as a gathering place for the entire student body. It has been placed in a natural depression in the terrain, so that its height can be accommodated beneath the prevailing roof line and its seating area entered at the main floor level of the school. Its 150-ft-square column-free space is spanned by steel beams resting on a central steel truss of triangular cross-section, which accommodates lighting and mechanical equipment and serves as an identifying element on the exterior (6).
EL DORADO SENIOR HIGH SCHOOL, El Dorado, Arkansas

- Architects: John B. Abbott; Marvin E. Frank; Charles W. Ripley; Ginocchio, Cromwell, Carter, Dees & Neyland
- Site: 43 wooded acres adjacent to a residential area; site preparation minimized and areas of natural terrain retained within school complex
- Program: Capacity of 1200 students; gymnasium with seating for 1200; Little Theater seating 300. Educational program, known as “El Dorado Plan” involves division of facilities by subject areas into five (later seven) “schools” each with some or all of the following: teacher’s offices, seminar and work rooms, lecture hall, branch library, and individual study carrels. Buildings designed for establishment of team teaching system in stages, but built for easy conversion to other systems
- Design Solution: “Schools” in individual one-story structures around central administration-library building, separated by open courts with covered walks around them
- Structural System: Locally produced laminated yellow pine beams supported on steel tube columns and masonry walls, except for 150-ft sq steel frame over gym; structural concrete floor slabs with drilled concrete piers because of expansive clay soils
- Major Materials: Exterior walls of brick, concrete block, vertical pine boards; interior walls of brick, concrete block, plywood, gypsum board; classroom floors of vinyl-asbestos tile, carpet in areas where sound control is vital, other materials in special areas; ceilings of exposed wood or tectum decking; built-up roofing over glass fiber insulation; aluminum sash and frames
- Mechanical System: Classroom and administration-library buildings heated and air-conditioned by packaged heat-pump units located on roofs; 84 independently controllable zones allow for changes in interior layout. System, unprecedented in state, adopted after economic studies showed only 1 per cent higher initial cost, with lower operating cost, than conventional heating and ventilating and conventional windows. Gym heated by gas-fired hot-water system, with radiators, unit heaters, and heating and ventilating units
- Communications System: Complete intercom system and wiring for closed circuit TV
- Costs: Contract cost: $1,669,000 or $12.92 per sq ft; total cost (including land, equipment, fees): $2,202,000 or $17.04 per sq ft
- Educational Consultant: William H. Moore
- Planning Consultants: Educational Facilities Laboratories
- Acoustical Consultants: Bolt, Beranek & Newman
- Landscape Consultant: James Riley
- General Contractor: Wilson Hargreett Construction Company
- Photographs: William E. Davis.
Loft Plan
Humanized

The four high schools designed by this firm for the San Mateo Union High School District constitute a set of progressive variations on an architectural theme. All four are based on the "loft" concept originated by John Lyon Reid. All are similar in over-all concept and in details; it is in the arrangement of spaces that they represent successive stages of development.

The first school of the series (Hillsdale, 1955) was compact and symmetrical in over-all form, with most of the teaching spaces in a single, uninterrupted floor area that could be divided flexibly into classrooms, many of them windowless. In the second school (Mills, 1959) teaching space was divided into smaller areas, separated by a symmetrical series of courts. In the third school of the series (Aragon, 1961; p. 158, November 1962 P/A), small, light courts were distributed throughout the instruction area so that most rooms had exterior views. Like Hillsdale, Aragon was symmetrically arranged around a single central court of impressive dimensions.

In the latest school, Crestmoor, irregularities have been introduced in the over-all plan, largely because of the constricted building area available. Within the irregular outline of the school plan, however, there remains a clear geometrical order based on the 28-ft-square structural bay that has been used in all four schools.

A standard instructional building five bays (140 ft square) has been developed for this school, in which a central light court only one bay square insures an exterior view for all major interior spaces. Although they occupy only 4 per cent of the area of each building, these courts are major visual events, eliminating the feeling of isolation attributed to the earlier loft-plan schools.

Crestmoor contains four of these standard structures, along with a larger (5 bays by 8) structure—which requires two light courts (5 per cent of the building area) to give outside exposures for all classrooms.

Aside from the six uniform 28-ft-square interior courts, Crestmoor contains two much larger courts of almost equal dimensions, each rectangular and each with a rigidly symmetrical disposition of the buildings around it. The covered walks surrounding these courts accommodate all circulation between the six separate buildings of the school.

The location of athletic facilities and a little theater on a lower level at the downhill end of the school produced a two-story-high pool court (2), with two levels of covered walks around it. The need for vertical circulation was met by an arrangement of ramps at one end of the court (3)—carrying traffic to and from a lower-level main entrance as well as lower-level facilities. The ramps dramatize the movement from one level to the other and serve as an animated sculptural element to be observed from around the court. At the opposite end of the court, tiers of bleachers make the change of level.

Some of the classrooms are entered directly from the covered walks. Most, however, are reached through corridors leading in from these walks. Corridor walls advance and recede at slight angles—following the general lines of the structural bays without intersecting columns.

Fire protection requirements have had a significant influence on the layout of these schools. The uninterrupted floor areas of the Hillsdale School necessitated fire walls in certain locations and fire-proofing of areas for public assembly. Division of the later schools into separate buildings eliminated the need for fire-proofing—allowing the steel structure to be exposed throughout—and reduced the requirements for fire-walls. All three of these schools have rainproof roof vents in the covered connecting elements (4) to check the spread of flames.

The simplicity and uniformity of the steel structural frame at Crestmoor and the two preceding schools—with no steel sections deeper than 14 in.—is an advance over the first school in the series, in which a wide variety of steel sections and spans were required. Earthquake stresses in these three later schools are taken up by Vierendeel trusses running along the exterior walls of the higher building elements (1), rather than in complicated bracing structures, as at Hillsdale. Hillsdale also had a considerable amount of underground construction for piping tunnels, which was eliminated in later schools by placing piping above corridor ceilings.

Mechanical ventilation in the first two schools involved extensive double-duct systems and central fan rooms, but the introduction of interior light courts in the later two schools (5) makes it possible to use unit ventilators instead. This practical advantage of the light courts is as significant as their psychological advantages.

The first two schools in the series had glass-block skylights throughout, but the later two—with exterior views for most
CRESTMOOR HIGH SCHOOL, San Bruno, California • Architects: Reid, Rockwell, Banwell & Tarics • Site: About 40 acres. Building area limited by steep slopes • Program: High School for 1750 students. Separate men's and women's gyms, outdoor swimming pools, little theater seating 400. Loft-type instruction spaces with movable partitions • Design Solution: Over-all concept similar to three previous schools by same architects for San Mateo Union High School District (Hillsdale, Mills, and Aragon Schools). Academic spaces on one level in five separate structures, linked by covered walks around two major courts; several smaller, landscaped, light courts. Theater and gym at lower level with locker rooms under classrooms • Structural System: Steel frame with steel deck roof, concrete slab floors • Major Materials: Exterior wall panels of porcelain enamel, glass, and aluminum louvers in aluminum frames; movable metal interior partitions; suspended acoustical tile ceilings; prism block skylights; vinyl asbestos flooring; asphalt and gravel roofing • Mechanical System: Unit ventilators; gas-fired hot-water heating • Cost: Building cost, $3,138,200; total contract cost (including site development, landscaping, swimming pools, and equipment), $3,706,000 • Structural and Mechanical Engineers: Reid & Tarics • Electrical Engineers: Smith & Garthorne • General Contractor: Williams & Burrows • Photographs: Roger Sturtevant.

spaces—depend more heavily on artificial fluorescent lighting. In the spaces at Crestmoor that have skylights—the academic and administrative areas—the fluorescent fixtures are mounted inside their wells, so that all illumination seems to come from the same source.

Movable metal partitions, used only in the academic and administrative areas in the first school, have been used in almost every area of the later schools, including kitchens and music classroom (where double partitions with higher sound isolation are used). Even the exterior walls are movable, to facilitate moving openings as well as expanding spaces. The value of these movable partitions and walls has recently been demonstrated in the expansion of the academic wings at Hillsdale, which were enlarged and rearranged during the summer months, re-using original panels, without disturbing existing lighting fixtures, ventilation outlets, or floor covering.
Like a source of concentric soundwaves, the pavilion that houses Syracuse University's newly opened School of Journalism (see p. 91, September 1964 P/A) is the focal element of what will ultimately be a three-building complex called the Samuel I. Newhouse Communications Center. Named for its donor, whose Newhouse Foundation has given $15,000,000 to build the entire project, the completed complex is expected to be the world's most advanced mass communications study center. Two other buildings, to house the Journalism School and complete the master plan, will be devoted to instruction and research both in radio and television techniques and also in other electronic communications developments. The future buildings will be located at right angles to one another on the sloping 4-acre site: one, an 8-story rectangular block on the west perimeter of the property, and the other, a 5-story block along the lower north side. These structures will simultaneously provide gateways to the campus areas beyond and will enclose the communications "quadrangle," producing an exterior space that the architects envision as having greater prominence than the buildings themselves.

"Because we have a unique site, which slopes gradually both from south to north and from east to west," I. M. Pei says, "we had a choice of doing three buildings in a natural way on a natural grade and let nature fill in or—what we finally chose—of letting architecture unite all three buildings. This latter required that open space unify the architecture. Therefore, the most important part of the whole design is what this open space is, and that will not be seen until the other buildings are finished."

"Out of the podium," Pei continues, "these three buildings will emerge sculpturally. The podium is the unifying element, and when all the buildings are completed, you will see the space in the middle. The voids will dominate the buildings; that is the intent."

"Therefore," Pei concludes, "this building is relatively incomplete without the other buildings. They will set off a certain amount of movement which the building itself does not have." Only within the context of this completed Newhouse Center can the focal relationship of the Journalism building be recognized.

A small, classical pavilion might seem a curious beginning to so large a project. Actually, the school is considerably larger than it appears. Nearly two-thirds of its total area—71,000 sq ft of interior space—is incorporated in the podium, which has both a ground-floor level and a basement level. Not only does the podium make it possible for the visible part of the school to have so relatively small a volume, but it also provides an entrance plaza for the building and, in terms of campus planning, creates an important, level, pedestrian strip on the sloping hillside below the main quadrangle. In addition, the podium gives the Journalism building its prominent setting—mounted, as it is, like a gem in the midst of buildings that will frame it.

Included in the podium are those facilities that require no natural lighting (such as a two-story photography studio and darkrooms) and those that contain heavy mechanical equipment (such as the Goudy Memorial Typographical Laboratory).
Also on these lower two floors are classrooms, and two large lecture halls, called "special purpose classrooms," which contain advanced audio-visual equipment—combination front- and rear-projection screens and connections for installing electronic responder devices at each student's desk. "Because these are common usage rooms," says Pei's architect-in-charge Kellogg Wong, "we located them centrally, under the plaza, where they can be reached from the future buildings also."

The podium therefore has a functional logic as well as an aesthetic one.

The portion of the school above the podium is a simple-looking pavilion that occupies less than one-half the podium terrace at its eastern end. The three-story building has a symmetrical, cruciform plan, which is sheltered by a square, deep-edged concrete roof cantilevered around its entire perimeter. Visually, the roof is supported by massive concrete piers at the negative corners of the cruciform plan.

What the architects wanted to do was to pour the four piers so that they would appear monolithic. They found, however, that the desired surface quality could be best obtained by precasting. The piers, therefore, are composed of panels precast in one piece 33 ft high, weighing about 19 tons each; the structural columns on the interior of the piers were cast in place. The 15-ft square piers are hollow and contain normal "core" facilities: two stair-wells, an elevator, and restrooms. Eight cast-in-place, post-tensioned concrete girders frame the roof, bearing on the corner piers with a clear span of 58 ft. Attics located above the roof function visually as terminals of the piers.

The design of the piers—both choice of materials and detailing—makes the building seem to grow integrally out of the podium. The same pink-granite exposed aggregate concrete is used for both the piers and the plaza pavement. A sculptural detail at the base of the precast panels expresses the gathering of the loads by a buttress-like motif and emphasizes the monolithic effect.

An aggregate lighter in color than that on the piers is used on the horizontal elements of the exterior—both the post-tensioned girders of the 50-ft wings and the fascia of the 113-ft square roof—and also in the precast window frames. The two colors of concrete echo and pull together the similar colors used in older buildings on campus.

The fenestration functions aesthetically in two different ways. On the wings of the cross, precast, concrete-framed, brown glass windows on the second floor act prominently with half-module, T-shaped railings of the terraces above to give scale to the building and to emphasize the wings. On the first and third floors, however, dark framed glass walls are recessed so as to vanish and give a deep sculptural effect to the elevations. Similarly, at the heavy piers, the inclusion of dark glass corner windows (rough rolled on the inside), along with sculptural recesses, helps to minimize the appearance of bulk. The play of solid and void gives the symmetrical building its considerable variety.

On the interior, entered through a glass wall deeply recessed beneath the overhanging wing, the dominant feature of the building is a central space called Dedication Hall, which rises clear, three stories high to a skylight in the roof. The focal element of the hall is a concrete wall facing the entrance. Made of the same aggregate used in the paving, the wall bears a somewhat small-scale bronze by Jacques Lipschitz, "Birth of the Muses." Beneath this is the dedication text by donor Newhouse: "A free press must be fortified with greater knowledge of the world and skill in the arts of expression." A stair to the second floor breaks to each side of this wall. The modulation of this major interior space by means of the overhanging and receding balconies of the second and third floors is plastic in effect—a spatial quality emphasized by the play of light from the central skylight.

The Dedication Hall is the ceremonial entrance to the other facilities of the building. On the ground floor surrounding it are: the Dean's office, a lounge, and the journalism library, which has access to the east end of the podium as a private terrace. The second floor contains seven large lecture and seminar rooms, an editing laboratory furnished in traditional newsroom style with a U-shaped copy desk, and a news laboratory where students learn to write under deadline pressure. On the third floor are over 20 offices for journalism faculty members and offices for seven press associations housed at the university. On this floor, the building opens to the outside again: balconies surrounding the offices provide outdoor study areas protected by the cantilevered roof.

The architects' teams were as follows. For I. M. Pei & Associates: Kellogg Wong, Architect in Charge; Werner Wandelmaier, Project Manager; Suzanne Sekey, Interior Designer. For King & King: Russell King, Associated Project Architect; Wendell Hoone, Project Coordinator. Eckerlin & Klepper were the Structural Engineers, Robson & Woese, Inc., the Mechanical Engineers. Graphics: by Page Graphics. J. B. Taylor Construction Co. was the General Contractor.
Skylight of the Dedication Hall, with detail (below).
Dedication Hall.

Third-floor terrace and adjacent corner office.

The library and outdoor terrace.

A second-floor classroom.
No WHERE TO GO BUT DOWN
The concept of underground structures, as seen in these sketches by Malcolm B. Wells, New Jersey architect, is nothing new. Since the dawn of history, man has lived underground, beginning with the cavemen who sought ready-made protective shelter. The recent Museum of Modern Art exhibition, “Architecture without Architects,” showed a variety of man-made dwellings (under the category of “sculpted” architecture, or architecture by subtraction) that continue to exist in isolated places. In Spain, hillsides exist where the only indications of life are a few protruding, whitewashed chimneys; in China, whole villages lie under cultivated fields, with homes at “basement level” opening off large square courtyards; in Sicily, burial chambers cut out of vertical cliffs 3000 years ago were converted into housing during the Middle Ages; in Turkey, hollowed-out volcanic cones have been inhabited since the time the Early Christians took refuge there.

