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# Journal

February 1964

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*Opinions expressed by contributors are not necessarily those of AIA*

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COVER: Charles Blessing's sketch of Piazza San Marco, Venice. For more samples from his portfolio, see page 39





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# The Editor's Page

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## Thoughts on the Well-Read Man

A paper manufacturer has recently been running ads in the magazines which show a picture of a handsome, well set up man, obviously an important executive, and in big type he says, "Give me a man who reads." The blurb below states that no longer are the big corporations looking for experts, men with highly specialized educations, to fill the ranks of lower-echelon executives from whom the top management of the future will emerge. They are looking for men with broad and well-rounded educations, men with straight arts degrees rather than men with degrees in such specialties as business administration or economics. The man who can quote "Comus" and who reads Edith Hamilton, Jacques Barzun and John Cheever is more apt to be a man trained to think, as opposed to a man trained to do. And the man who *thinks*, logically and clearly, can *do* almost anything. It is not only in paper manufacturers' ads that one finds this message. There have been many articles in the "class" magazines in the past year or two which have said the same thing.

Thus perhaps the age of the expert, the specialist, has already passed. For the past generation our universities have been gearing themselves increasingly to turn out specialists. Having tried out trained specialists, industry finds that "generalists" make better executives, after all. To be sure, some of the leading universities have already recognized the changed demand. In fact, the best of them knew all along that the most useful mind was the cultured and broadly-read mind, a critical intelligence—it seems to me that Robert M. Hutchens was telling us that thirty years ago.

Ironically, the men of the right age group to be available to corporation management for promotion to the upper echelons are largely products of the elementary schools of the day when Johnny couldn't read. I know several basically competent but quite unimaginative men of forty to forty-five who are

smugly almost proud of the fact that they don't read and never have read. I doubt if they can. In any case, their intellectual growth was stunted from the beginning because they were not taught and encouraged to read at an early age.

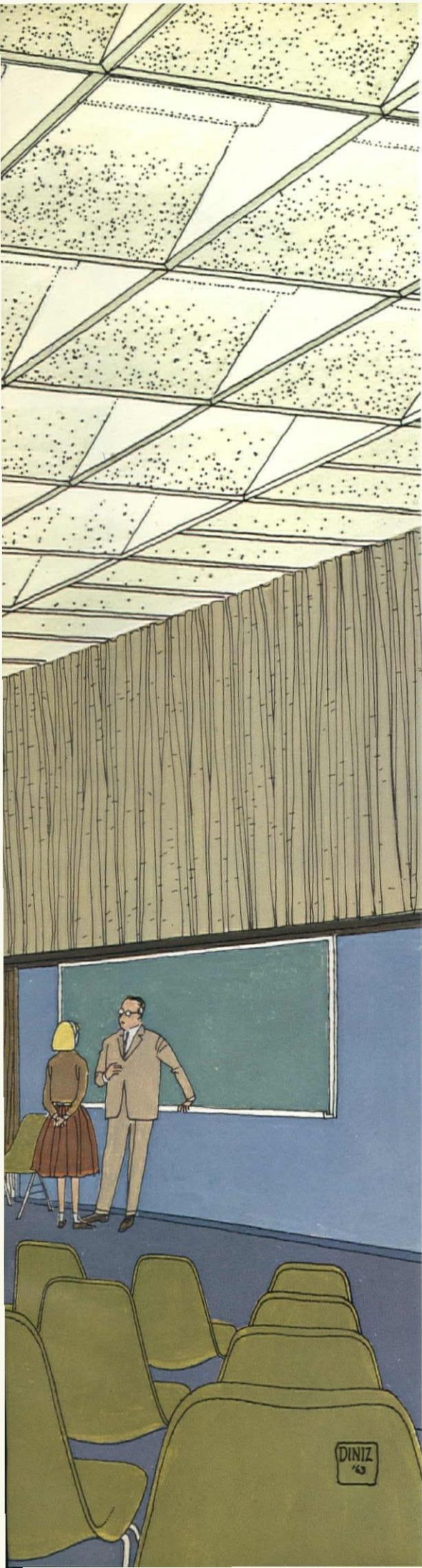
The most conspicuous representative of the generalist was JFK, a man of great intelligence and a tremendous range of interests, who through wide reading kept himself informed on everything within his intellectual reach—which was considerable. A practical politician by vocation, an historian by avocation, his mind actively encompassed everything from economics to the technology of space exploration, from the complexities of international relations to the simplicities of the needs of poor and hungry people. A truly cultured man, there were still some manifestations of culture in which his genuine personal interest was slight—the arts, for instance. (However, his interest in architecture seemed entirely spontaneous and genuine, fortunately.) But his innate appreciation for *excellence* was such that he understood the importance and true value of the arts, which led him to seek the best and to encourage activity in the arts both governmental and private.

Thus President Kennedy surrounded himself with men who had minds like his own: Bundy, Sorensen, Goodwin, Yarmolinsky—none of these men were trained in foreign policy, economics, military organization, government, Latin American relations. They are all generalists with good minds. The President tossed them all sorts of jobs; they plunged into them, did whatever study, travel and observation was necessary, and came out "experts"—a far cry from the traditional career experts who advised former Presidents.

It was not my intention to write another eulogy of our late President. They have all been written; he is now a part of history, still a very vital part—which is undoubtedly something he very much wanted. My purpose in introducing him here was to point him up as an almost perfect example of the type of mind, and the type of truly educated man, whom I started out to discuss.

There is certainly no need to point out the application of the above thoughts to the architectural profession. The need today is not for the architect who is deeply trained in the nuts and bolts of one aspect or another of his profession, but for the architect who is broadly educated enough to encompass all phases of his professional activities: a generalist who can talk shop with his designers, engineers, artists and craftsmen, appreciate their problems even though technically unable to solve them himself, and organize, guide and inspire them to produce together with him something that we hope will be, not just architecture that functions, architecture that is economical, architecture which "solves the problem," but architecture which is all of that and is great architecture too.





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**CREDITS:** Culver City Unified School District, Culver City, Cal. *Architect:* Boyd Georgi, Altadena, Cal. *Mechanical Engineer:* Thomas H. Parry & Assoc., Pasadena, Cal. *Electrical Engineer:* William H. King, Pasadena, Cal. *General Contractor:* W. J. Shirley, Inc., Pasadena, Cal. *Ceiling Systems Contractor:* Crownco, Los Angeles, Cal.

RENDERING BY CARLOS DINIZ.

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# Letters

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## "Quest for Quality": A Final Word

EDITOR, *AIA Journal*:

Our American society has become so absurdly interested in facts and information without understanding that it has bankrupted fiction writers and the romance of the *Saturday Evening Post* and *Collier's* magazines. These magazines which once gave relaxed reading pleasure are now filled with serious and useless reports on almost every subject.