Modern life reveals its own tendency to move underground. In the past decade, there have been many efforts (uniformly claustrophobic) to insure a continuation of the bare essentials of life in a fall-out shelter. Vaults for the protection of valuable records have been increasing, with the ever-growing destructive power of modern warfare. Last summer, an Underground Home at the New York World’s Fair joined the list of carnivals attractions, lavishly air-conditioned and outfitted, even to the scenic murals in the areaway outside each “window,” and offering suburban-style security against everything from nuclear radiation to sunburn.

The work of Malcolm B. Wells reveals a wholly different sophistication from that of the other primitives, and a wholly different sensitivity from that of the other modernists. Wells is not so much trying to protect man as he is determined to preserve Nature—and the harmony between man and Nature.

As Wells puts it, “Have we ever, for a minute, stopped to realize that what we do each day in the name of architecture is just as ruthless, just as destructive, as the work the buffalo-hunters did? Until we’ve seen ourselves in that light, we’ll go on missing the point, always feeling that our work is somehow different, important. After all, we’re registered professionals. We plan. We create. . . . The simple fact remains, though, that there just isn’t any building as beautiful, or as appropriate, or as important, as the bit of forest it replaces. We are so preoccupied with our own problems that we forget the only reality in this world: Nature.”

These are not just words to Wells. By springtime, he hopes to have at least two underground projects under construction (one of them his own house, shown on these two pages; the other an office building, pp. 178-179). The depth of his commitment to this subject is further indicated in the excerpts that follow, from an essay he calls “A New Encounter Between Man and Nature.” His drawings speak for themselves.
BY MALCOLM B. WELLS

I spend a disproportionate amount of time wondering what an architect—in the America of 1964—can possibly do to set right the ills that plague us: overpopulation, automation, the growing destruction and mutilation of our countryside, and, worst of all, the self-absorption and the self-interest that obscure our sense of values. It really hurts me to be responsible for so much needless slaughter—to go on designing buildings, beautiful as I think they are, that crush acre after acre of precious life under their parking lots, their roadways, their floors. I fret over the relative value of trees and man, and see little difference, especially when I see how needlessly the one destroys the other.

Every time I look at the world around me, and try to account for the causes of these problems, my answers always differ from the popularly accepted ones—the firmly held ideas that are making such a mess of things today. I'm referring to such myths as Man's “dominion” over Nature, the superabundance of natural resources, the “Golden Age” of Science. I'd like to propose, instead, that all of Nature is beautiful, that only Nature is beautiful, that Nature is beauty. Creation has a fresh, majestic loveliness that never fades. Every bird, every pebble, contributes to the grand pageant in a way that is somehow always perfect. Man has no such instinct to guide him when he creates and builds. That's why his books and his beautiful paintings and architecture are so rare, and his ugly works so numerous.

For millions of years, giant forests covered vast portions of what we now call the United States, until man came—civilized man—to start on a binge of slaughter that has never stopped. Where forests once stood, forests try to reappear. Even today, if land is left “idle,” it never turns into a new school or a supermarket. Instead, tiny saplings miraculously appear—the Life Principle at work. Where man is absent, Nature seems to thrive. I believe that Nature can be made to thrive in the presence of man, but I must go strictly according to my imagination, for Nature has always suffered at man's hands.

The New York World's Fair shows us at our grossest. It wraps our materialism in such sparkling packages that the future would seem to be a kind of Cadillac-colored dream: abundance, good health, and space-travel going hand in hand with a shorter work week and a growing population. Even Nature is in for improvement. “Lifeless” deserts will bloom. Impenetrable jungles will be “tamed.” Riches taken from the seas will sup­

port seven times today's population!

It's so tempting to swallow all this bunk. All we need is some stirring music, and an oily commentary on the “Great­ness of Man,” and we believe it all. And the alternatives to this likely future are so uncommercial that no one even tells us about them. (I have nothing against labor-saving devices, except when they depend on further destruction of Nature.)

Today, our Tomorrow is in the hands of city planners, and they have big things in store for us. Huge things, in fact. Giant super-cities, vast walls of humanity, buildings so big and so long that the highways and railroads will run inside them. Everything we'll need will be only a push-button away: down to the thirty-third level for groceries, over six sections to the dentist, up two to the movies, and back home to one of the trillion transistorized, stereophonic living suites carved out of this huge mess.

There are bits of greenery on the roof, and on some of the balconies. That's Nature, of course; can’t forget her. And far, far below, across the soaring freeways, are the remains of the great green earth itself, there for all to use and enjoy (if only they can get to it).

The double tragedy of man's gross appetites and his astounding numbers is everywhere apparent. We're racing—the wrong way—down the street of progress, bolstering each other with talk of success and prosperity while in reality we move about in a half-dead world of dying cities, ugly countrysides, grim highways. Don't let yourself be fooled by what the banners (and the planners) say.

All above-ground facilities are plagued by weather, by sizzling heat, by blizzards, and by rain. Can there be, then, but one right place to build such facilities as parking lots, shopping centers, super highways, automatic telephone exchanges, and is that place not underground? Down there, everything is quiet. There is no rain, no wind, no freezing weather. There is, in fact, nothing adverse about underground construction except its initial cost, and we simply can't let that be a factor. We are today literally crushing the life out of our planet. Unless we can blast ourselves off to some space island, there's nowhere else to go but down—a most suitable direction, for instead of being a grim alternative to death, it is a chance to live again.

All sorts of facilities, in fact, begin to make more sense “down under.” Parking lots, for instance, are doubly destruc­tive. Not only do they crush every shred of life beneath them, but they repel rain water so quickly that erosion and flooding follows. When we consider shopping centers and new highways in this light, we find that they have even more than water­shedding in common. Each is a tremendous land-waster; and each is man-ugly.

I have checked and prodded this idea of underground con­struction from every angle, and still find only the mildest objections. One, of course, is the problem of water and dampness. But there are rooms 50 feet underground, today, dry as bones. And if a site seems juicy, we can build above ground, then cover it with earth and trees—a man-made hill! Ventilation is no problem; compared to the ventilation of a mountain tunnel, or a high-flying jet, it is child's play. Cost is an unavoidable problem in structures built to carry 4 to 10 feet of earth. But what a shame if mankind's epitaph should read; They found the right way too expensive.

Now it's time for rebuttal, and I can guess what's coming: “What about airports, would you put them underground?” No, but for a dozen reasons like safety, weatherproofing, and convenience, not to mention restoring a bit of Nature, I'd put everything underground except runways and control towers.

“And driving: wouldn't it be like the maddening monotony of Manhattan's Lincoln Tunnel?” No. Nothing could be that bad. Anyway, I'm not advocating that all roads be put under­ground—just the main highways (the ones so choked with trucks and honky-tonk today) and the great land-gulping super­highways. Even when underground, these roads can still have outdoor areas. Every now and then, miles of tunnelside can open up to expanses of gorgeous scenery. Such road systems are feasible right now. And the difference between those serene earthways and the stinking tunnels of New York will be astounding. The roads will appear as floating ribbons of concrete amid beautiful rock and supporting structures.

"Would you put schools underground, too? I'll never send my kids to some dark dungeon." Must an underground school be a dungeon? Look at today's schools. Surely we can do better than that.

“What about cities? Should they be abandoned?” Maybe so, someday. But let's worry about the Empire State Building later.

"Are you planning to move the farms underground, too?"
Of course not. That's the point. Farms, and forests, and parks—not buildings and parking lots—are what the surface of the world was meant for.

"And houses: how would you build them?" Underground, or at least partially underground, with openings onto sun courts, and gardens brimming with trees and plants—Nature—covering most of their surface area.

There are endless questions, but to answer them successfully, we need a new outlook based on the conviction that what we're doing now is wrong. One criterion is to compare our works with Nature's. When we can say honestly and without arrogance that ours are as beautiful and appropriate as the humblest work of Nature, then we'll be building—and living—as we should. The point of it all is a return to Nature—a rebirth of Nature—a new encounter between man and Nature, which, though really One, have long been estranged from each other. We won't get anywhere by worrying about how to sink Grant's Tomb underground, or other such nonsense. We must start with the obvious candidates (warehouses, shopping centers, parking lots, and telephone exchanges), then move from these to other appropriate structures.

The urge that sends us traveling all over the country when we take a vacation is the urge that seeks the uncontaminated and the good. We long ago forgot that such delights might exist at our doorsteps. Man is a restless creature who will always want to see what's over the next hill or around the bend. I hope that what he sees is beautiful and good.

But unless I'm wrong, the idea will appeal least of all to architects, for they tend to find their own works far too wonderful to hide. For myself, I doubt that I can ever be unsold. I like having a clear conscience about architecture again.
REVERENCE FOR LIFE ...... A SKYLIT UNDERGROUND CHURCH, AT PEACE WITH ALL OF NATURE
When the Institute of International Education dedicated its Kaufmann Conference Rooms several weeks ago, the occasion was a tribute to architecture, to enlightened clients, and to international exchange alike. In particular, the tribute was to Finland's Alvar Aalto, who adds these interiors to his only other work in this country, the Baker House dormitory at M.I.T.

Architects will also recognize the event as a tribute to one of this country's devoted and most discriminating patrons of architecture—Edgar J. Kaufmann, Jr., whose decision to commission Aalto to design the rooms for an institute devoted to international exchange could not have been more discerning.

Donated by the Edgar J. Kaufmann Foundation, the Aalto rooms are on the twelfth floor of the new building designed by Harrison & Abramovitz & Harris, Architects, to serve as the headquarters of the Institute, which administers the Fulbright Scholarships and otherwise carries on a broad program of two-way international exchange in education. Perhaps symbolically, the new building faces the United Nations.

The material cooperation of Harrison & Abramovitz & Harris, who coordinated the project with Aalto's office in Finland, displayed this spirit of exchange. Working at transatlantic distance was naturally complicated but, as partner-in-charge Michael Harris warmly points out, this project went more smoothly than many such. The coordinating architects played a large part in overseeing execution of the design, making structural and mechanical changes in their building so as to accom-
modate Aalto's design and advising on which materials might better be purchased and fabricated here and which in Finland. They also supervised the entire installation with the first-hand knowledge of one of Aalto's aides, obtaining workmanship which, Michael Harris proudly notes, is of uncommonly high quality for this country.

What the Edgar J. Kaufmann Foundation had felt the Institute needed was a ceremonial space where it could entertain foreign guests and dignitaries and where it could accommodate about 300 people for programs of various kinds—meetings, lectures, commemorative dinners, and award ceremonies. Aalto's scheme makes it possible for IIE to have four conferences at one time.

At the twelfth floor, one steps off the elevator and faces an obliquely angled wall of dark blue, almost black, cylindrical-looking tiles that are set into white cement plaster in a pattern of vertical stripes. The morning light glistening on the curved surfaces of the tiles doubles the striped pattern and produces a vibrating effect of almost disturbingly brilliant intensity. This deceptive movement in the stationary materials is matched by an equal tour de force of textural effect, in that the hard tiles compose a wall that actually has a soft-looking texture. It is a scintillating image, as one walks by, like that of sunlight seen between backlighted tree trunks in a snowbound woods.

A strongly personal yet subtle introduction to the rooms, the oblique walls of this lobby are directional, leading one toward the wide entrance of the main room. Here, in the reception hall, space and light burst outward and upward. The striped walls occur here as well, but they are a pale monochrome, and the rhythm changes—all is calmer, flowing in more gentle curves.

The first focal point is a tall wood construction on the wall directly opposite the entry. Designed by Aalto, it is of bent and pressed birch strips with a branching motif at the top. "We have to soften up the architecture sometimes with sculpture," Aalto explains. "You have to give a reception hall for an Institute like this an air of a certain festivity—something enormously different." Immediately, the work establishes scale and focus.

The walls of the rooms are paneled to picture-rail height, or just below door height, in light-finished American ash, with vertical battens that are clusters of tiny birch rods ("spaghetti" as Aalto called them) glued together in a hexagonal section. Each batten is blocked out from the ash paneling, continuing from Like his laminated furniture and several previous "sculptures," the woodworking technique in the reception hall "sculpture" (above) is that of bentwood. Aalto explains, "I take the wood fresh from the forest, bend it and dry it after." "You see," he continued with a twinkle, "we have done the proper thing: the joints show." Asked if he ever commissioned sculpture or paintings to be done by other artists, Aalto replied, "Never, except for my own studio."

This construction was first set up in Aalto's studio in Finland for evaluation. When he was in New York, Aalto turned to Edgar Kaufmann and asked, "Are you happy with the sculpture?"

Revealing the kind of "client" he was, Kaufmann replied, "I'm happy if you are happy with it."

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Off the far corner of the reception hall is a smaller room (below) that is a miniature of the main space. The plan is similarly irregular; the ash-paneled walls are finished with vertical battens; however, these are not the clusters of "spaghetti" that are used in the main room, but battens similar to the blocking for those hexagonal clusters. Edgar Kaufmann points out that "as the outlines of the rooms become more rectangular, the details become more rectangular."

The two rear conference rooms, more rectangular still, have few special features, consisting principally of folding partition wall. The end walls of these rooms, however, are finished in the same way that the walls of the corner room are.

One cannot help noticing that in the small conference rooms, where the countersunk brass screws on the battens are left visible, the screw heads are all turned parallel to the floor. Throughout the rooms, all screw heads on switchplates and outlets are turned perpendicular to the floor, so meticulous is the kind of detail that Kaufmann guarded.

A portable bar (right) looks like a plan of the main room—"or a section," Edgar Kaufmann added.
DATA: descriptions and sources of the major materials and furnishings shown.


Lighting fixtures, all variations on the central motif, are composed of tiny rods, mainly hung in concentric rings and of solid, perforated rings. "The light comes through a straight metal filter," Aalto points out, "but you cannot see the bulb through. This took me half a year to work out. The material is gold on copper; the yellow is very healthy for the human eye."

Ceiling fixtures near the window wall in the smaller conference rooms have white reflectors (above) to reiterate the fact that light comes in through the windows. Standard lamps with white metal contour shades and black, leather-wrapped stems give the rooms a lived-in atmosphere.

Samples of batten used in reception hall (left) and tile from elevator lobby (far left) indicate the variation of scale in the motif that is used consistently throughout the interiors.

Battens (left) are composed of 61 tiny birch rods glued together in clusters that are hexagonal in section. The section is visible above the main access to the room. "Spaghetti" battens project from the ash paneling on blocking; birch plugs conceal the screw connections.

Battens are spaced 12 in. on centers around the room, continuing from floor to ceiling and uniting both panelled and plastered wall segments. Behind the "sculpture," they are used continuously to provide a solid background. Three battens are clustered together as bumpers at the speaker's rostrum to protect the corners of the plaster acoustical shell.

Elevator lobby wall tiles (far left) are dark, royal blue units of a horseshoe-shaped section. "The tile is not ceramic," Aalto points out; "it is porcelain, like the finest coffee cups." He sees the surface, which he has used often before, as having acoustical properties, in that it breaks up sound patterns.

Tiles are set individually, like mosaic, around steel rods, which both keep the walls plumb and hold the tiles as they are being set. Cement plaster with a white, marble-dust top grout is set in concave strips, leaving the tiles projecting as much as possible.
Aalto's design is used in pairs. "Spaghetti" battens are used as handles on some doors; on others, bronze hardware of Aalto's design is used in pairs. (below).

The plan beautifully elucidates the program. Folding partition walls and sliding acoustical doors make it possible to close off the reception hall completely or to open it up as one continuous space that includes the lobby and two small conference rooms at the rear of the building.

What is a natural surrounding for lectures is equally natural for meetings at a large central table; what functions for these arrangements also seems built especially for programs in which the rear conference rooms serve as a stage area, when the walls of the reception hall are seen to flare out as an acoustical desideratum. This seems to be a true multipurpose room.

Many of the elements in the Kaufmann Conference Rooms are familiar motifs of Aalto's: the wrapped column, the walls paneled to picture-rail height, the undulations in plan and section, and the modifications of the furniture and the lighting fixtures.

What Aalto has done here, in his usual manner, is to compose a series of variations on ideas, techniques, and experiments that he has carried out and improved over the years—a refinement from the metal shop, a new development of his woodworking craft. These are all put together with the force of a strong personality blending a recipe—varying here, ornamenting there. It is the product of a fertile and inventive mind, modulating, manipulating a language of its own to express a program of strict functions in such a free and unfettered way as to illuminate and liberate the program itself. Patently, this kind of interior design requires the sort of attention one normally devotes to designing an entire building.

What is manipulated is a combination of soft and hard materials, of the rustic and the polished, the rational and the arbitrary. It is a personal, disarming, and not-immediately-apparent manipulation of a country idiom—somewhat provincial and unfinished from initial impression—in a marvelously sophisticated and urbane manner.

The combination is similar to the poetry of Robert Frost. Frost, very much like Aalto, was a sophisticated poet of the forests. And like Aalto, when Frost was asked about the meaning of one of his poems, he replied that he thought it should not be necessary to ask the poet what it means. So too, Aalto does not answer questions about why he made such and such aesthetic decision. His reaction is rather "Why not?" with the often implicit rejoinder, "I don't talk about it, I just build."
Zanzibar’s Arabian Doorways

BY MARY LOHMANN

Zanzibar’s intriguing doors are described by an architectural designer who visited that island off the east coast of Africa just before the recent political upheaval. Her photos record the magnificent workmanship of these exotic entrance ways.

On Zanzibar, scene of one of Africa’s most recent political revolutions and where it is said the purest Swahili is spoken, exist some of the world’s most unusual doorways. The Swahili word for door is *mlango* and it is along the narrow, twisting streets of Zanzibar Town that the now unfavored American was able to feast his eyes upon 18th- and 19th-Century *mlangos* of exquisite workmanship.

Set into coral, stuccoed, painted walls,
these doors dominate the angling streets and alleys, a sharp contrast to the economy of architectural forms around them: a rich note in a rough setting. Elegant and dark, their brass hardware gleams. Nothing appears as well tended, nothing glows as much as their hasps, knobs, spikes, rings, and bolts unless it is the Zanzibari coffee vendor's vast brass urn.

Until the recent turn of events, it seemed that in Zanzibar Town a man was known by the front door he kept. Whether the brass will continue to gleam and the dark wood of ebony, mango, or teak will continue to be oiled and rubbed remains to be seen. And whether the elaborate system of locking will prevail is another question. In the town's world of little privacy, where thresholds are only a few risers from the street and opposing walls oppressively close, the well-maintained, sturdy locks, and the brilliant display of hardware is like armor set against any intruder.

Whereas similar doorways in old Arab towns along the East African coast have all but disappeared, few collectors have found their way to Zanzibar's shores to purchase entire entrances. In any case, protective legislation was passed some years ago forbidding the removal of doors from the island. Most of the 100- and 200-year old doorways (a few are older) are in place, and, one hopes, will remain so.

Skillful carving around the doors and handsome hardware contrast sharply with rough exterior walls (1,5). Barred windows and massive doors are prominent features in a narrow street. To alleviate sun's glare, many walls are light-hued, often pale blue rather than white (2). One of few examples to be found in the United States of this type of door (3) was purchased by the late Colonel Francis T. Colby in a small fishing village on the nearby east African mainland; it is now installed in the Boston Museum of Science. Many doors are framed with deeply carved arabesques, revealing Moslem adherence to symbols (4). Motifs such as interwoven patterns of waves, fish, rosettes, the frankincense tree and the date plum follow the architraves around the double doors and fill the lintels. These symbolically ask good fortune and everlasting life for the household within. Originally known as Arab doors, they are now called Zanzibar doors. Detail of doorway showing ornately carved center post and threshold chain (6), which is secured at nightfall by a heavy padlock; the hardware was made in India.
Materials and Methods

Architectural Problems of Total Energy

BY ROBERT H. EMERICK

Total energy schemes unquestionably affect the architect. Because of structural rearrangements and space needs, he may be obliged to yield more to machinery demands than ever before. Where and how these demands must be faced are reviewed by a Consulting Mechanical Engineer of North Charleston, S.C.

Since the aim of total energy systems is to save money for the owner of a single building or a multiunit complex, they have become a factor in the planning of major projects.

At present, total energy enters the premises in the form of electricity, gas, or oil (coal still is hindered by some unsolved problems); the methods of application are so varied, however, that each affects building design in some particular way. For example, an all-electric scheme, generally being promoted by the utility companies, eliminates the need for chimneys, stacks, breechings, combustion equipment, and the storage and handling of fuels. These eliminations accomplish a saving in both original investment and maintenance costs during the following years. The all-electric plan probably is total energy at its simplest.

Why Consider On-Site Generation?
The answer is expressible in one word—economy. Because of discovered uses for the wholesale production of heat that formerly was a costly loss in the generation of power by diesel and gas engines, the economic supremacy of the central power station has become suspect under certain groupings of service requirements.

Most important in these groupings is the combination of needed air conditioning and the proved value of the absorption refrigerating machine in using heat. The former became an acknowledged necessity after World War II; the first large installation of the absorber was made in 1946—150 tons of refrigeration in an industrial plant near Syracuse, New York. Since then, just one manufacturer of this equipment has alone built and sold more than 2500 units, ranging in size from 50 to 1000 tons each.

Because refrigeration from heat is much less familiar than refrigeration by reciprocating or centrifugal compressor, the cycle is outlined (1). The action is so quiet that absorbers are being used on submarines.

What air conditioning has done for on-site generation in the recovery of heat becomes strikingly evident when we observe that most of the energy produced
by a diesel or gas engine is in the form of heat. The ratio of heat to shaft horsepower might average 1 1/2 : 1 for a diesel; 2 1/2 : 1 for a gas engine or gas turbine.

These ratios can be excellent imbalances where the requirements of other services exceed the demands for light and power. For example, in large shopping centers, the body heat of many persons, plus lights, fresh air, and the solar effects on extensive roof areas create a major need for cooling. Gas engines are fulfilling this need in the University Plaza shopping center (2).

Surprisingly, electric utility companies in metropolitan centers are encountering summer loads in some areas that exceed the demands previously established for winter service. On occasion, this unexpected summer loading has brought overloading to district substations and has drawn deeply on utility reserve capacity.

Conceivably, this situation might cause a kind of reversion in critical areas to the utility practice of 40 years ago when selected private power plants were not dismantled after being superseded by purchased power, but were maintained by the utility as emergency peak handlers. Strategically located on-site generation, perhaps furnished by the utility as part of its service, could relieve this summer load on the central plant and distribution system with advantages for the utility.

Of interest to the architect is that such a utility program becomes another factor favorable to on-site generation in certain neighborhoods. As for the economy, one well-known manufacturer of gas turbines advertises that his turbines will produce a saving by comparison with purchased power on all-year, all-service basis, anywhere in the United States. In view of the relatively cheap power in the Pacific Northwest and in the Tennessee Valley, this is a bold statement to publish, even as an advertisement.

**The Simplest System Has Architectural Problems**

Although all-electric energy eliminates certain equipment and structures, it introduces some others that may impose both floor area and space problems hitherto unencountered by many architects.

For example, if steam must be furnished for process use or for the operation of tailor shop presses, or even comfort heating, the source will be an electric boiler. Electric boilers may be obtained "off the shelf" in capacities up to 2000 lbs of steam an hour at a pressure of 100 psig. Larger units can be built to order. An individual complex in Oregon is generating 150,000 lbs of steam an hour and using 50,000 kw an hour in doing it. This boiler extends about 30 ft into the air and is weatherproofed as an alternative to housing.

Outdoor installation is practical in most climates, provided that ground areas and building positions permit it. Otherwise, incorporating the electric boiler in a general machinery room, perhaps in the basement of a commercial building, might introduce serious problems of headroom. In this situation, a battery of small boilers could be used to convert the problem of headroom into a problem of floor area. An electric boiler delivering 2000 lbs of steam an hour is 5 ft wide, 9 ft long, and less than 6 ft high, just slightly larger in width and length than a gas- or oil-fired boiler of equivalent capacity. How many of these can the floor area accommodate?

An equally disturbing problem is to find space for the much enlarged power substation that is needed to meet the load requirements of an all-electric project. To the normal electrical energy requirements of the building must be added those demands born of the total energy concept, notably energy for the generation of process steam, comfort heating, and the making of domestic hot water. Thus, if there is even a modest need for process steam, say 5000 lb an hour, that output of the generator represents approximately 1465 kw. This leaves the comfort heating and hot water demands still to be provided for; and whether large or small, these demands impose their presence on the substation. And how large can we let our substation grow?

Quite possibly, the demand effects of these new superposed loads will require a completely reorientated study of service delivery and its control. What must go outside? What must go inside? Unless comparative evaluations by the engineers, the local power company, or both, have been completed and decisions formed prior to calling for architectural studies, the architect may find himself lost in a jungle of preliminary sketches — and expenses.

**Diesels vs. Gas Engines vs. Gas Turbines**

These three forms of power and heat provision are closely related: in being internal combustion devices; in turning out more heat energy than horsepower; in needing some form of starting equipment; and in capability of creating noise.

For the architect, the long-established diesel engine introduces problems of fuel storage tank location, plus the complications of pumping stations and piping. This is also true of the "dual fuel" engine—one that is designed to burn either oil or gas with a simple facility for switching from one to the other.

Both the gas-fuel engine and the gas

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**Diagram: Absorption Cycle**

A = Absorber in which lithium bromide absorbs water. B = Heat Exchanger. C = Generator in which steam heat (or other heat) boils water out of solution. D = Condenser in which water vapor is condensed. E = Evaporator in which evaporation of water chills circulating water. Partial vacuum is caused in evaporator by absorption of evaporated water in absorber's charge of lithium bromide. Pump increases efficiency of process.
turbine avoid this need for fuel storage, if planned for strictly piped-in gas operation. In this circumstance, their fuel handling demands will be concentrated in the usual, relatively small pressure and valving control station.

However, the source and nature of the gas may dictate the installation of a gas cleaning apparatus as protection to the engine or turbine. For example, sewer gas contains corrosive hydrogen sulphide, and other gases may contain contaminants which should be removed before the gas is acceptable as fuel.

The importance of the fuel system can therefore be considerable in the total energy design, not only at the time of design but also in the event that a later switch of fuel becomes economically desirable to the owner. This possibility points particularly to gas turbines, which are profiting from the successful performance of aviation jet engines on liquid fuel. At present, distillate fuels at a substantial cost are being burned with minimum trouble; meanwhile, experiments with residual fuels look hopeful for cheaper future operation. The problem is to clean the fuel of corrosive and gummy materials that attract or adhere to the blades and nozzles of the turbine. Providing such cleaning equipment can be both expensive and space demanding under present techniques, but this treating of residual fuels appears to foreshadow the probable line of economy development in the future. It is something for the total energy designers to keep in mind.

Locating space for a diesel or gas engine is simplified by the standardized design of these engines. Cylinders are arranged in a row or in a V; dimensions can be lifted from a catalogue for preliminary layout with considerable assurance that the final selection will not be startlingly different. This simplicity is apparent in the line of engines shown (2). Although these are gas engines, they could be diesels with equal symmetry.

By contrast, gas turbine variations of the basic, simple cycle are numerous. The three main components of turbine, air compressor, and combustor are shown schematically (3). All are concentric to the common shaft, which has a power take-off at one end. By introducing a regenerator, an intercooler as well as a double set of compressors, combustors, and gas turbines, a compound cycle is developed (4). Additional complications are faced by the addition of an extra shaft (5).

The multicomponent machine is the most efficient, and, consequently, may bask in favorable observation by the de-
signing engineers; but it might also give the architect the maximum trouble for inclusion in the desired building. If the machine is a big one and there is ground area available adjacent to the main structure, a packaged-type factory-housed design might be the best arrangement.

The space problems that accompany a large unit are evident (6). This machine, as photographed, is still incomplete; the controls and auxiliary equipment have yet to be added. However, complete packages, all ready to operate, are available from this manufacturer.

For small projects, the little turbine (7) is rated at 200 kw, and at the same time produces enough heat for generating 3500 lbs of steam an hour. Any size between these extremes is available. If not off the shelf, it can be built to order.

Another significant possibility that the architect should keep in mind is that some of these gas turbines can be arranged with the combustor, not parallel with the shaft, but set separately and even vertically. This arrangement is comparable to that of a steam turbine and its steam boiler. Instead of steam being piped to the turbine, hot gas is conveyed to it by ducts. Arrangement possibilities with a separate combustor are numerous; consequently, this technique might conceivably solve a difficult housing problem for all concerned.

Aspects of Heat Recovery

We cannot deliver the exhaust gases directly to an absorption refrigeration machine for reasons of too much gas and too high temperatures. This situation calls for a heat exchanger or waste heat steam boiler that is able to handle the gas volumes and abstract the heat from them. The absorber will work well on a pressure of 10 to 12 psig; however, in many instances, the generated pressure will be much higher than this, perhaps 100 psig or more, to satisfy process needs.

A second heat exchanger may then be installed, with 100 psig steam or whatever the high pressure is on one side of the coil, and water on the other that is flashed into steam at the proper pressure to serve the absorber.

This exchanger and perhaps another for generating domestic hot water may not be difficult to place, because their piping connections can be snaked over, under, and around other equipment. But the primary converter of exhaust gas heat into high pressure steam, with its extensive exchange surfaces, may well approach in bulk that of a fuel-fired boiler of equivalent capacity.

In short, since the primary heat exchanger or waste heat boiler poses a substantial challenge to space boundaries, location sketches without dimensions can actually turn into planning traps. Moreover, there are two basic designs: first, the water-tube with gases outside the tubes, which is vertical in character; and second, the fire tube with the gases inside the tubes, which is horizontal in character.

Since this is a major component of the on-site generating scheme, the architect should know as early as possible whether the primary exchanger will reach upward or outward, and how far in each of these instances.

Noise

The sounds of a reciprocating internal combustion engine are familiar to practically everybody as explosions and thumpings. Checking them involves providing adequate foundations, effective vibration dampeners, mufflers on the exhaust, and in some instances mufflers on the air intakes.

Gas turbines produce entirely different sounds. Rotating at 40,000 rpm, and sometimes more, the scream resembles a siren which also rotates at high speed.