It should thus not surprise us that a convention of The American Institute of Architects should start with the high theme of "Quest for Quality" and finish with our own people entering the fictional area singing "Me-Me-Me," declaiming the presence of quality in one another's work, and surpassed in their vulgarity only by the invited guests, one of whom wore a dress and habitually makes a living with words and controversy disguised as criticism.

Architects normally sound their best with pencil in hand, talking about a building they know. When they go abstract or philosophical and put down the pencil, they are likely to sound lost. Aalto knows this and won't talk. Those who addressed the convention with low quality of preparation did not show the high quality that got them invited.

I am glad I did not go to Miami, but we can all learn from that convention. If our peers talk clumsily of quality and limit their discussion, like undergraduates, to design alone, we can learn what we small-town boys must do. We must think of quality of total architectural service, of buying the right buildings for our clients as conscientious and able purchasing agents, as sound administrators, as the only professional agents to represent them in the building industry. Our clients know they pay only one-third of our charges for our design work and they expect more than just good design. They should.

Three years ago a student speaker at the San Francisco Convention used the right words: "Sensitive response to our clients' needs." This the small-town architect can do with a high quality of design, counsel, wisdom, drawings, specifications, engineering and high-quality supervision. He can also provide a high quality of humility, the compassion that is necessary for a sensitive response, and the human friendship that can make a professional service properly complete. Service, quality of service, a high quality of service we can give at home and do better than the conventioners talked about.

ROBERT I. HOYT AIA  
Santa Barbara, Calif

ED NOTE: *The above originally appeared as an editorial in the newsletter of the Santa Barbara Chapter AIA. It was sent to the Journal with the request that it be printed.*

## Comprehensive Confusion

EDITOR, *AIA Journal*:

The architectural profession is becoming diluted and confused. Instead of insisting on higher standards of design, we are peddling a packaged program labeled "Comprehensive Architectural Practice." Architects are being admonished to become promoters and bankers: "The architect can be of inestimable aid to his industrial clients in the financing of their buildings." He would be of far greater aid to them if he could do a more accurate job of estimating the cost of their buildings.

Many architects have always conducted a comprehensive practice. Like the old-fashioned family doctor, they know their clients and their needs, and the extent of the architect's service bears little relation to the amount of the fee. To these architects comprehensive service is the natural response to a recognized need.

But to stampede the entire profession into becoming "masters of the whole process," "total design," "environmental structures," "economic feasibility," is the height of absurdity and irresponsibility. This is not the road back to architectural leadership. In the words of Sibyl Moholy-Nagy, "To reconquer this leadership means going back to the ill-paid, difficult and solitary profession of design." And to this could be added, with credit to Philip Will, "more concern for the people for whom they plan and build."

WILLIAM LYMAN AIA  
Birmingham, Mich

## UD: An Appraisal

EDITOR, *AIA Journal*:

On receiving the October issue of the *Journal*, I took the usual quick first glance through its pages.

The section on "Land-form, City Life and Urban Design," judging from the sketches, did not promise any particularly deep study. Anyhow, I started to read the text and was most pleasantly surprised to find an account of a most thoughtful and penetrating analysis on the various features of design and siting that make buildings and cities great.

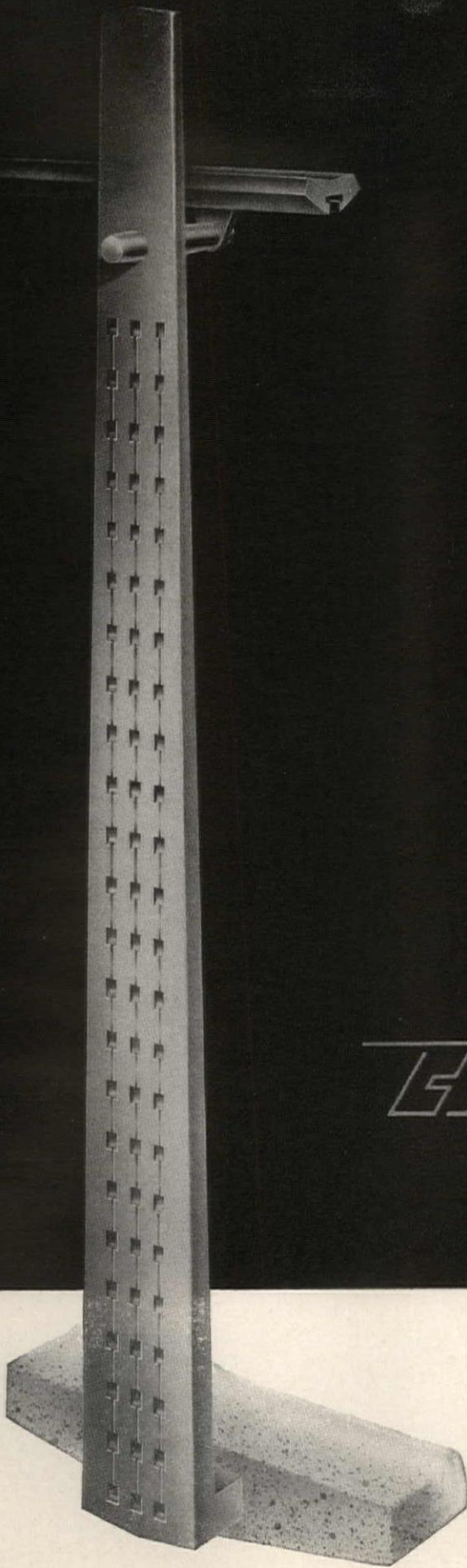
The descriptions go into the basic meaning of form, space and composition, a procedure which is indispensable to the creative designer. The sketches illustrating the examples do not seem to put the enlightening explanations across. They do not give the facts clearly enough, nor do they crystallize the thoughts behind them.

I believe that photographs of these existing cities and buildings, with diagrammatic drawings showing the essence of the ideas behind them, so well presented in the text, would have complimented the article to perfection.

In the volume "In Search of a Living Architecture," published in 1939, I tried to analyze creative design in this manner.

ALBERT FREY FAIA  
Palm Springs, Calif





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# Allied Arts

## Sour Note

WOLF VON ECKARDT, HON AIA

Happily, it is no longer entirely true, as August Heckscher had put it a year or so ago, that "the majority in political life at all levels still tend to talk of culture as if they were telling an off-color story." After eight years of struggle on the part of a handful of cultured Congressmen, the Senate, just before Christmas, passed the bill to establish a National Council on the Arts and a United States Art Foundation. And whether the measure will now also be sanctioned in the House, the happy harmony of praise and support it received from all quarters of the art world is in itself a great gain. It cannot help but further improve the climate for artistic endeavor in this country.