Exhaust and air intake mufflers are essential and suppress the bulk of the nuisance, but the Navy has found that additional comfort can be obtained by bottling up the turbine in a closed compartment. Even this noise level can be dampened by finishing the compartment walls and ceiling with sound absorbing materials. The application of these materials is recommended as a standard practice for most installations and as an essential for gas turbines.

If distance alone fails to satisfactorily weaken the noise of an outside package unit, absorbing material should be placed on the inside surfaces of the package housing. Such sound treatment can be specified for inclusion by the housing manufacturer.

Sound treatment is largely the responsibility of the architect, particularly when the machinery space happens to be adjacent to building areas that require quiet at all times.

Maintenance and Continuity of Service

For the architect, maintenance means providing many items. First: space will be needed for pulling tubes from each heat exchanger, for lifting the heads of diesel or gas engines, and for removing the upper half of the horizontally split casing of a gas turbine.

Second: engine heads and turbine casings are heavy; to remove them calls for a crane. Perhaps a monorail will do; for a large hoist a bridge crane might be required. Such a possibility with a big gas turbine is presented (8). The upper half of the casing has been lifted, exposing the compressor wheels, turbine wheels, combustors, and gearing presently connected to an electric generator. The length of this casing will vary with the manufacturer’s standards, but might easily run to 15 or more feet per section.
Third: tools of various kinds will be kept on hand, so a suitable tool room will be needed.

Fourth: supplies such as waste, lubricating oils, gasket materials, temperature and pressure charts—everything needed to run a power plant from day to day—must be conveniently stored somewhere. The variety is substantially widened by the requirements of the prime movers as compared with a nongenerating machinery room.

Fifth: space devoted to locker and wash rooms will reflect an increase in the number of shift personnel in most instances. However, automation of the total energy installation in the University Plaza Shopping Center at Little Rock, Arkansas, plus a maintenance contract with the installing contractor, have combined to allow operation of the plant by a single employee. This aspect of operation must be settled early if later compromises are to be avoided.

Sixth: provisions must be made for assuring continuity of service, which is particularly important with automated and lightly manned plants. In the Little Rock University Center, a spare engine-generator set stands by, ready at all times to pick up the load if a regular machine should fail. Interruptions of heat for summer cooling are met by a stand-by, engine-driven, centrifugal refrigeration compressor; winter heat interruptions by an electric boiler. In brief, housing for emergency spare equipment expands the problem. Each unit presents its needs for maintenance space with as much justice as its regular counterpart, and is equally important in the assurances of uninterrupted service.

To Sum It Up

Total energy designs increase substantially the architect’s problems of equipment housing, if for no other reason than the necessity of housing additional equipment.

Referring to the comparative lists, Table I an all-electric project eliminates about four items of conventional mixed energy arrangements while simultaneously adding approximately 13 new items. When on-site generation with oil or gas is part of the scheme, the ratio is even more striking: four items subtracted, 26 added. The fact is that the design of a generating installation is the design of a power house, scaled to serve a particular activity. And it cannot be housed efficiently until exactly what goes into it is known and dimensioned. Nothing else will produce a good job promptly, except by rare accident.

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**Table 1: Major Plant Items Compared**

<table>
<thead>
<tr>
<th>Plant Item</th>
<th>Nontotal Energy or Conventional</th>
<th>All-Electric</th>
<th>On-Site Generation</th>
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<tbody>
<tr>
<td>Increased Capacity Electric Substation</td>
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<td>Electric Steam or Hot Water Boiler</td>
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<td>Voltage Regulation</td>
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<td>Frequency Control</td>
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<td>Increased Wiring, Switches, etc.</td>
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<td>Increased Electric Safety Precautions</td>
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<td>Increased Piping &amp; Duct Insulation</td>
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<td>Absorption Refrigeration System</td>
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<td>Mechanical Refrigeration System</td>
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<td>Fuel-Fired Steam or Hot-Water Boiler</td>
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<td>Engine or Turbine Drive Electric Generator</td>
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<td>Large Atmospheric Intake Duct</td>
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<td>Air Intake Duct Muller</td>
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<td>Large Exhaust Duct to Atmosphere</td>
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<td>Exhaust Duct Muller</td>
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<td>Exhaust Heat Exchanger or Waste Heat Boiler</td>
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<td>Subordinate Heat Exchangers</td>
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<td>Oil Fuel Storage Facilities</td>
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<td>Oil Pumping System or Gas Pressure Control System</td>
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<td>Machinery Room Crane, Monorail or Bridge</td>
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<td>Cooling Tower, Air or Water</td>
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<td>Chimney or Stack</td>
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<tr>
<td>Hot-Water Pumping System</td>
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<td>Condensate Pumping System for Absorption Refrigeration</td>
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<td>Condensate Pumping for Steam Boiler</td>
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<td>Increased Vibration Mounting</td>
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<td>Increased Air Pollution</td>
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<td>Expanded Locker and Washrooms</td>
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<td>Increased Supplies Storage</td>
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<td>Increased Noise Level</td>
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<td>Emergency Stand-by Generators</td>
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<td>Emergency Heating or Cooling Equipment</td>
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<td>Increased Control Equipment</td>
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<tr>
<td>Increased Machinery Floor Area</td>
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<td>Increased Building Space Needed</td>
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<td>Increased Over-all Investment</td>
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- = Usually required
- = Not required
- = Optional, depending on decisions of design
- = Required for liquid fuel
- = Required for gas fuel
A new weatherseal for doors and windows that provides better all-around performance is described by the Vice President, Research and Engineering, The Schlegel Manufacturing Company, Rochester, New York.

Those tiny strips of gray weatherseal that keep wind, rain, dust, and sound outside a building's doors and windows have executed a complete about-face in the last year or so. Wool pile weatherseal—for more than 20 years the construction industry's best answer to the elements—has been outstripped by man-made polypropylene fibers.

Although use of polypropylene in weatherseal has eclipsed wool in less than a year, the change was not as abrupt on a laboratory level. Years of research have been devoted to improving the performance of weatherseal. The result: when wool reached the point of diminishing improvement, it was replaced. All of our test results pointed to polypropylene in early 1963. It was logical, therefore, to shift the emphasis from woven wool weatherseal to polypropylene. It was also logical for window and door manufacturers to adopt woven polypropylene pile weatherstripping for seven out of ten weatherseal applications.

Why Weatherseal

What is the importance of weatherstripping to the architect in his role as specifier? What difference does it make whether the insulating strips on windows or doors are woven polypropylene pile, a wool nylon blend, or "flocking"? Why a
woollen pile as opposed to a simple, blade-type seal? Why not specify premium-quality windows or doors and let it go at that? One reason: inadequate weatherseal is often the “Achilles heel” that boosts heating bills, leaves stains on woodwork and walls, impedes opening and closing, and contributes to general customer dissatisfaction.

Functionally, the purpose of weatherstripping is to inhibit infiltration of water, air, dust, and sound through doors and window openings, while offering minimum resistance to sliding elements. It is also important that weatherseal resist mildew, rot, and fading, in addition to remaining firmly in place and fully functional for the life of the window or door.

Blade-type weatherseal provides rigid high-point to high-point contact in areas where air infiltration is most likely to occur. Conversely, a woven pile weatherseal affords a “smothering” type liaison in which the moving window or door member is buried in and surrounded by an insulating cushion of fibers. Whether the fibers are woven polypropylene or a wool-nylon blend or even flocking, depends mainly on the window or door manufacturer involved. Flocking gets its nap from the gluing-on of natural or synthetic fuzz to a paper or neoprene backing, as opposed to a woven pile in which the fibers are woven into the backing. Woven wool pile—an industry standard for more than two decades—is fully adequate. But tests now show polypropylene fibers provide even more durability and protection.

The importance of inhibiting excessive air infiltration was underscored recently in tests conducted by a major Midwestern University. Results of the study showed that the use of weatherstripping on windows can reduce air infiltration losses to 17 per cent of the total heat loss from a house—or the equivalent of a 24 per cent saving in fuel bills. In warmer climates, similar figures would apply to air-conditioning costs. Adequate weatherseal is also important to the maintenance of comfortable winter humidity levels within buildings. The alternative: spotted woodwork and fogged windows when moisture-laden air (30-40% rh) and infiltrating outside air mix.

**Wool vs Polypropylene**

With sliding window and door applications apparently on the increase for both residential and commercial buildings throughout the country, the durability of weatherstripping assumes additional importance. Our most recent tests indicate that polypropylene parts retain three-quarters of their original pile under abrasion conditions that totally obliterate comparable wool weatherseal parts. Specifically, in 48 of 70 tests, wool parts exhibited 100 per cent pile loss, while, under the same conditions, polypropylene samples showed an average pile loss of only 23.6 per cent. Our conclusions: wool pile tends to disintegrate under even moderate abrasion and weathering (1).

Earlier durability tests (Stoll Wear Test: 400 A waterproof grit—2 lb lead, 1000 cycles dry, 250 cycles wet; involving wet and dry abrasion, revealed that wool parts exhibit a 78 per cent pile loss dry and a 60 per cent loss wet. Conversely, comparable polypropylene parts tested under the same conditions showed a 32 per cent loss dry and 15 per cent loss wet (2). Comparison of these figures reveals that polypropylene parts will last from two to four times longer than comparable wool parts under the same wear conditions.

In direct comparison with nylon and wool pile after 200 hrs fadometer exposure, polypropylene endured 17,135 abrasion cycles before the part tested was worn to the backing. Conversely, the standard 90 per cent wool/10 per cent nylon blend lasted for 564 cycles, while the straight nylon pile fabric succumbed after 2003 cycles of abrasion.

Similarly, in-use, opening-and-closing tests with a horizontal sliding window reveal that polypropylene performs well to 45,000 cycles—to the extent of long-term use tests completed to date.

**Slidability Also Important**

As important to the user in the short term is ease of use. How smoothly do windows or doors slide on polypropylene pile? Test results indicated that polypropylene offered slightly less resistance than wool dry—85 g. Under wet conditions, however, the differences were significant—wool offered 350 more grams of resistance than polypropylene (650 g vs. 1000 g). When parts with higher pile heights were tested, the resistance of wool mounted, while the polypropylene figures remained the same (3).

**Air Infiltration Differences**

Most significant among the comparison tests between polypropylene and wool parts were the data on air infiltration. Under test conditions of 0.3 in. water (duplicating a 25 mph wind), polypropylene weatherseal parts of 200 in. pile height exhibited .45 cfm/ft crack-perimeter less air infiltration than com-
parable wool parts at all four pile compressions tested (.010 in., .020 in., .030 in., and .040 in.) (4). On a 6' x 4' sliding window, for example, air infiltration would amount to 12,960 cu ft less per day with polypropylene weatherseal than it would with comparable wool weatherstripping.

The reason for this difference in air infiltration stems from the basic nature of the two pile sealing materials. With an extremely low specific gravity of 0.90, polypropylene is far lighter than wool and consequently has more bulk per pound. This enables manufacturers to produce polypropylene weatherseal that has as many as 13,900 pile ends to the running inch or a density that is approximately twice that of wool.

Additional properties of polypropylene that are keys to its success as a weatherseal: Polypropylene fibers tend to strengthen with repeated flexing, while wool fibers tend to break. At the same time, individual polypropylene fibers also tend to fluff-out or fill-in to form a tighter weatheseal with repeated use. Thus it was no surprise to our researchers when tests revealed that after 10,000 openings and closings, a polypropylene part admitted .01cfm/ft crack-perimeter less air infiltration than at the beginning of the test (5). In effect, the polypropylene part had improved with use.

Also a significant factor in appearance/maintenance and performance is polypropylene's retention of tensile strength following exposure to ultraviolet rays. After 300 hrs exposure in the fadometer, a 90/10 blend of wool and nylon lost all of its original tensile strength (100 per cent failure). Conversely, polypropylene retained 16 per cent of its tensile strength under the same duration of exposure to ultraviolet rays.

Polypropylene Also
Salt/Smog-Resistant

Polypropylene is chemically inert and will not support mildew, rot, or corrosion — a particular boon in seaside areas where salt air generally exacts a heavy toll on conventional wool weatherseal.

Figures just made available by an independent testing agency also tend to indicate that polypropylene weatherseal parts are significantly more resistant than wool parts to the effects of smog — as characterized by the presence of ozone in air (Table 1).

Conclusions

With the advent of polypropylene weatherseal, it is now possible for architects to specify a weatherseal part that blocks up to 100 per cent of all air infiltration and will outlast the window in which it is installed. The shape of the parts: wool polypropylene pile with an extra polypropylene fin embedded vertically within the fibers.

Typical of the shift to polypropylene by window and door manufacturers is the experience of one Southern company. This company has replaced formerly used metal-blacked, wool-pile weatherseal with polypropylene-backed polypropylene pile weatherstripping, using up to 60 ft of perimeter weatherseal on its top-of-the-line sliding door (6).

This company, however, considered appearance equally as important as "weathertightness" and trouble-free performance in its change to polypropylene pile. Says the firm's purchasing agent: "Sliding doors are often an architectural focal point in both private and commercial structures. That is why the neat, trim appearance of the new polypropylene weatherseal appealed to us immediately. It looks and performs better than wool."

<table>
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<tr>
<th>TABLE 1: RESISTANCE TO SMOG EFFECT</th>
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<td>Wool/nylon parts</td>
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<td>Polypropylene parts</td>
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<td>Percentage of pile loss after 1000 abrasion cycles dry</td>
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<td>38.3</td>
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<td>28.7</td>
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<td>Percentage of pile loss after 250 abrasion cycles wet</td>
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<td>Following exposure to ozone (50 parts/per 100 million)</td>
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<td>Percentage of pile loss after 1000 abrasion cycles dry</td>
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<td>42.8</td>
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<td>Percentage of pile loss after 250 abrasion cycles wet</td>
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Polypropylene Weathersealant 197
Bureaucracy, the Regulatory Agencies, and the Architect

BY ABRAHAM D. LEVITT

Today's architect finds his design freedom increasingly entrapped by massive sets of ordinances and regulations that are enforced by a bureaucracy too often inflexible and comprehending in applying them to individual projects. This article examines the scope of the problem and makes specific proposals for easing the conflict between the profession and the agencies. The author is currently associated with Paul & Jarmul, Architects, and was formerly Chief Architect, then Assistant Regional Director for the Northeast, of the FHA.

Since the resumption of residential construction following World War II, the building industry in all of its phases has increasingly come under the control of administrative or governmental agencies.

Those of us who, before the war, were accustomed to dealing with a Building Inspector or a Building Department, and sometimes even with a Zoning or Planning Board, are now confronted with a host of agencies—a painful development for architects. The following is a simple example of what is involved in the confrontation of the architect with the hydra-headed governmental apparatus.

An Example of Bureaucracy At Work

An architect who has obtained a commission to design a middle-income housing project in an urban renewal area immediately faces a welter of municipal, state, and Federal agencies, each of which will influence his design. In New York City, which represents only the average in bureaucratic proliferation, an architect must consult the following codes and regulations when designing a building: (1) The New York City Administrative Code (Building Code); (2) New York State Multiple Dwelling Law; (3) New York City Multiple Dwelling Code; (4) New York City Zoning Resolution; (5a) FHA Minimum Property Standards (if financed by the FHA); (5b) New York State Division of Housing Regulations (if financed under New York State Mitchell-Lama Law); (5c) Housing Redevelopment Board of Regulations (if financed under New York City Mitchell-Lama Law; (5d) Public Housing Administration Regulations (if public housing, administered either by the City or the State); (5e) Community Facilities Administration Regulations (for Section 202 Federal financing—Direct Loan); (6a) Plumbing Code; (6b) Elevator Code; (6c) Electrical Code (for specifications); (7) FHA Rehabilitation Standards (if rehabilitation).

He must also refer to the room-count regulations issued by some mortgagees to make certain that the building will conform to the bank's room-count requirements. The bank room-count, the FHA room-count, the New York State Division of Housing room-count, and the room-count in the New York City Zoning Resolution are not necessarily in agreement with each other.

When plans and specifications are completed, he must consult the following agencies for preliminary approval, each with its own forms, etc.: (1) Department of Sewers (for sewage and storm drainage approval); (2) Department of House Numbers (for substantiation of house number); (3) Department of Highways (for approval of grades at street); Tax Department (for approval of the lot on the block); (5) Department of Air Pollution (for approval of the incinerator). He then applies to the Building Department for a permit. If the proposed project is along the waterfront, he needs the approval of the Department of Marine and Aviation; if adjoining a public park, the approval of the Parks Department; if along a subway route, the approval of the Transit Authority, and so on, ad infinitum.

New York City is not really representative. Some smaller communities have even more extensive layers of authority to contend with. These are Local Redevelopment Authorities and Municipal Planning Agencies, which sometimes do not share the same outlook. In all cases, one or more of the above agencies have a hand in the planning of the project, and all are concerned with its approval.

From the architect's point of view, the endless conferences and submissions are confusing and discouraging. As to the project itself, the design swings back and forth and seemingly never is allowed to jell; the architect loses control and the costs go up and up.

Origin and Function of the Regulatory Agency

What causes this confusion? If each confrontation with this multi-agency setup is so discouraging, why does this growth of agencies continue, expanding and unabated, when even the bureaucrats themselves denounce the ineptitude involved?

To free our minds from prejudices that would prevent us from understanding the issues involved, we must realize that the agencies that regulate so much of the architect's work did not come into being through deals and backroom haggling. They did not spring upon the public full blown simply because somebody slipped a bill through Congress while everyone's backs were turned. Each and every agency has originated following an important public dialogue in which the majority determined that aids and controls were needed. An example of this is the FHA. In the early 1930's, the country was floundering in a morass of foreclosures and second mortgages resulting from the Depression. Residential construction had come to a halt. In 1934, the Congress established the FHA essentially to stabilize the lenders by insuring mortgages and to allow for long-term mortgages with low down payments. As a result, home construction was stimulated and 6,600,000 tenants became homeowners. After the war, FHA administered a program to provide thousands of badly needed rental housing units under Section 608; at present, FHA is developing a program (221-D-3) that will provide low-income housing without calling for direct expenditures by public funds. Because of these successful programs, which are being emulated throughout the world, FHA has achieved tremendous public and Congressional support. However, program has been overlaid on program; to the architect, the bureaucratic aspect of the administration of these programs is more apparent than their substance.

For example: Section 234, the Con-
Since the condominium program was over­
dominated Law, sponsored multifamily
ations required multifamily
ations required appraisals of the rental
market before insuring loans for the
sales market. The architect, of all per-
sions involved in the development of a
project, is least able to understand why
his carefully designed condominium plan
was rejected due to “lack of market ap-
peal.” (This inconsistency was elimi-
nated in the Housing Act of 1964.) In
addition, FHA, being an insurance-un-
derwriting-appraisal oriented agency, has
not until very recently been able to come
to grips with the role that architecture
plays in the residential field. Examples
such as the above, whether the agency
is FHA or a city planning board, under-
score the one thing all agencies have in
common—that is, the bureaucratic syn-
drome.

Bureaucracy is the machinery estab-
lished to execute the will of the major-
ity. Sometimes it is cumbersome, contra-
dictory, and prejudiced. Occasionally it
is efficient, single-minded, and enlight-
ened. It is nearly always defensive
(which gives it a real kinship to most
architects); frequently vain in thinking
its ideas are best; confident that it exer-
cises its power with prudence; and cer-
tain that an enlarged staff will enable it
to do a better job.

Good Design vs.
Written Regulations

The case against the bureaucrat is
obvious. It is the case against paper
shuffling. Any time there is an oppor-
tunity for error, delay, or stubbornness
by petty individuals, bureaucratic evil is
possible. And any time a public agency
fails to act promptly, howls of protest
are a problem. But this behavior, this be-

there could be more if there were more
flexibility in interpreting regulations.

Basically, the bureaucrat’s most tax-
ing work, vis à vis our profession, is
fitting new solutions into existing ideas.
He is given a set of rules into which he
must help architects fit their schemes.
Frequently he deals with a young or in-
experienced architect who fears the jug-
gernaut, is contemptuous of the regula-
tions and of the personnel who admin-
ister them, and is certain that no decent
design can be developed under these cir-
cumstances. The architect is therefore
psychologically handicapped in under-
taking the design. The bureaucrat, en-
countering this frustrated individual,
gives up and simply falls back on “the
book.”

An example of the frustration that
may develop occurs in a project under a
program we referred to previously.

The 221-D-3 program tends to replace
public housing by one based on sub-
sidized interest rates to private sponsors.
The client, in a burst of charity, may di-
rect the architect to design sumptuous,
air-conditioned quarters. His generosity,
however, runs headlong against the ori-
entation of this program. To reach the
lower-income middle class, the rentals
for 221-D-3 are restricted by the median
income in the municipality in which the
proposed project will be located. The
construction cost is scaled down to the
minimum cost index in the community.
A close examination of this particular
program will reveal that any amenities
acquiring to the program can come about
only through features of good design.

Too often, the unprepared, untutored,
and uninitiated architect, guided by his
client’s overambitious viewpoint, presents
a scheme that represents (in the par-

Bureau, the Regulatory Agencies, and the Architect
the rules. The architect therefore honestly believes that he is the realist. He is the one who is dealing with the tangible situation, whereas the bureaucrat is dealing with rules, with generalizations. The architect's failing is that he does not generalize his building the way that bankers, building inspectors, city planners or mortgage underwriters do. His idealism, or so-called impracticality, stems from his inability to be satisfied with an apartment house the way the rest of the world is. He is called idealistic because of his unwillingness to let his apartment house be lost in the categorical oblivion of the public's general impression of what an apartment house "ought to be."

These are the horns of the dilemma. The architect is idealistic because he is not a generalist. The generalist—the man who captures the essence of things with common nouns—is practical and down-to-earth because he is able to compartmentalize the world and then fit all situations that may develop into these compartments. That is the essence of the bureaucrat's realism: he has rules and definitions for things. When the architect comes along with a building design that does not conform to those notions about how the world should be, the banker, the builder, and the underwriters will have to alter their preconceived ideas in order to accept this non-conforming architectural idea.

Although we realize that, when it comes to a particular site and building, the architect's grasp of reality is more accurate than the bureaucrat's, the problem still has not been solved. The architect is still at work in an environment hostile to innovation. He is still faced on all sides with a preference for the past, for the tried and true, for what is familiar.

To build any kind of structure in a large city, the architect is faced with bureaucratic controls that are staggering. He must know both regulations and regulators for the buildings department, and the city planning and zoning department. For the architect to be creative in such a highly regulated environment—where he is restrained by administrators and plumbers, rental agents and building inspectors—he has to know what they are up to. The profession has to work with all of them—especially the institutional architect, or the architect working within a bureaucracy—to open lines of communication. They cannot be dismissed as incompetent, stupid know-nothings, if for no other reason than that they do exercise central control over architecture.

The Profession's Responsibility: Educating the Public Agencies

It is up to the profession to inform and educate them. Architects must try to find out what they are trying to accomplish by evaluating their goals, and then determine whether they differ with them over these goals or merely over the means of accomplishing them.

When bureaucrats are held up to public ridicule because they turn down a respectable proposal, little account is taken of their good intentions and sense of public responsibility. They take their public trust seriously and work within a framework of directives that defines clearly for them what the public interest is. Usually it is not the individual bureaucrat, but the standards and directives that cause the difficulty.

Here the profession has a role to play that it has too long avoided. It might be called "creative rule-making." Not enough able people, familiar with technical problems, have been willing to work with or be hired by public agencies to work on the rules and regulations that define architecture. Hence, much of the writing of standards and regulations falls to the inexperienced, or to other professionals such as attorneys.

Both in schools and in practice, we have downgraded the need to understand the world of bureaucracy. The image of the public employee is that of a third- or fourth-rate competence. It is undeserved, incorrect, and dangerous to the future of good architecture.

The public agencies suffer from this condescension. Salaries are kept low, morale deteriorates, and good people leave the goldfish bowl of public service. The institutional architect plays an ever larger role in design in the United States. It is clearly in the profession's interest to get adequately trained people to fill this role. It can give support in at least two directions: first, schools should be encouraged to provide better grounding for architects entering the public service; second, compensation for public service should be commensurate with the quality of people needed.

The educational problem is critical, since it involves not only knowledge of the why and ways of public regulation, but also the attitudes toward being regulated. In the United States, the dream of the architect as a free and unrestrained agent has as little chance of becoming reality as the income tax has of being repealed. To foster this dream by not teaching the student that his work is regulated at every turn may leave him unprepared to understand and discuss the merits of the rules themselves.

It is my feeling that the goals in the schools should be threefold:

First, public service should be presented to the student as a challenge, rather than as a sinecure or as an escape from the insecurity of private practice. This could be accomplished by scheduling visiting lecturers from government agencies, but being careful to select those who show some missionary zeal and who understand the students' problems.

Second, internship. There are now some feeble attempts at internship programs among some Federal agencies. The problem with such programs at present is that, although the intern has an opportunity to observe or even work at jurisdictional agency planning work, the actual explanation of reasons and functions, the teaching work, is left to personnel who have other tasks to perform and are not necessarily pedagogically oriented. These programs should therefore become cooperative programs in which a local school of architecture or planning works with a regional office of a Federal, state, or local agency to provide recruiting and internship.

Third, instruction should be provided in the form of background courses to design. These courses would provide the students with the social and financial basis for the projects they are called upon to design. In the design laboratory, there should be emphasis on the way in which projects are fitted into particular governmental agency patterns.

These proposals are the concern of the schools and the agencies themselves. As far as the profession is concerned, there is now a very high level liaison between the AIA and the various Federal agencies. Much of it, however, takes place in the clouds, and there are still the various state, county, and municipal agencies that are in the milieu of the individual practitioner.

In the more enlightened public school systems, there are citizen committees that are called upon by school boards to review problems of financing, construction, and transportation for the schools. In the same way, local chapters of the AIA should make themselves available as enlightened citizens' committees to review processing procedures that affect architects and architecture. This will give the public agencies an opportunity to look at themselves somewhat more objectively, and the chapters an opportunity to be of service to their membership by exploring the problems outlined here and providing guidance to architects.

200 Practice of Architecture
In 1936, when the Texas Centennial Exposition was held in Dallas, San Antonio was the largest city in the state. Since then, it has been passed by Dallas, Houston, and Fort Worth. The "power elite" of San Antonio, a cadre which since World War I has not seen or found major development schemes to its liking, has finally been excited by the plans for "Hemisfair 1968," a celebration of San Antonio's 250th birthday in which, it is hoped, all the countries of the Americas will take part. Now, those who previously would have no
part of " regimented" redevelopment are enthusiastic about the Hemis-
fair, and the enthusiasm is rubbing
off on several other planning proj-
cents for central San Antonio.
Since the fair was proposed four
years ago by William R. Sinkin, its
first president (he has since been
replaced by Marshall Steves), an
Executive Vice-President has been
named (Ewen C. Dingwall, who
guided the Seattle Century 21 Ex-
position to success), financing has
moved along satisfactorily after
feasibility studies by Economics Re-
search Associates, the acquisition of
75 acres in downtown San Antonio
proceeds apace (to be leased to the
fair and revert to the city after-
wards), and a notable system of
architectural control has been insti-
tuted. Primary Architect for the
Hemisfair is O'Neil Ford, who
brought in a fellow architect Allison
Peery as its Site Development Coor-
dinator. Since the site and most of
the buildings of the Hemisfair will
become San Antonio's main cultural
and recreational center after the
fair, a strong degree of design co-
ordination is obligatory, and Ford
is regarding his task with tremen-
dous exuberance. Dingwall, who
left behind a civic center for Seattle
after Century 21, told P/A that,
naturally, there were things done
and not done in Seattle that he plans to handle differently in San
Antonio. For instance, he said,
Seattle's theme tower, the "Space
Needle," was not worked in as well
as the hub or focal point of the fair
as it will be in San Antonio (this is
being designed in Ford's office, with
consulting services from Mexico's
Felix Candela).

Basically, the Hemisfair will con-
sist of a permanent convention cen-
ter and arena (Noonan & Crocker,
Architects); a Federal pavilion; pa-
vilions of Central and South Ameri-
can countries; industrial exhibits; a
stadium; the "theme" structure and
smaller, related towers; and a "Ti-
voli" area where waterways, prome-
nades, smaller pavilions, amuse-
ments, and restored older buildings
of Spanish, German, or " Anglo"
origins will form a recreation area
to remain after the exposition. Ford
thinks that even the most unassum-
ing of these older structures will
take on a more prestigious structures when restored in the amusement
park. The entire fair, he says, will
emphasize a circular plan of wind-
ing paths and waterways, all ori-
ented on the reference points of the
major and minor towers. It will not
be as severely strict a plan as the
one the New York World's Fair in-
herited from 25 years ago, Peery
says, but one that will be perceptible
to the visitor, easy to get around in,
and appropriate for the eventual
 civic center. Another hoped-for re-

result of the fair is an " Inter-Ameri-
can Institute" to use permanent
pavilions built by the larger nations
as headquarters for conference, stu-
dent programs, OAS meetings, etc.

One of the delightful features of
San Antonio is that the San Antonio
River meanders through the city on
a north-south course. It consequent-
ly was both logical and desirable
to bring water in as a major element
of the fair, and Peery has designed
a dignified series of earth shapes on
the river banks as it is diverted par-
tially into the fairgrounds near the
convention center (5, p. 205).

Both Ford and Peery visited last
summer's trade fair in Lausanne,
and were more impressed by it than
by any other exposition of recent
years. They hope to use some of
the monorail system that was so
popular there, actually entering
buildings on its way around the
fairgrounds. Ford is thinking of
stringing cables from his theme tow-
ers and lacing them with multi-col-
ored canvas to provide dappled light
and shade in the grounds. "We
don't want the New York type of
thing for this," Peery said. The
hope of Ford, Peery, and Dingwall
is for a fair that will reflect the vari-
ous strains of culture that make up
San Antonio: Central and South
American—especially Mexican; Ger-
man; and " Anglo," or North Ameri-
can. It already has the enthusiastic
support of the people of San Anto-
io, plus the not inconsiderable
interest of Governor John Connally
and President Lyndon B. Johnson,
who said, "The New World nations
are brothers in history, friends in
commerce, and partners in aspira-
tion. San Antonio's 'Fair of the
Americas,' Hemisfair 1968, will cel-
brate this partnership ... it will
be a living example of our nation's pol-
icy of Inter-American cooperation.
... I wish you every success." "Lyn-
don is all for it," Peery told P/A.