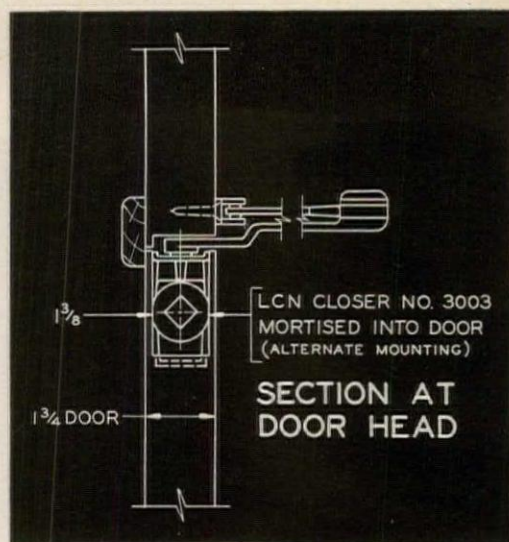
The objective of the legislation is, of course, to establish encouragement and support of the arts as an appropriate concern of the Federal government. And such declaration could scarcely have been more effectively demonstrated than in the five days of hearings before a special Senate subcommittee last fall. The Senators, chaired by Claiborne Pell, Democrat of Rhode Island, in admitting the arts into the realm of politics, took elaborate pains to keep politics out of the realm of the arts. The mood was high in room 4232 of the New Senate Office Building as Pell opened the parade of eminent art supporters by quoting what the most eminent of them all had said at Amherst College just the day before. "If art is to nourish the roots of our culture," John F. Kennedy had ventured, "society must set the artist free to follow his vision wherever it takes him. . . . I look forward to an America which will reward achievement in the arts as we reward achievement in business or statescraft."

Pell surely hastened that day with the welcome he extended his witnesses. There was but one shrilly discordant note. Gutter politics intruded like a drunken gatecrasher. But, ironically, that off-color joke was not perpetrated by a politician. It was an artist, Wheeler Williams, who zealously demeaned himself and his *arrière-garde* cause.

Senator Hubert Humphrey had led the parade, striding into the hearing room with a retinue of photographers. ("He gave us the sensation of being bit players in a scene with the greatest performing artist of them all," reported our observer.) He announced that "compared to the Berlin Opera House, anything we have in this country looks like a woodshed. I could be more descriptive."

In the last analysis it is, observed Senator Joseph S. Clark, "the quality of our society—and not just the quantity—which will be remembered."

*Cont'd on p 14*

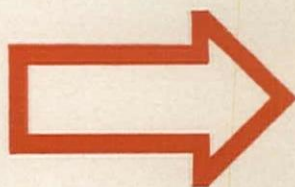


## Installation Details

for LCN closer concealed-in-door shown on opposite page

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Descriptive matter on request—no obligation, or see Sweet's 1964, Section 19e/Lc

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## Allied Arts Cont'd

The Art Council, said Representative Thompson, would bring the finest minds associated with the arts together to discuss common problems and common opportunities. And it was just that which here in the hearing room had already begun.

J. Roy Carroll Jr, speaking for AIA, urged that the proposed Council comprise representatives of those fields allied to architecture, including engineering, landscape architecture and planning. It is the teamwork of all these professions, he held, which "for better or worse, contributes to the health, safety, conservation and beauty of America."

Wheeler Williams, however, announced that it "would have disastrous results." His testimony began light-hearted enough. "I am happy to meet you," he told Senator Pell, "because I believe we are descended from the same Indian princess."

"I do not think she was a princess; she was a farmer's wife," replied the Senator.

Williams: "Nevertheless, she was the daughter of a Chief."

The royal descendant then explained that he was five years old when, back in 1901, his first sculpture was cast in bronze. His subsequent work includes the statue of Senator Taft in Washington. He appeared, he said, on behalf of some thousands of people in various organizations.

"Just as the bottom is dropping out of the market for the so-called modern art," he explained, the proposed Council and Foundation by giving "this art rubbish a shot in the arm would be a blow to efforts to keep American art of coherent beauty, integrity and craftsmanship alive and advancing in the stream of tradition."

The Senators, he continued, were surely "unaware of the Communist use of art as a weapon pursuant to Stalin's directive." Williams then proceeded to refer to William Walton, the new chairman of the Fine Arts Commission, as "a Sunday painter," and said he was "aghast" at the appointment of Theodore Roszak to the Commission. He hinted darkly that the Commission was a plot of "anti-art," and worse, concocted by the left-wing "museum boys."

"Diversity," remarked Senator Pell, when the tirade was over, "is an important element of a democratic society." But he found himself "in fundamental disagreement with the witness when it comes to relating alleged political belief with the virtues and values in art." His peers merely ignored it all, much as good hosts would ignore some *faux pas* of an uncouth guest. And that, of course, was just as well.

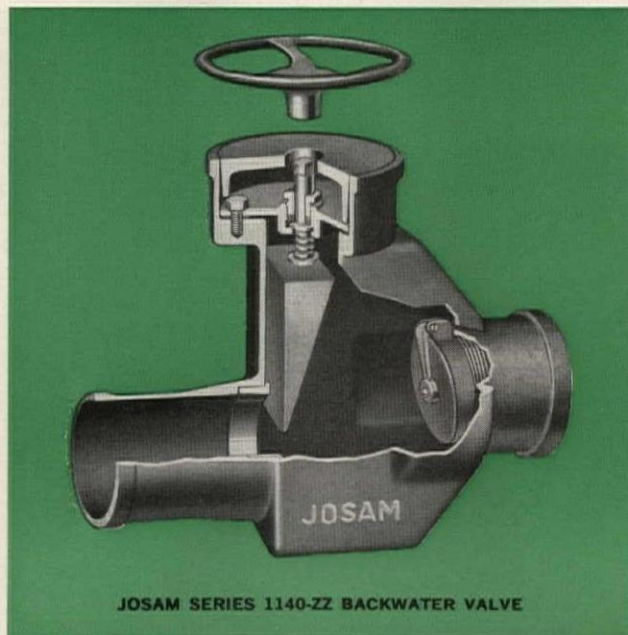
In the House, however, Mr Williams might leave more than a bad taste in the mouth of some members. It might thus be well if the traditionalists whom he claims to represent were to restrain their zealous spokesman from further testimony in this vein. Diversity in art is as welcome as it is in politics. But Mr Williams scarcely contributed to the esteem of "American art of coherent beauty, integrity and craftsmanship" however this appears.

One such off-color joke was already too much to stomach. ■





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### Hunt Named Publisher of Journal



Hunt

Wm Dudley Hunt Jr, AIA, of Port Chester, NY, has been appointed publisher of the *AIA Journal* by Executive Director William H. Scheick AIA.

"Hunt's appointment to the newly created position of publisher is a logical step at this stage of the *Journal's* growth," Scheick points out. "Today the *Journal* enjoys the respect of the entire architectural profession and is regularly consulted by many others who have an interest in architecture. The appointment of a publisher will enable us to continue to improve the *Journal's* value to its readers and integrate its operations more effectively. With his broad background as an architect, consultant and journalist, Hunt is eminently qualified for the position."

Joseph Watterson FAIA will continue to serve as editor of the *Journal*, a position he has held since 1957 when he retired from private architectural practice in New York to join the AIA headquarters. He established a completely new format for the magazine and brought many editorial innovations to its pages and thereby has been largely responsible for the *Journal's* expansion as a professional magazine.