ALREADY OCCUPIED HEMISFAIR HEADQUARTERS

One element of the fair has been
completed: the headquarters across
from the fairgrounds (left and facing
page). The 19th-Century buildings
of the old German-American School,
partially tenanted by the Welfare
Department, were restored and re-
modeled by Allison Peery's office,
which also added a fountained court-
yard and a flag plaza. The office of
Ewen Dingwall catches the flavor
of the old and new that its designers
want for the entire fair. High,
beamed ceilings and textured walls
look down on contemporary furni-
ture, solid carpets and an Oriental
rug. One steps onto the second-
story gallery through French win-
dows and looks out at what will be,
by 1968, a bustling scene dominated
by the 700-ft Ford-Candela tower.
REDEVELOPMENT: A SHOT IN THE ARM

Redevelopment in San Antonio, which has languished in various small private projects since La Villita (an enclave of shops, restaurants, and craft works at River Bend) was built under the auspices of the WPA in the 30's, has suddenly become one of the city's leading concerns, at least in planning stages. Commerce and Market, the two major commercial streets, cross the San Antonio heading east-west to meet throughways in either direction. If current plans are realized, this commercial spine will extend from the Hemisfair-civic center to the proposed Rosa Verde project (O'Neil Ford, Allison Peery, and Cy Wagner, Architects and Planners). The most interesting part of this project, which will also include housing developments, is the revitalization of the old San Antonio produce markets (1) between Commerce and Buena Vista (Market with a name change). Here is proposed a multilevel system of parking, pedestrian walkways, shops, stores, and, somewhat separated, a wholesale market.

Other developments in San Antonio includes Dolorosa Plaza (2 in plan) in midtown by Arthur Mathis, Jr., Paseo del Rio (3) for the River Bend area (O'Neil Ford, Brooks Martin, Arthur Mathis, Ed Mok, Tom Pressley, Ignacio Torres, Allison Peery, Boone Powell, Bill Hunter, and Larry Travis), and a commercial development (4) on the river by Ford and Peery that won a Commerce Citation in the 10th Annual P/A Design Awards.

A New Yorker visiting San Antonio and hearing of the new spirit that has entered there as a result of the Hemisfair, and looking forward to the legacy it will leave, cannot help but regard with considerable repugnance the ephemeral grab-bag out at Flushing Meadows and wonder sadly whence and when, if ever, New York City's rescuer will come.

—JTB, JR.
Firminy is a medium-sized city about 45 miles southwest of Lyons in east central France. As one of the chief centers of the Sainte-Étienne iron- and coal-mining and industrial district, it was badly dam-
aged during World War II. Now being redeveloped, it has new housing, sports facilities, a "House of Culture and Youth," and, most important, a church by Le Corbusier.

The architect of the Chapel of Notre Dame du Haut at Ronchamp and the monastery of St. Marie de la Tourette will have another imposing monument of architectural sculpture to his credit if plans and model photographs can speak for the finished building.

With the same creative use of simple masses and volumes that characterized Ronchamp and La Tourette, making their forms appear complicated on first viewing but inevitable on further study, Corbu has designed what is, essentially, a 90-ft-high concrete shell atop a 75-ft-square base. Within the great shell will be located the sanctuary, a small chapel, the baptistry, and a mortuary chapel. The base will contain a parochial hall, rooms for meetings and lessons, sacristy, vestry, and presbytery. The church square, which will face a rocky cliff, will be at the level of the parochial hall. From the square, the main entrance to the sanctuary will be reached by a ramp. Light will enter the church through colored glass in a slit, which twines almost all the way around the shell, a rose window, and through "light boxes" à la Ronchamp placed at different heights. At the lowest point of the shell's sloping roof will be a prism housing electronic equipment surmounted by a cross.

Corbu has stated that his new church will seem to grow from the rugged shapes and materials making up the ancient quarry that is its site.

There is little doubt that the Firminy church will become an architectural as well as a religious shrine, just as did Le Corbusier's two previous religious masterworks.

**Plan 1:**
1. Place de l'Église
2. Entrance
3. Access ramp to presbytery
4. Confessional
5. Sacristy
6. Parochial hall
7. Instruction rooms

**Plan 2:**
1. Ramp
2. Entrance
3. Baptistry
4. Small chapel
5. Altar of St. Sacrament
6. Stair to sacristy
7. Sanctuary
8. Seats

208 P/A Observer
The thin line—or what should be the thin line—between architecture and planning has been significantly crossed in a study by Geddes-Brecher-Qualls-Cunningham for Philadelphia’s University City Unit 3 Urban Renewal Area. There is no architecture per se here, yet the plan is permeated with the architect’s desire to fashion a better city by creating a framework for a redevelopment area within which different designs can produce a cohesive whole.

As the core of the 105-acre Unit 3 of the University City plan, G-B-Q-C (with the consultation services of economist Joseph Oberman and traffic and parking engineer Wilbur Smith Associates) has proposed a 20-acre Science Center to extend along Market Street from 34th Street to 38th Street (with possible “open-end” expansion to 40th Street). This development will be of particular importance in Philadelphia’s over-all redevelopment because: (a) it is on Market Street, the main east-west transportation axis leading from Penn’s Landing on the Delaware River, past the CBD, out to Cobbs Creek Park and the beginning of the Main Line; and (b) it is situated in close conjunction to the University of Pennsylvania, Drexel Institute of Technology, and several medical centers. The report to the Redevelopment Authority proposes that the Science Center “be developed according to urban design controls in order to achieve both the harmony of an integrated center and the flexibility that is required for step-by-step development.”

Science Center is composed of five elements (plans, facing page):

1. The widening of Market Street between 34th and 38th Streets to provide access lanes for vehicles, landscaping of both sides of the street with double rows of trees, sidewalks, and further landscaping set back behind balustrades to form a linear park through the project area.

2. Construction of parking garages along the service streets (Ludlow and Filbert) parallel to Market Street. Areas in front of and above the garages would be leased or sold for individual development.

3. Erection of higher “gateway” buildings at the main east-west and north-south entrances to the Science Center.

4. Construction across Market Street at the 37th Street crossing of a Science Conference Center to serve the entire complex (the cross street would be closed here and connection to the University of Pennsylvania would be made by the University Walkway).

5. Individual buildings to be built within the framework of the four previous steps. These would be the responsibility of the various designers and clients thereof, submitting to the built-in control of the master plan, allowing design free-
As noted, the Center would be virtually surrounded by appropriate elements: north and west, the Presbyterian-University Medical Center; north, a major high school emphasizing mathematics and science; south, institutional and residential developments also serving the University of Pennsylvania beyond; and east, the expanded campus of Drexel Institute of Technology. The Science Conference Center, as the "hub" of the complex, would contain an auditorium exhibit area, meeting places, clubrooms, restaurants, and a hotel. It would occur near the high point of Market Street up from Penn's Landing and would consequently enjoy good views of City Hall and Penn Center, and also "crown" the University City area with an appropriately symbolic structure.

Residential areas of University City Section 3 would contain rehabilitated structures, new single-family houses, and garden apartments. It is hoped that the entire project area will have "the amenity of a campus environment" served by good mass transit and expressways, housing, cultural, and recreational facilities.

To unify the Science Center past the present planning measures, G-B-Q-C and consultants propose that the Redevelopment Authority form a design review procedure for future buildings in the Center and its related developments. Further, it is proposed that a definite table of maximum and minimum scale proportions be followed, and that all buildings in the area have the same exterior facing materials: "concrete, masonry, or other materials compatible in color and texture with limestone or gray granite."

The report has, of course, many ramifications that cannot be elaborated in this space—many of them of interest only parochially. As a means of "tying together" not only a redevelopment area but also a major metropolis, however, it is an admirable enterprise. We hope that it receives the intense attention and strong support of the powers that be in Philadelphia.
Spain has been rattling the castanets in New York recently, first stealing the show at the World's Fair with the Spanish Pavilion (December 1964 P/A) and now adding a measure of somber, Lorca-like poetry with a Spanish National Tourist Office (1) on Fifth Avenue by the same architect, Javier Carvajal.

Great pendant clusters of pierced tin lanterns, recalling a matador’s beaded jacket, gleam in the subdued atmosphere (2), one lantern brilliantly reflecting against another—a modern use of the old peasant lantern-making craft. This first impression is a paradigm of Carvajal’s concept: He saw the Tourist Office as an interpretation of present-day Spain—in his view, a combination of the ancient and rustic with the modern and sophisticated.

“Carvajal would have wanted an open cave, of a peasant, hill-country type,” says Guy Norman, his coordinating designer in New York. An open, unglazed front somewhat achieves this effect. Rough, white-painted, adobe-like plaster walls continue from the street line to the rear of the space; a raised, dark-stained oak floor and the lowered, sand-plaster ceiling extend beyond the glass entry door. The enclosing glass itself is set into these planes without a frame so as to minimize the interruption and to reveal the entire section.

To carry out Carvajal’s “cave” motif, oak planters (sensibly placed beneath the light clusters so plants will grow) curve up out of the floor like stalagmites, and from the ceiling a reading light for the receptionist and the air diffusers extend downward like random stalactites. (Again sensibly, the projecting diffusers should eliminate the usual black auras on the ceiling, besides attempting something decorative with objects generally ignored.)

The walls are washed in light from a ceiling cove that produces a narrow strip of straight lines and right angles defining the perimeter; the linear effect is cubic. On the floor, where the concrete slab is raked up to meet the new oak platform, the effect is similar. This straight-line motif and the curves of the projecting elements meet at the information desk (3, 4) in the kind of elaborate counterpoint that Carvajal employs to unify his designs.

Stone murals by Jose Luis Sanchez, depicting prominent Spanish place names, are on both walls of the entry; in the forecourt is a sculpture by Amadeo Cabino.
A system of integrated lighting, air conditioning, and acoustical control without use of large flat surfaces of acoustical material is discussed by a practicing mechanical engineer.

Ten or more years ago, ceilings above general office spaces were often acoustical surfaces perforated by air-conditioning diffusers; lighting consisted of luminaires suspended below this surface. The need for sound intensity reduction and for air conditioning at interior locations has not changed. Since then, however, lighting has undergone an explosive increase. It is not unusual to find intensities at working level four times as great as those of earlier standards. The increasing brightness of concentrated light sources has led to the luminous ceiling for the reduction of contrast and glare. It cannot be denied that acoustic systems have been "pushed around" by this new monopoly of the ceiling area.

A solution to the problem of retaining the essential acoustic absorption while at the same time providing a luminous ceiling has been achieved by the Niagara Mohawk Power Corporation in the current renovation of its historic 18-story office building in Buffalo, N.Y., designed by Reed Bell. By the selection of an open-grid ceiling surface below the fluorescent, a path was provided for sound to pass through to be absorbed in large percentage by squares (13½" x 13½" x 2") of Pittsburgh Corning's cellular glass units. Containing thousands of interconnected glass cells, the units admit sound to these cells through precisely dimensioned holes in the absorber surfaces. This installation on the second floor of the renovated building was used in combination with a lighting system that produces 200 to 250 ft-c on all working surfaces.

The installation of the squares presented no problem of cutting or fitting because their great effectiveness permitted their use singly in random, isolated locations. They were fastened to the existing ceiling and to the upper surfaces of columns and side walls above the level of the new circle grid luminous ceiling installation.

The former ceiling to which the squares are now attached consists of suspended plaster on lath and furring 18 in. below the structural floor slabs. Below this, there had been an additional suspended acoustic surface of porous metal pans. The space between these two surfaces was a pressurized plenum from which conditioned air was to filter down through acoustic pads. Over the years, however, these had become badly clogged, and it was decided to remove the entire metal-pan ceiling.

In the new installation, conditioned air is delivered to the space by cylindrical ducts that discharge it downward through area-dividers in the grid ceiling. Return air passes upward through the ceiling grid and is drawn into the upper of the two plenums through holes drilled in the old plaster surface which also serves as a reflector for the lighting system. In the summer, this exhaust system removes the excess heat of the lamps and their ballasts; but in winter this heat is redistributed to exterior glass. The ceiling is a floating panel. It was not necessary to touch the existing windows.
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FEBRUARY 1965 P/A

For more information, turn to Reader Service card, circle No. 324
Soil Stabilization With Lime

BY HAROLD J. ROSEN
Lime stabilization has been used successfully for a number of years for road base construction where expansive plastic soils are encountered. This technique, which is already well established in highway construction and is now being adapted for stabilization of building foundations in plastic clayey soils, is discussed by a Fellow of the CSI.

The principle of lime stabilization enables the engineer to utilize submarginal clayey soils and aggregates, which he can upgrade with a small amount of lime, thus often eliminating costly haulage of borrow material and permitting use of in-place soil that otherwise would have to be excavated and wasted.

Lime, especially hydrated lime, has been found to stabilize certain soils having a high percentage of clay. In reacting with these clayey materials, lime essentially performs two functions: First, during mixing, it flocculates the clay particles so that they behave more like silt or sand. The plasticity and volume change are lowered and the soil becomes friable. Secondly, after compaction, the lime reacts chemically with the silica and alumina in the clay to form a cement, which in turn substantially increases the strength and stability and makes the treated layer more impervious to water. As a result, borderline granular soils are upgraded into high-quality base materials; and heavy clays, which might normally be wasted, become select subbase materials. In fact, the latter are transformed by lime into an excellent working table for subsequent construction.

The knowledge gained from about 20 years of its successful use in stabilization of subbases for highways was recently applied in the construction of a food plant for the Campbell Soup Company in Arkansas. Hydrated lime was utilized to stabilize an 18-in. layer of expansive, plastic soil under the entire concrete floor slab (approximately 80,000 sq ft); in addition, the parking area and service roads were also stabilized.

The lime treatment was designed to minimize vertical movement of the subgrade due to moisture fluctuation (i.e., settlement during excessive drying and uplift during excessive wetting), thereby helping to prevent floor cracking. This technique was considered to be more economical and satisfactory than the conventional practice of wasting the unstable subgrade material and using imported granular backfill instead.

At the plant site, the shale and clay encountered during the excavation dehydrated badly upon exposure to air and moisture, developing considerable plasticity in the process. The resulting soil was also moderately expansive, as indicated in the following table:

<table>
<thead>
<tr>
<th>Soil Type, A-7-6</th>
<th>Shrinkage Limit 9.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid Limit</td>
<td>Modified Proctor</td>
</tr>
<tr>
<td>41</td>
<td>Density 121.5</td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>Optimum Moisture</td>
</tr>
<tr>
<td>20</td>
<td>Content 16.5</td>
</tr>
</tbody>
</table>

By stabilizing with hydrated lime, the subgrade material was made virtually nonplastic with negligible volume change, and its strength was greatly increased.

This improvement can be explained by two principal reactions occurring between the lime and clay particles. One is a base exchange, which occurs during mixing, with the larger calcium ions from the lime replacing the smaller hydrogen, sodium, and potassium ions of the clay; this causes the clay to agglomerate into coarser silt and sand sizes, thereby reducing the plasticity and making the soil more friable. After compaction, a pozzolanic (or cementing) reaction occurs, with the calcium from the lime combining with silica from the soil to form calcium silicate, a form of cement. The second reaction increases the strength and stability, makes the layer virtually impervious to rain, and helps form a firm "working table" that permits construction to proceed in wet weather. At this particular site, the contractor was able to use the stabilized area for delivering ready-mixed concrete shortly after a rain into an area that would otherwise have been a quagmire.

In conventional lime stabilization treatments for roadways, a 62-in. layer is generally specified, and the operation is carried out on the site. In this particular instance, an 18-in. layer was specified and the mixing was done off-site, with the lime-treated material being picked up and placed as subbase material in 6-in. lifts. The main reason for off-site mixing was to permit one section of the foundation to be completed quickly, so that the building contractor could start the footings and walls in that section.

The procedures involved in mixing lime in-place with the soil is relatively simple. The major steps comprise:

1. Scarifying to required depth (minimum of 62 in.).
2. Spreading lime uniformly, using bag or bulk lime, or lime slurry. For small jobs, the bag method is most practical. If bulk lime is preferred, a mechanical spreader is used. Where dusting is a problem, the slurry method is best.
3. Mixing lime and base material and pulverizing with grader or rotary mixer, water being applied to reduce dusting and for compaction control.
4. Compacting to required density, using sheepfoot and pneumatic roller, or vibrating roller.
5. Moist curing for several days. Stabilized layer is then ready for placing porous fill and concrete slab.

For additional information, write to Kenneth A. Gutschick, Manager Technical Service, National Lime Association, Washington, D.C.
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Owner-Designed Structures and the Licensing Statutes

BY BERNARD TOMSON AND NORMAN COPLAN

P/A's legal team discusses a New Jersey court interpretation of the State's architectural licensing law, which excludes from its coverage individuals who build structures for their own occupancy.

The architectural licensing statutes of several states exclude from their coverage, to some degree, the preparation of plans and specifications by a nonlicensed individual for a building that is to be constructed by him for his own occupancy. Recently a New Jersey court was called upon to construe such a statute. The Court was asked to determine whether a building designed by an unlicensed nonprofessional for his occupancy as a residence and to conduct a business was within the exclusion provided by the New Jersey licensing law (New Jersey State Board of Architects v. Earl Armstrong).

The architectural licensing law of New Jersey prohibits, with certain exceptions, the practice of architecture by persons not duly licensed by the State. It provides for a monetary penalty for violation of this prohibition, and charges the State Board of Architects with initiating an action to collect such penalty. The statute provides, in part, as follows:

"Any person who shall pursue the practice of architecture in this State, or shall engage in this State in the business of preparing plans, specifications and preliminary data for the erection or alteration of any building . . . or shall advertise or use any title, sign, card, or device to indicate that such a person is an architect without a certificate thereof . . . shall be liable to a penalty of not less than $200.00, nor more than $500.00, for the first offense, and a penalty of not less than $500.00, nor more than $1,000.00 for a second or each subsequent offense, which penalty shall be sued for and recovered by and in the name of the board. . . ."

The statute also provides the following exception:

"Nothing herein contained shall prohibit . . . any person in this state from acting as designer of any building that is to be constructed by himself for his own occupancy or occupancy by a member or members of his immediate family. . . ."

The defendant in the case referred to above, who was not a licensed architect, prepared a set of plans for a house and cocktail lounge to be located in Mt. Laurel Township, New Jersey. The house was for the personal occupancy and residence of the defendant and his wife, and the cocktail lounge, which was an integral part of the same structure, was to be operated by the defendant and his wife. A building permit was issued by the building inspector of the township and the structure was built by the defendant.

The State Board of Architects commenced an action to establish the illegality of the defendant's activity. The board contended that the exception to the general prohibition against unlicensed persons practicing architecture contemplates a building "necessarily simple in design, which is exclusively for residential occupancy by the designer or members of his family." The board argued that since the building in question was designed not only as a residence for the defendant and his family but as a cocktail lounge and tavern, it did not fall within the exception.

The New Jersey court, however, rejected the argument of the State Board of Architects and upheld the legality of the defendant's action, pointing out that a penal statute must be strictly construed. The Court said:

"The word 'building' as here used cannot be said to be limited to residential structures. . . . Obviously, a building may be erected for any one or more of many purposes. It follows that occupancy of a building may be for any one or more of many purposes. Here it is clear the occupancy of the building in question was intended to be by the defendant and his wife, not only for the purpose of a residence but also for the carrying on of a business owned and operated by themselves. The mere fact that the business is one which by its nature extends an invitation to the public to enter a portion of the building during certain hours of the day and certain days of the week is immaterial. The plaintiff acknowledges that the term 'occupancy' generally refers to actual possession. While in some situations it may also refer to mere physical presence of a person in a given place, that cannot, in my opinion, be said to be the sense in which it is used here. The statutory exception contemplates possession by the designer for whatever lawful purpose he may choose. If the Legislature had intended the exception to be limited to residential occupancy it could quite easily have said so. The Legislature in its wisdom did not so limit the term."

The State Board of Architects had argued that the interpretation of the statute contended for by the defendant would permit a person within the law to design a motel or an apartment house, if he occupied one of the rooms or apartments in such a structure. The Court made no ruling on this contention, pointing out that such a situation could "well stand on a footing different from the building which is the subject of the present complaint." The Court went on to point out that in several instances, where state legislatures had intended to limit the exception to the design of residences for the personal occupancy of the designer, the statute, as for example in Alabama, defines the exception in terms of residence rather than occupancy.

If, under the Court's interpretation of the New Jersey architectural licensing law, that law, as well as the statutes of other states similarly worded, are subject to interpretation as broad as that feared by the New Jersey State Board of Architects, it would seem clear that to protect the public from the practice of architecture by the unqualified and incompetent, it is necessary that such statutes be amended so as to employ language that expressly limits in scope the area of their exclusions.
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BY BURNHAM KELLY

Man's Struggle for Shelter in an Urbanizing World by Charles Abrams. The M.I.T. Press, Cambridge, Mass. (1964. 304 pp., illus., $7.95). Reviewer is Dean of the College of Architecture, Cornell University. His analysis of the housing industry in America, Design and the Production of Housing, was part of the ACTION Series in Housing and Community Development.

Americans are anxious to do good. We develop the greatest military strength in history in order to avoid war. We establish a program of foreign aid in search of world stability. We use the best strategies of modern economics to guide the development of new nations. And luckily we develop an occasional sharp observer like Charles Abrams to inject some common sense into the detailed effectuation of these grand designs.

Man's Struggle For Shelter is a most unusual book. It resists classification in conventional categories because Abrams is impatient with conventional thinking. Here is no scholarly exposition of economic theory, no methodological summation of sociological observations, no in-spirational formulation of physical patterns. Rather, this is the astringent commentary of a skillful reporter with a good eye for the human and dramatic facts. His readers are likely never again to underestimate the glacial force generated by desperate men who must squat on valuable urban land, nor to forget that it is the small details of administrative and fiscal organization, as much as the high aims, that spell success or failure.

In the early stages of our foreign aid programs, oversimplification was common. Anything that contributed to the growth of gross national product was urgent; all that did not, could come later. It is now abundantly clear, however, that economic models do not adequately duplicate real conditions; that attention has to be given to the warnings of a number of physical planners and housers, Abrams among them; that answers to human problems cannot be deferred if governments are to survive. Shelter is high among these problems, and Abrams finds its force still underestimated.

"More recently, most economists have accepted the need for capital to finance the 'infrastructure,' i.e., roads, ports, health, and social welfare. But housing is still a step-child in the new infrastructure family."

Unlike many of those involved in the housing processes, Abrams does not underestimate the scale of the problem. Basic human needs are vast, and they encompass the whole spectrum of survival and growth. Disease must be checked and diet improved before humans can aspire to physical improvements and concern themselves with national product. A high standard of housing, if only because of the scale of the shortage, cannot be a prime objective.

"The United Nations has estimated the number of dwellings that must be built in Asia, Africa, and Latin America over a thirty-year period to house the increased population and provide for current obsolescence. Its conclusion is that 19 to 24 million dwellings would have to be constructed annually throughout the decade 1969-1970.

"At conventional cost levels, such a building program would consume investment resources of the nations in the three continents equal to 10 per cent of their gross national product, which in many cases would account for the total investment resources available in these countries.

"It is clear, therefore, that more practical devices than now exist must be found for paring down construction costs and standards."
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Martin Price designs a medical office building

Mr. Price was able to design less expensive walls by fully utilizing the advantages of Zonolite* Masonry Fill Insulation. Annual heating costs are also cut 17.8%

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These are simple 8"×8"×16" concrete block walls with water repellent Zonolite Masonry Fill Insulation poured into the cores. This effectively insulates the walls, so all that needs to be done on the interior is to paint them and that's all. This lowers the cost considerably because fewer trades and fewer materials are needed.

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This adds up to an annual savings on heating costs of $357.

This figure does not truly represent the savings to the client, however.

Mr. Serot found that the installed cost of the insulation (financed as part of the 20 year mortgage at 6%) costs about $223.56 per year.

Compared with the annual heating and air conditioning savings of $357, this makes a 160% return on the annual investment in insulation.

One reason for this high return are low installed costs:

<table>
<thead>
<tr>
<th>approx. installed costs per sq. ft. of wall</th>
<th>6&quot; block</th>
<th>8&quot; block</th>
<th>12&quot; block</th>
</tr>
</thead>
<tbody>
<tr>
<td>5' block or 2½&quot; cavity</td>
<td>10c</td>
<td>13c</td>
<td>21c</td>
</tr>
</tbody>
</table>

The cost is low because the material is just poured out of the bag into the block cells.
Additional facts worth investigating are contained in our Bulletin MF-83. Write Dept. PA-25, Zonolite, 135 South LaSalle Street, Chicago, Ill., 60603.

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### Table: Winter Heat Loss BTU/Hr.

<table>
<thead>
<tr>
<th></th>
<th>Without Masonry Fill</th>
<th>With Masonry Fill</th>
<th>Without Masonry Fill</th>
<th>With Masonry Fill</th>
<th>Without Masonry Fill</th>
<th>With Masonry Fill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls 8&quot; x 8&quot; x 16&quot; Sand &amp; Gravel Hollow Core Block</td>
<td>740,000</td>
<td>500,000</td>
<td>174,000</td>
<td>122,000</td>
<td></td>
<td></td>
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<tr>
<td>Roof 8&quot; x 8&quot; x 16&quot; Sand &amp; Gravel Hollow Core Block with Masonry Fill</td>
<td>34,000</td>
<td>34,000</td>
<td>19,500</td>
<td>19,500</td>
<td></td>
<td></td>
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<tr>
<td>Floor 4&quot; Concrete on Grade</td>
<td>10,000</td>
<td>10,000</td>
<td>—</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Glass: Solar &amp; Transmission</td>
<td>198,000</td>
<td>198,000</td>
<td>119,500</td>
<td>119,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ventilation 5,000 Cubic Feet Per Minute</td>
<td>380,000</td>
<td>380,000</td>
<td>175,000</td>
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<tr>
<td>Lights 80 Kilowatt</td>
<td>—</td>
<td>—</td>
<td>265,000</td>
<td>265,000</td>
<td></td>
<td></td>
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<tr>
<td>People 280</td>
<td>—</td>
<td>—</td>
<td>154,000</td>
<td>154,000</td>
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<tr>
<td>Totals</td>
<td>1,362,000</td>
<td>1,122,000</td>
<td>827,000</td>
<td>875,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

% Savings with Masonry Fill = 827,000 - 875,000 = 5.7%

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**NOTES:**

1. FUEL: No. 6 oil @ 7.54 per gallon.
2. DEGREE DAYS: 4,889 per year.
3. DESIGN CONDITIONS: Winter, inside 70°F, outside 0°F.
   Summer, inside 78°F, 50% RH, outside 95°F, 78% WB.

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For more information, turn to Reader Service card, circle No. 420.
The notion that the developing nations can build public housing projects of the American type or new towns with houses of British standard is completely unrealistic."

That the problem cannot be easily solved does not mean, for Abrams, that it may not be attacked. Practical devices for paring costs are available, and ingenuity reveals a number of ways by which housing advantages can be obtained in the course of solving other urgent problems. The key is to keep the multiple objective in mind.

"Acquisition of land for housing simultaneously with acquisition for roads, ports, and other improvements could make the expenditure do double duty at lower cost. But too often, the outlays for roads and ports are made separately. Housing construction might also inspire materials production, absorb urban unemployment, spur savings, tax revenues, and general industrial development; but these factors too are ignored in development policy."

It should not be assumed that this book is devoted to general argument at this level. Far from it, Abrams has had too much personal involvement with aid programs for that. An expert's expert, he has made studies in countries all over the world, most of them for the United Nations, and this is the accumulated testimony of his practical observations. He has developed his theories in other books (Revolution in Land, Urban Land Problems and Policies, Forbidden Neighbors, The Future of Housing, etc.), and he refers to them only in passing.

This is the guidebook for any man bold enough to try his hand at giving aid to a developing nation, whatever his field of concern. The terrain is laid clear with its pitfalls and peaks, swamps and streams. Highways are few, but there are passable trails, and Abrams points them out. His breadth of approach permits him, for instance, to suggest means of stimulating local savings, to give guidance in creating a local university as a means of developing skilled manpower, and to spell out details for design in a roof loan scheme. It is a virtuoso performance.

The approach has its limitations. A general reader will find it hard going because of the very richness of accurate detail that makes it valuable to the specialists. No attempt is made to fit all the pieces into a single structure of thought; indeed, some of the insights appear to be contradictory, held together only by the principle that "each situation needs its own program." It is essentially a manual for those on the firing line, but this is a very broad and extended firing line and many of our most dedicated young men have volunteered to serve on it.

This reviewer has two general regrets. First, the broad discussion of the U.S.S.R. and U.S. systems introduced near the end was without adequate criticism or analysis; it might better have been omitted. Second, I regretted the pressures of time and space that must have prevented the drawing of some broad conclusions. I would be tempted to arrange the Abrams storehouse of evidence in support of some such over-all theory as that proposed by Walt Rostow to explain stages of economic development, for phases of physical-legal-housing development also appear to relate to the maturity of the nation in question. Certainly the United States in its early years was radical in its approaches to many of these problems; it became conservative during a long period of agrarian stability; and it is turning radical again in the face of urban crisis. Our spokesmen often succeed only in confusing themselves and building mistrust in others when they fail to understand or make these differ-

Continued on page 231
CONTINUE FROM PAGE 226

entiations. Perhaps much that Abrams has observed could be given stronger significance through some such analysis.

But theory was not his aim. He wanted the reader to see the situation in all its detail, and he has certainly succeeded. The book is an experience, illuminating and deeply troubling, one that should be broadly shared.

Africa Builds, But How?

BY HARRY WEESE


One who expects a view of architectural Africa along the lines of Italy Builds will be disappointed, for this handsome volume does not take the all-inclusive view of Kiddier Smith. It is more a collection of what one deems of new architecture would like to see in Africa. While the author speaks of new architecture which is African and expresses enthusiasm for "emergent forms which are non-European," he doesn't put his finger on them.

Most of the examples are isolated in their photographic format, without connection to a recognizable ambiance. They are not better nor worse than modern architecture in other equatorial regions of the world, some with a sophistication that would stand well anywhere, like Julian Elliott's debt non-African parasol garage in Northern Rhodesia.