Hunt already is well known to readers of the *Journal*. For the past two years he has edited the

comprehensive architectural practice series. In 1961 he also acted as consultant to the Institute's Committee on the Profession.

Since 1951 Hunt has been engaged in private architectural practice and has served as a consultant to manufacturers, associations and others connected with the building industry in such areas as design, construction, research and development, marketing and publishing.

His writing and editing experience is extensive. Since 1962 he has been a consultant to McGraw-Hill Book Company; from 1958-63 he was senior editor of *Architectural Record*; and from 1958-62 he served as consultant for books published by F. W. Dodge Corp.

Hunt is author of the book "The Contemporary Curtain Wall" and has served as editor and contributor on other books, including "Hotels, Motels, Restaurants and Bars," "Hospitals, Health Centers and Clinics" and "Office Buildings," all published by Dodge.

A native of New Orleans, Hunt holds a B Arch degree from Tulane University and a BS degree in mathematics from Jacksonville State College. He later taught at both schools and at the University of Florida. He has held assignments as visiting architectural lecturer at a number of other universities.

Hunt was a B-17 pilot and engineering officer in the US Army Air Force during World War II. Since 1945 he has served as a major in the US Air Force Reserve.

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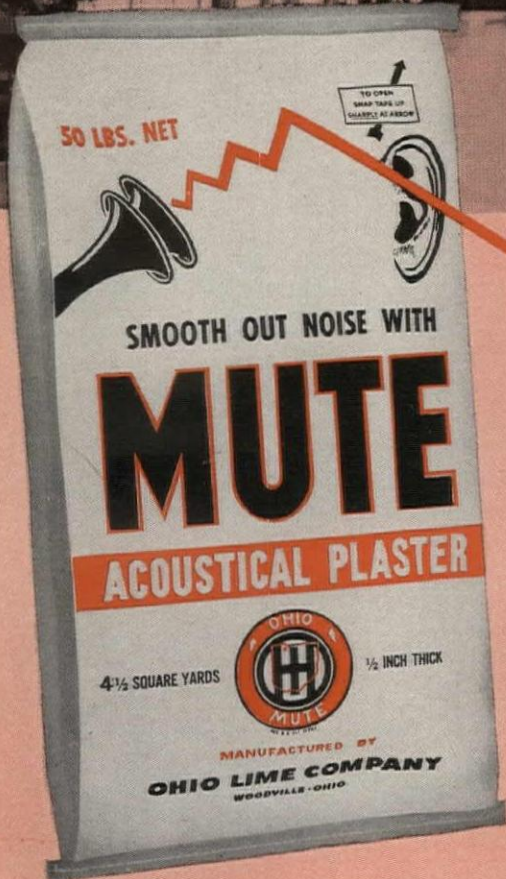
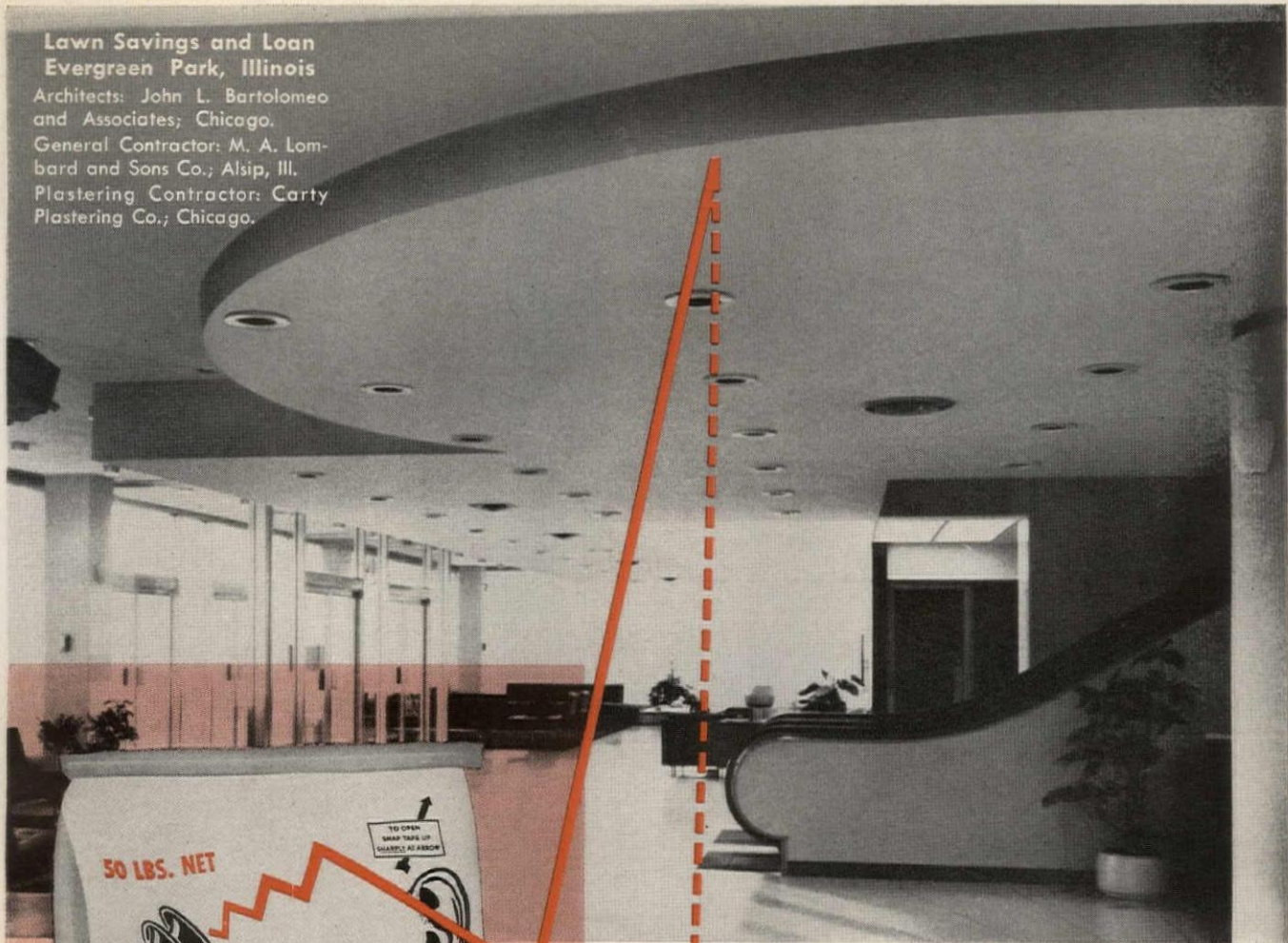
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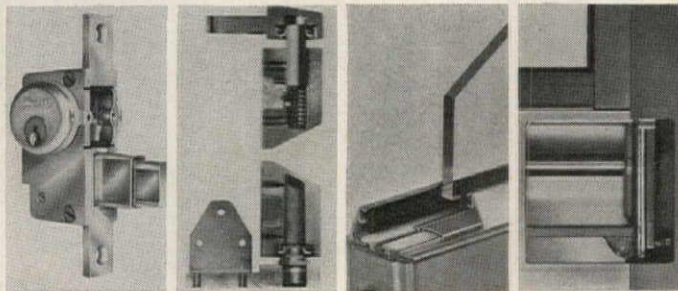
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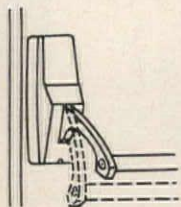
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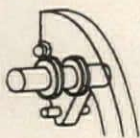
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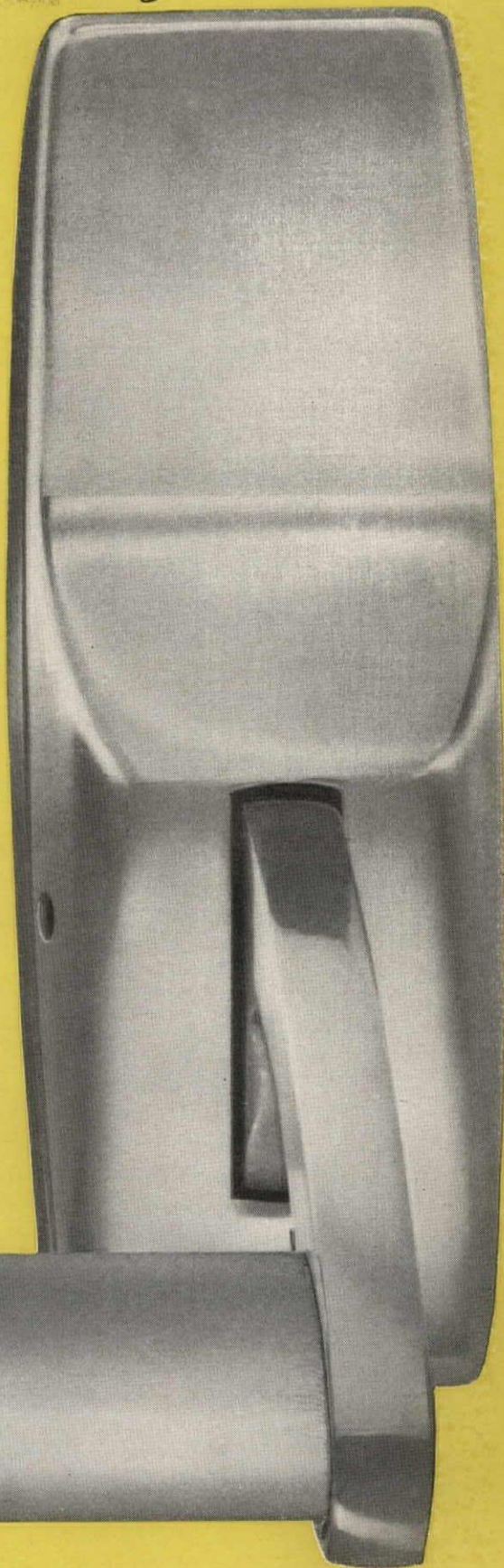
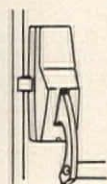
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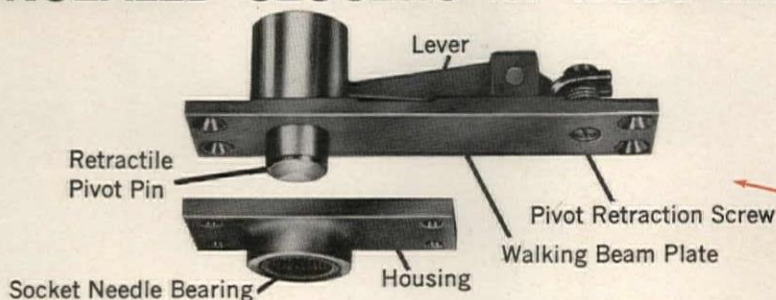
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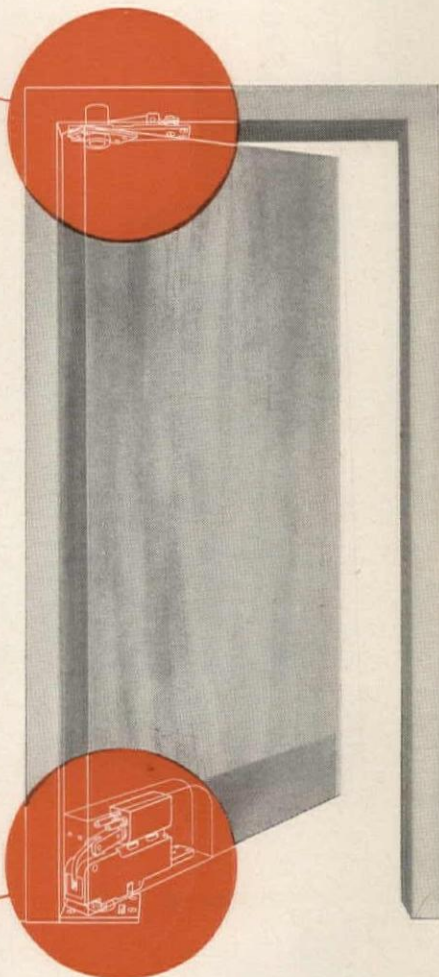
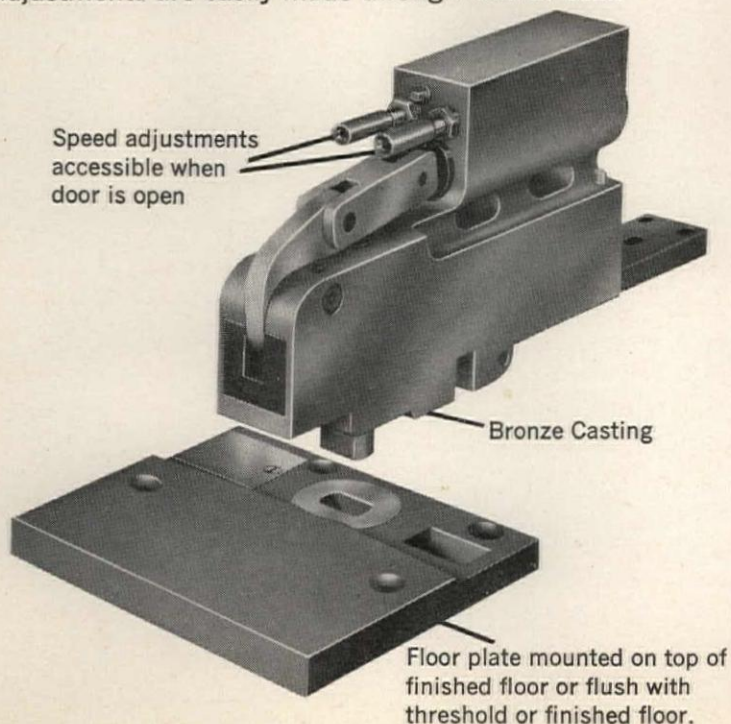
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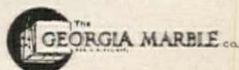
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# PROCESSIONAL ARCHITECTURE