There is a Morroccan series in which Elie Azagy shows restraint and almost poetic understanding of what life can be in Rabat, juxtaposed to works of Andre Studer or Jean-Francois Zevaco making formalist bombasts under a merciless sun. The many shuttered and multi-faceted examples of climatological engineering, largely inspired by Fry-Drew, and a series of office blocks bespeak British influence in their former Gold Coast colony. D. A. Barratt and D. P. C. Coast are represented there by a convincing cubist housing complex with Giorgola-like angular roofs and stairs (African-Philadelphia). The Henri Chomette town hall in Abidjan looks earlier than Corbu in its pristine concept. But seen in the flesh, its modern shabbiness tells the difference between concept and reality; and there are the quite literal Corbu Garches houses looking oven-like in the Congo to represent his pervasive if alien influence. The question of native talent is not touched on.

The volume, handsome in format and printing, with generalized notes about each country, seems more concerned with proving Africa has modern buildings than with tracing influences or reporting and evaluating trends. It speaks of an emerging African architecture, but shows little belonging to a body of work with any direction.

One remarkable exception is Roland Simomnet's version of Southern Tunisian honeycomb houses cascading down the slopes of Ojken-El-Hasan, Algeria, a modern translation of the vernacular idiom reassuring in that, once done, it is self-multiplying and becomes a renewed tradition. These and the few but beautiful plates on indigenous architecture in sub-Sahara regions are the only real connection to the reality of the Dark Continent. One wishes Mr. Kullerman had covered native building in depth, grass-thatched kraals and all, to allow us to compare his modern architecture with the real thing.

Well Known for Past 20 Years

BY PAUL ZUCKER

THE GOOD CITY by Lawrence Hauworth. Preface by August Heckscher. Published by Indiana University Press, Bloomington, Ind. (1963, 160 pp., $4.50). Reviewer is a frequent contributor to the P/A review columns. Among his many books is the recent Town and Square: From the Agora to the Village Green.

A general introduction to the problems of the modern city, this book offers a popular compilation of what has been thought and written in this field for the last 30 years. As such, it may be helpful to nonprofessionals who occasionally come in contact with questions more or less loosely connected with modern urban life and city planning. The author's thorough familiarity with the material must be deduced from his notes. Beginning with Ebenezer Howard and Clarence Stein, he refers to Carol Aronovici, R. L. Dulfos, Le Corbusier, Charles Abrams, Catherine Bauer, Arthur B. Gallion, Jean Gottmann, and Jane Jacobs; yet he has considered only sources written in the English language, although some most important contributions in this field have been published in French, German, and Italian. According to the dust jacket, the author is a member of the Department of History, Government and Philosophy at Purdue University, and so, quite naturally, the sociological point of view represents the

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Book Reviews 231

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main avenue of approach. If Lawrence Haworth had actually dug into the standard work of our generation, Lewis Mumford's unsurpassable  *The City in History*, he would have had a broader and more comprehensive vision. This way, however, with his most honest endeavor, he has produced merely an incredibly pedestrian rehash without a single idea that hasn't already been discussed in books or periodicals. In reviewing publications on the problems of the modern city and its history, this reviewer has never encountered a book of such confusing repetitiousness. There is not a single sentence in the book that invites objection, because everything has been well known for at least the last two decades. The actual problems of our period in this field ask for discussion on another level.

**Precious Monograph**

*BY EDGAR TAFEL*  
*BUILDINGS, PLANS AND DESIGNS by Frank Lloyd Wright. Published by Horizon Press, 136 Fifth Ave., New York 10, N. Y. (1963, portfolio of 100 drawings, plus brochure of 32 pp., $100). Reviewer is an architect practicing in New York.*

When Frank Lloyd Wright established the Taliesin Fellowship in 1932, only one complete copy of *Ausgeführte Bauten und Entwürfe* existed in this country. This copy of the work on which Wright lavished so much love and care during his year of romantic exile in Fiesole was in two leather-bound volumes placed in his study where everyone could examine them.

Stored below the living room were piles of water-stained originals, damaged in the first of Taliesin's three fires. We apprentices were welcome to make such salvage as we could, and, in the first few years, virtually every apprentice assembled almost a whole copy of Volume I and perhaps odd sheets of Volume II, printed in various inks, including black, sepia, gold, gray, and white.

Many of the long winter evenings at Taliesin were spent speculating on the roles of cause-and-effect in Wright's life; if he had not left his family in Oak Park for the love of Mrs. Cheney (Plate 42), would this priceless monograph have ever existed? He himself spoke little of the time he spent in Italy—as far as I know, the only building he designed there was a studio for himself, in his early style; the drawing was still in the vault. That year of intellectual as well as emotional fulfillment must have been precious to him; but, during my nine years of close association with him, he spoke of everything except Italy. Wright always loved printing; he greatly desired a press at Taliesin such as he had had with his client, Winslow (Plate 10). Throughout his life, the press was the chosen tool for the dissemination of his work and his philosophy of his profession, so clearly enunciated in his introduction to his book. His attraction to type began early, perhaps with *The Ladies' Home Journal* houses (Plate 14). His relation with fire began almost as early: he loved to tell of the first fire at the Lake Forest Tennis Club (Plate 14) resulting from his ignorance of chimney fire-stopping!

The Thomas House (Plate 19) led any list of houses to see in Oak Park. It was the precursor of the Robie House, which, done in stucco on wood lath, was crumbling in the 1930's. The Hillside Home School (Plate 25) was done for Wright's aunts—we at Taliesin never knew how they could afford the great massive stone

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To review this book is to relive my nine years with Wright. I recall that the Dana House (Plates 29-32) was one of his loves—he loved many of his buildings—partly because it began as an alteration and became a grand complex.

Once, when I accompanied him to Falling Water, we stopped in Buffalo to see the Martin House (Plates 35, 36, 37) and the Larkin Office Building (Plates 39, 40, 41). The house was in excellent condition, while the office building was falling into disuse—but not quite. Wright walked me into the women's lavatory to show me the ceiling-hung partitions and wall-hung water-closets he had designed, but it was difficult to hear him above the screams of the fleeing occupants.

At lunch with the executives, Wright was telling several of the sons of the founder of the company about their father. He cited the authority given to him to articulate the stair towers by separating them from the building at an extra cost of $26,000. The sons corroborated the story, pointing out, however, that their father had had to pay $62,000! The Larkin Building bears special investigation, historically, since so much of its excessive perimeter style is appearing today.

Limitations of space choke off the flood of reminiscence loosed by this beautiful monograph. For those who knew Wright, it will be a return to the past; for those who did not have that good fortune, it will offer a unique intimacy with the man who has contributed so much to our profession. I urge anyone who has the money to buy it now. Like the other hooks on Wright's work, it may soon be unavailable.

Fixation on an Earplug

BY CARL FEISS

COMMUNITY AND PRIVACY by Serge Chermayeff and Christopher Alexander. Published by Doubleday & Co., Inc., 575 Madison Ave., New York 22, N.Y. (1963, 235 pp., illus. $5.95). Reviewer is a planning and urban renewal consultant.

The thesis of this book is that there is too much noise and too little privacy in modern living and modern residential architecture. The first half is a well-written general introduction to problems of urban living; the second half contains the thesis illustrated by self-consciousness.

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Continued from page 241
“avant-garde” eye-catchers mingled with stereotyped black-and-white site and house plans. Within self-imposed limitations of selected site and house plans (largely of the Mies-CIAM space geometry), there are interesting critiques of individual or group house plans. Selected site plans are perhaps most catholic, but one senses the deadly dullness of Hilberseimer mathematics as an unconscious but all-pervading antihumanism here. My guess is that although the authors tried to understand the privacy of nature and the opportunities it offers to solve many problems, the T-square and triangle converted the authors to an IBM card formalism and they got lost in the punches and not the woods.

The theme of the “lock” predominates in the book as it did in a famous 18th-Century poem. Here the “lock” is similar to the decompression chambers for deep-sea divers. There are sound and privacy “locks” at the entrance to a house, as separation of living and sleeping spaces, and so on. The “lock” also occurs as a buffer area in all the book’s premiated plans. This is an idea used frequently in historic oriental houses and in some classical atrium houses in the Mediterranean area. Recently, it has been adopted successfully in this country in both urban and suburban house plans, some of which are illustrated in the book. It has always been and still is a fine plan element.

The book does suffer from a fixation on this one ear plug, however. There is no plug for the other ear—no recognition of the noise-transference quality of glass or of its usual transparency. No comment is made, for instance, on the fact that, in one plan by Philip Johnson, the unmade bed is fully visible across the court and the full length of the living space to the dining table. Maybe it isn’t the earplug but blinders that are needed. Also, there is little consideration of the highly technical problem of sound transference through floors and walls and ceilings. In the Johnson house (selected here at random), the children would presumably be sleeping over the grand piano—both could suffer.

For some reason, the book omits consideration of multifamily, high-rise plans and is therefore incomplete. Its coverage is also too general to discuss how one tethers the high-fi system to its appropriate space, keeps the jets out of the bedroom, muffles the "disposal" in the Miesian house, and the mocking bird on the mobile in the buffer at 6 A.M.

Continued on page 268

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A Vigorous Tradition

BY GEORGE KUBLER

ART IN LATIN AMERICAN ARCHITECTURE
by Paul F. Damaz, Preface by Oscar Niemeyer. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. (1963, 232pp., illus. $15). Reviewer is Professor of the History of Art at Yale University.

Thoughtful travelers have long been aware that Latin America is a cluster of focal points where contemporary art is deeply rooted and remarkably fruitful. It is also well known to many students that this fruition corresponds to a long florescence in the intellectual and artistic life of the republics. Such florescences in turn rest upon solid achievements in many sectors of political and economic life. We seem fated always to ignore them, preferring to believe the stale myth that Latin America is backward, predominantly Indian, and unredeemably provincial.

The contrary evidence in this survey by Paul Damaz gives us an altogether different view. We see a vigorous living tradition, flourishing in several main branches—Brazilian, Argentine, Uruguayan, Venezuelan, Mexican, Colombian, and Chilean—to mention only the most prolific countries for architects, painters and sculptors.

Hundreds of important new works realized since the war compete for the reader's attention, some by Europeans, but most of them by Latins.

The central thesis is that art and architecture in Latin America are naturally "integrated," and that their unnatural separation has never been more than an infrequent aberration. Accordingly, each work of mural painting or large sculpture is treated in relation to an architectural problem, and every building is discussed as a plastic and pictorial setting. The standard of selection is stated as "interrelation by confrontation or juxta-
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Art in Latin American Architecture by Paul Damaz/Preface by Oscar Niemeyer. This handsome, and visually exciting review offers a critical analysis of the successful integration of the artist and the architect. Part I presents a comprehensive view of Latin America, sources of culture, pre-Columbian heritage, colonial art and architecture, modern architecture, and contemporary art in Latin America. Part II analyzes the outstanding contributions to architecture in the United States, 500 illustrations, 15 in color. 8% x 10%. 232 pages. $15.00

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Mr. Damaz finds admirable examples of such confrontation in Raul Villanueva's University of Caracas, which he opposes to less well integrated expressions by the mere "fusion" of art and architecture at the Ciudad Universitaria in Mexico City.

Damaz presents the integration of art and architecture as if equivalent to their interrelation by careful teamwork. A Latin American would probably find this insistence upon "teamwork" peculiarly Anglo-Saxon. If we incline to confuse necessary and adequate conditions, the Latin American keeps them distinct. "Teamwork" would never pass muster in Buenos Aires or Rio de Janeiro as a sufficient condition of excellence.

For Mr. Damaz, the touchstone of "integration" appears to reside in proportions and in location. Art and architecture must display reciprocal awareness of each other's presence, in respect to being planned together. Gardens, especially those of Burle Marx in Brazil, seem to realize most completely these ideals, as when Marx's own figural dissolutions as a painter are seen as extensions of the nonfigural schemes of his planting of beds and borders.

Nonintegration for Mr. Damaz appears most objectionable in the Mexican inclination to contrast and oppose architecture and mural art, as if the painters were struggling against the architectural situation where their work appears, and the architects working without reference to sculptors and painters.

Throughout the book, there is little attention to dating or to the complexities of composite authorship. The opening sections on pre-Columbian and colonial art and architecture are wordy and they are riddled with inaccuracies. It is regrettable that these introductory pages were not used instead to expand the central text portions, which are regrettably brief. Throughout the text, there is almost no comment on the meaning or intention of these paintings and sculptures. The author criticizes only the lack of integration with architecture, but he rarely explains subject matter or structural problems.

These defects, however, are minor. Mr. Damaz' book is a serviceable guide to artistic events in Latin America since the war, and it is a necessary tool, for both historians and artists, in spite of its breathless hurry through the wonderful surprises of recent Latin American art and architecture.
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The AASA Architects Exhibit: A Stepchild of the Convention? Norbert Adice. Norbert Adler Associates, 42 Riverside Ave., Binghamton, N.Y., 1964. 23 pp., illus. $3 (paperback). School architects might take note of this critical review of the Architects Exhibit held in Atlantic City, February, 1964 at the national convention of the American Association of School Administrators. Of interest are concluding recommendations for planning a successful exhibit. Author does public relations for architects and engineers.

The Architecture of Pueblo Bonito. Neil M. Judd. The Smithsonian Institution, Washington, D.C., Smithsonian Miscellaneous Collections, Vol. 147, No. 1., 1964. 349 pp., illus. $6.00 (paperback). The magnificent remains of Pueblo Bonito were discovered by President Theodore Roosevelt; four previous books are based on the National Geographic Society’s research in the area. This fifth volume describes in minute detail every inch of the ruins, mixing historical data and interesting fold-out maps and photographs for the pleasure of the archaeologically minded and patient reader. Author is an associate in anthropology at the U.S. National Museum, Smithsonian Institution.

Art or Anarchy? How the Extremists and Exploiters Have Reduced the Fine Arts to Chaos and Commercialism. Huntington Hartford, Doubleday & Company, Inc., Garden City, N.Y., 1964. 204 pp., illus. $4.95. To be reviewed.

A Bank Looks At Community Development. Demonstration Project Pa. D-4. The First National Bank of Boston with the Bureau of Community Development, Department of Commerce, Commonwealth of Pennsylvania, 1964. 50 pp. No charge. (paperback) A report outlining the techniques used by a large banking institution in evaluating community needs, resources, and potential, for the purpose of formulating a community development program. This project was made possible through a Demonstration Grant from the Urban Renewal Administration, Housing and Home Finance Agency.

Bendiner's Philadelphia. Alfred Bendiner. Foreword by B. A. Bergman, Preface by Russell Lynes. A. S. Barnes and Company, 8 East 56 Street, New York, N.Y., 175 pp., illus. $4.95. To be reviewed.

Community Services and Family Relocation. The District of Columbia Redevelopment Land Agency, 919 18 St., N.W., Washington, D.C. A report of the social welfare results of a mass relocation project in Washington, D.C. Pilot study made possible through a Demonstration Grant from the Urban Renewal Administration, Housing and Home Finance Agency.


Essentials of Structural Design. Anthony Hoadley. John Wiley & Sons, Inc., 605 Third Ave., New York, N.Y., 1964. 609 pp., illus. $11.50. Primarily for the architect or engineer whose structural design work is not his principal activity, this book offers general information on building design, theories and methods, structural properties of steel, wood, and reinforced concrete, and explanations of the reasoning behind equations, design procedures, and code requirements. Author is professor of Civil Engineering at Union College and has served on the Panel of the American Arbitration Association, hearing cases on construction contracts in New York State.


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