PHILIP THIEL

*University of Washington, Seattle*



*Much of the research documented here was performed while the author was studying under a Rehmann Scholarship granted by AIA in 1960. Noting that the Institute was instrumental in making this study possible, Professor Thiel wrote us recently, "In a sense, this article is some of AIA's own harvest"*

MADAME DE STAËL once likened architecture to a "continuous and stationary music," while her contemporary, the philosopher Freidrich Von Schelling called it "music in space . . . a frozen music." No doubt the analogy here was felt to exist in terms of the rhythmical patterning of the formal elements of the facade; much in the same sense that the historian Steen Eiler Rasmussen, in his book "Experiencing Architecture," describes in part the "rhythm in architecture." But to shift the analogy slightly, to move it from the context of a facade and a building to that of facades, spaces and groups of buildings; and thus to update it from the eighteenth and nineteenth centuries to our own more mobile twentieth century—if one thinks of architecture as a phonographic record or tape (*real* frozen music!) then man is the phonographic pickup whose movement through space realizes the latent rhythms.

Even if not leading a nomadic life, man has always moved about. After all, he comes equipped with legs, not roots, and as history advances and we freeway ourselves into a Los Angelic future, the average number of miles we travel per day or week seems to be increasing. Perhaps because of this, the quality of experience-in-motion is coming under explicit investigation on a number of fronts today. Boutourline and Weiss's field studies at the Seattle World's Fair, which led to provocative theories on the functional requirements of the urban pedestrian; Appleyard's, Lynch's and Myer's investigations on the experience of the fast highway; and the author's work on the development of a sequence-experience notation are examples of this growing concern.

But the discursive or sequential quality of our perceptual experience has been implicitly recognized, to varying degrees, in all periods of history, and has served as a determinant for some notable architec-



tural and urban works. When Goethe wrote "only when we walk around a building, move through it, can we share in its life," he was dealing with a fact appreciated by both the Egyptian temple builders and Le Corbusier. This paper, then, presents a number of such instances, drawn from contrasting examples widely separated in both historical time and geographical place, to suggest the possibilities for the enrichment of life that may be waiting discovery in the opportunities of the mobility of our own era.

Our earliest evidence lies in the passages of the prehistoric caves of France and Spain. Here Cro-Magnon man used the innermost recesses, in the early examples, as the location of his votive art work—separated as far as possible from the outside world of the chase and of cave-mouth domesticity "by natural barriers consisting of intricate and frequently dangerous passages." Intentionally or accidentally, the act of difficult passage from one world to another seems to have satisfied a psychological need. Memories of these experiences may underlie the mystery of all later legends.

From a reconstruction of Egyptian temples, it appears that (for certain qualified people, at least) the intent was to produce a deepening sense of mystery and awe by means of an almost purely horizontal linear gradation of increasingly explicit space definition, decreasing space size and decreasing level of illumination. Approaching along a bright open causeway lined with spaced monumental statues, one penetrated the opening in the massive pylon to re-emerge in a colonnaded open courtyard. The following space was filled with columns, supporting a clerestoried roof; subsequently the columns became solid walls and the clerestory opening disappeared. The final space, the sanctuary of a sacred ritual object, was completely enclosed, small and inaccessible to natural light. Darkness ruled supreme.

In Gothic cathedrals, the visitor also experiences a linear progression from the profane and mundane space of the parvis to the sacred and exalted precincts of the high altar:

"... an extremely set order which obliges him to regard in continuity and through a regular and sometimes irreversible succession the various aspects through which an harmonious impression is established. He will proceed to the perspectives of the nave only after the main portal has been presented to him, like an opening chord; he will see the windows of the transept appear only as a kind of surprise of sudden modulation after the procession in regular harmony of the perspectives of the nave, modified at each step throughout its length. And who will dare say that this ordered succession is unimportant, or that it has not been artistically foreseen by the genius of the architect?"<sup>1</sup>

The climax (the inverse of that in the Egyptian temple) is suffused in light instead of being shrouded in darkness. The poet Jean Garrigue describes this aspect of these churches as exemplified by Chartres:

"In through the swinging leathern door that creaks on the bias, and so in to the astounding thing: the length and the height, the confined vastity, the



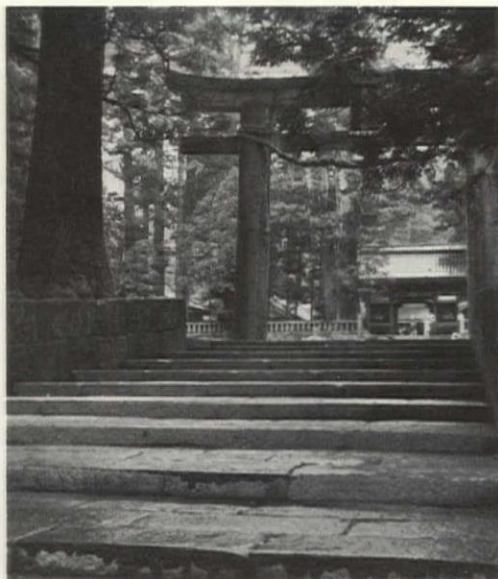
determined obscurity clarified by windows of burning light. But you see nothing yet but the mystery of that length of nave, the avenue that leads after long traversing to the gold altar, and the steep perpendiculars of dense columns and slender pillars from which spring to the vaultings of the roof those four [sic] ribs that, arching, meet in the beautiful bowknot that seals their energy."<sup>2</sup>

From Chartres we turn to Colleville, where Marcel Breuer predicated the plan of the new church at St John's Abbey on a symbolic sequence:

"The significant liturgical elements—baptismal font, church doorway, confessionals, communion tables, altar and throne—should be ordered for symbolic and visual reasons in a sequence along the central axis of the building. Thus, one should enter the church through the baptistry and immediately find the confessionals. Proceeding down the central aisle, one should find the altar balanced by communion tables. Beyond these should be the symmetrical halves of the choir, and, at the termination of the axis, the Abbot's throne...."

"[This] led to the design of a low entrance structure in front of the main mass of the church, reminiscent of the ancient atrium. In recognition of Minnesota climate, glazed skylights in the center of the roof replace the open court. Directly beneath this natural light source on the central axis is the baptismal font surrounded by low parapet walls. In a liturgical sense, the symbolic doorway to the church proper is not the outside opening in the atrium but is the entry following the baptistry. Thus, entrance





PHOTOS BY THE AUTHOR

Left: The *San mon* or main gatehouse of the Komyoji Temple, Kamakura, Japan

Above: Entrance to the Toshogu Shrine, Nikko, showing the first (granite) torii and the Niqmon or gate of the Deva kings

Upper right: Street gate entrance to a private house, Kamakura

Lower right: Pathway in the precincts of the Inner Shrine, Ise

to the church is gained via the font-area, and, in the case of a newly-baptized child, directly through it. The entrance doors swing between wide granite jambs in a wall which contains the confessionals within its thickness. . . ."<sup>3</sup>

The Greeks also used the path of approach to the sacred enclosures of their temple sites to heighten the emotional effect of the experience. The most pertinent studies here seem to be those of Martiensen, who describes the space-defining role of the *propylaea*, the entrance-portico to the *temenos* or sacred enclosure, as a means of securing a sense of adjustment and preparation of the spectator. This it accomplishes by its construction in size and regular definition of space, in contrast to the freer experience of the preceding open roadway. Martiensen describes the subsequent sequence-experience of a number of temples, all of which show a great variety of treatment. The long uphill switch-back approach at Delphi, in the course of which the temple is alternately hidden from view and revealed in changing aspects, impresses him the most, and he says:

"Such a long-sustained approach cannot do otherwise than induce in the spectator a mounting sense of climax, and it is in the arrangement of Delphi that one sees a parallel to the construction of the Greek tragedy. Both in architecture and drama the end is in sight, the spectator is familiar with all the elements that go to make up the particular unity to which they subscribe. We cannot influence the outcome of the plot in the one case, nor can he modify the arrangement in the other—but in each he is subject

to a form of compulsion that renders the end more vital and more moving than if the suspense had been built up of elements of which he had no previous knowledge."<sup>4</sup>

In Japan there are many examples of planned approaches to both shrines and temples. Instead of the single *propylaea* of the Greeks, the Shinto shrine usually has several *torii*, serving as abstract precincts gates; while the Buddhist temple is approached through at least one monumental *san mon* or main gatehouse. The paths themselves seem to be designed to emphasize the natural features of the site, by following winding courses through deep forests, or directly ascending mountainsides by incredible flights of steps, by featured bridges over streams, or by channeling the flow of streams alongside the paths. The terraces and alternating turns of the Tōshōgu Shrine approach, buried in the primeval cryptomeria forests on the mountainside at Nikko; the galleried flights of stairs of the approach at Hasedera, leading up the side of the valley between the walled compounds of subsidiary temples; the Inner Shrine at Ise where the devotee first crosses the sacred river on a bridge in an open valley, later skirts its banks at a broad stepped stone terrace, and then penetrates the deep forest to ultimately confront the veiled entrance to the temple compound at the head of a flight of steps. In these cases and many others the monumentality is all that of nature, and man only acts to underline this by the fact of his movement through it.

In an example of an upper-class Egyptian residence of about 1400 BC, at Tel-el-Amarna, one sees a

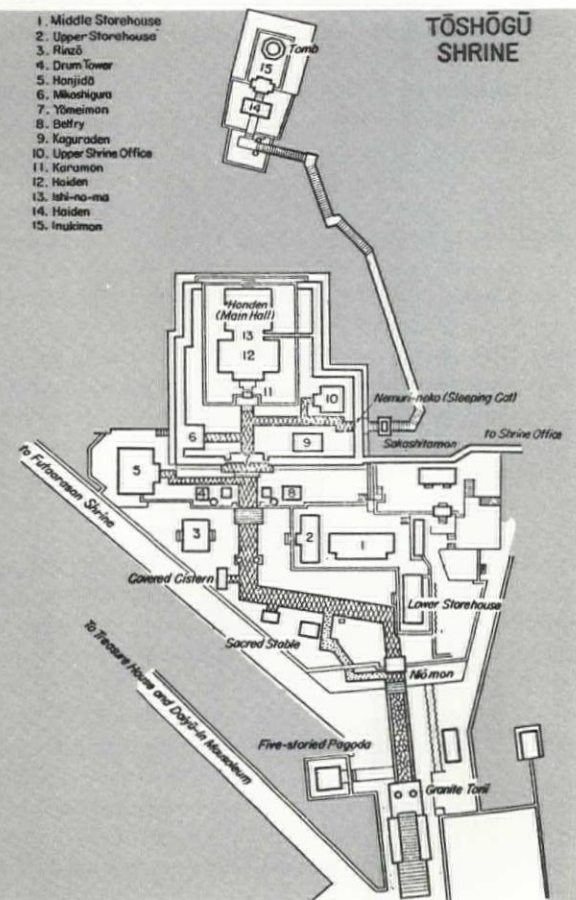


concern for an ordered sequence. Leaving the public street by means of a gate in a high wall, one found oneself in a large courtyard. A formal path led directly to a private chapel. In front of this the path turned at right angles and penetrated another wall, into a smaller walled court. In this space another right-angle turn took one up some steps and into a small enclosed porch. A right turn again then brought one to the vestibule of the dwelling: the whole approach amounting to a linear decrescendo in size, and an increasingly explicit degree of enclosure. The transition from the public domain to the private world is underlined and made ceremonious.

But just the opposite approach is preferred as the Chinese ideal. According to Lin Yutang, informality should rule, with the house only a detail forming part of the surrounding country.

A similar philosophy underlies the approach to the Japanese residence, often accomplished within the space of a very few feet. The street gate is an important adjunct to the process of entering in these cases, signifying as it does the connection between two different worlds. In Japan the sumptuary regulations of the Tokugawa era extended to such matters as the size, elements and style of such gates; on the basis of the class and rank of the resident. Even today the ingenuity of their design and the care taken with their construction emphasizes their contemporary significance.

Plan of the Toshogu Shrine, Nikko. From "Japan, the Official Guide"



For another example, here is Philip Johnson's description of the entering experience of Taliesin West, Frank Lloyd Wright's residence in the Arizona desert:

"There, I think, the essence in his house is the human element: the procession through the building. I once counted the turns that you make when you approach the building until you get into what he calls the cove, and the number of turns, I think was forty-five. Now, he is playing with you as you walk through that space. He stops your car, as any good architect should, two or three hundred feet from the entrance; it doesn't rain enough to make any difference. Then you start down the steps, up the steps, to the left, to the right, down the long, very long pergola, and you turn to the right to get out onto that famous prow, and then you take those few steps down to that magnificent view that's been concealed—it's been concealed from you for two or three hundred feet of walking. Then you see Arizona stretched out as he meant you to. And then you go into the little tent room where—the man, of course, understands light better than anybody in the world; and he has this tent light that trickles, filters down through, into this private room before he opens any flaps. You're just bathed in this canvas light. Then when he opens the flap onto the little secret garden, you say: 'I can't . . . there are no more surprises; there can't be any more unfolding of spaces.' But there are. And you get into this private courtyard with the green grass and the falling water, which I notice he's just changed: he now has a series of round, circular pads, surrounding the scene. And then you finally get into the cove. And just when you're used to the Frank Lloyd Wright six-foot ceiling, it has a fourteen-foot ceiling. And the fireplace runs the full length of the building. There are no windows all of a sudden. And no canvas. You're entirely enclosed in the middle of this experience. And by the time you get there you will have realized that you have been handled and twisted much as a symphony will, until you get to the crisis."<sup>6</sup>

One is also reminded of this master's exploitation of space experienced in movement in his design of the Morris Store in San Francisco, and of the Guggenheim Museum in New York: In both these cases the design concept is directly based on the visitor's experience in motion.

"There exists one art in which this melodic order of view by means of a set progression is structurally fundamental." Etienne Souriau writes that it is ". . . the art of landscaping, an art too often neglected in its importance by estheticians, but on whose esthetics Francis Bacon, Rousseau, Kant and Poe have all commented. There a path is not merely an ornamental line drawn upon the ground (or in the plan). It is likewise the law of the way through the garden which conditions the successive and ordered appearance of the view, sometimes gradually changed, sometimes revealed as a surprise. A park or a garden which is well planned . . . is a collection of stylized scenes, appearing to the promenader according to a melodic succession which is foreseeable and artistically arranged."



Nowhere is this more clearly embodied than by the Japanese in their gardens in the style called *chisen-kaiyu-shiki*, meaning a garden with a pond to be appreciated while strolling. Several public examples—the Koishikawa Korakuen in Tokyo, the Okayama Korakuen, the Kenrokuen in Kanazawa, and the Kairakuen in Mito—are typically large in area, with parts which are given distinctive characters. A network of footpaths\* thread through these precincts, and introduce the stroller to a succession of experiences; heightened by the presence of a variety of named spaces, bridges, monuments, trees, stones, temples, arbors and ponds; all of which are designed to trigger literary, historical or noted place associations. In the case of the perhaps most noted private garden of this type, the garden of the Katsura-no-Rikyu in Kyoto, it has been suggested that the design of the garden was based on certain descriptions in the novel, the "Tales of Genji," and on references in contemporary anthologies of traditional court poetry. As for the Katsura palace itself, it is perhaps appropriate to note here the general comments of the historian Teiji Itoh, who points out:

"The Japanese concept of space was that of a continuous sequence of various units and not of one single space. And within the freedom and variation in the space sequences, they searched for a rhythmic gradation. Furthermore, the character and atmosphere of these spaces could be varied according to the season, the rituals and personal taste. The Japanese have invented all sorts of arrangements for this purpose."<sup>7</sup>

Some similar arrangements in the case of their gardens—the tea-ceremony gardens particularly—are most instructive. One example will suffice:

"Rikyu, in his garden at Sakai, obstructed the open view of the sea, by planting a grove of trees in such a way that only when the guest stooped at the stone water basin to wash his hands and rinse his mouth preparatory to entering the tea-house he caught an unexpected glimpse of the shimmering sea through the trees—a glimpse of infinity—thus suddenly revealing the relation of the dipperful of water lifted from the basin to the vast expanse of the sea, and of himself to the universe."<sup>8</sup>

In Sweden, in the last work of Gunnar Asplund at the Woodland Crematorium near Stockholm, we see a most sensitive use of the landscape for moving purposes. A semicircular opening at the side of the road prefaces a plant-bordered narrow passage to

the edge of a broad lawn. This rises gently to the horizon, and as one ascends it at one side along a long white wall which emphasizes this rise, one passes a monumental cross near the top of the rise. The main group of buildings is mostly hidden off to the left, at the end of the wall, and the architectural preface to it is a lofty roof on simple columns, providing a soft transition from the vast open space to the enclosure of the chapel. The quality of abstraction here seems remarkable: It is an expressive concentration of the essence of the crises of life.

Beyond death, the approach to the tomb itself has been used to monumentalize the ultimate enclosure. Two recent memorials to the war dead, in Rome at the Fosse Ardeatine and in Paris on the Ile de la Cité, are notable examples. An earlier example, in this case a private mausoleum, has been reported in the *Architectural Review*:

"With most other media of monumentality forbidden to him by the general embargo on figurative decoration, the architect of today, faced with a problem of designing a monument, tends more and more to aim at generating monumental emotions by means of sequences of spaces, through which the visitor is directed to proceed processional by the nature of the plan. One of the first to be so designed . . . is the Rothschild mausoleum on Mount Carmel, Israel, designed in the late 'thirties by Uriel Schiller. In it, the visitor, having traversed an elaborately laid-out garden, approaches the mausoleum proper by a sequence of spaces consisting of a polygonal courtyard outside the main gate, a square court whose floor is islanded by water, an antechamber reached by descending steps, and a curved passage. By this point the visitor is below ground level, and enters the tomb-chamber directly, the double sarcophagus confronting him in a plain niche, in the walls of sandblasted concrete."<sup>9</sup>

Kevin Lynch reminds us that an axial pattern of streets was used in Egypt and Babylonia, probably for religious processions. The efforts of Pope Sixtus V to improve street access in Rome were directed toward a similar end—that of facilitating, and thus heightening the effect of, the pilgrims' tours of the many religious monuments. Lynch comments:

"The axial pattern may appear as a very simple linear arrangement, or be expanded into a spindle consisting of a bundle of parallel roads. Berne is such a city. In Rome the axial lines are scattered irregularly through the city. In many cities the main lines converge from several directions on a center or crossing, or are organized in a perfect radial form. Karlsruhe is a classic example of this axial geometry, which provided the ideal city plans of the Renaissance and baroque periods. . . ."

Changes of level in the cityscape offer exciting possibilities for drama through motion. Assisi in Italy comes to mind. Today the elevator and the escalator are in on the act—the glassed-in elevator one uses to reach the restaurant overlooking Stockholm's Slussen, or the new escalators connecting Tacoma's hilly streets: both mechanized staircases, whose continuous performance effortlessly transforms "up" or "down" to "here."

\* The classic method of making a garden path is to pave it with irregular stepping-stones. These are in a sense practical, since people walk on them, but as a rule they are shaped so irregularly that if one does not watch each step one makes, one is likely to slip and fall. Since it is necessary to look down each time one moves, the changes in one's narrow line of vision are especially vivid. Gardeners do everything they can to see that their landscapes can stand up under the close scrutiny of a person circumscribed in this fashion. After walking from stone to stone for a time, one eventually comes to a place where one can stop and look around the whole garden, which now comes as a revelation.<sup>6</sup>



The ramp is also a device of continuous transformation, and no contemporary designer other than Le Corbusier has used it so long and so well as a device to modulate spatial experience. That of the Villa Savoye, near Paris, is an early well-known example. More recently we have his Museum of Western Art in Tokyo, a case-book collection of spatial variety connected by ramps. And his first building in America, the Art Center for Harvard University, is a building transfixed by a sweeping ramp, a building whose form is predicated on a circulation example—the diagonal intersecting footpaths that criss-cross the open spaces of the Harvard Yard.

Of one of the most famous urban changes in level, that of the steps at the Piazza di Spagna, in Rome, Rasmussen makes the interesting comment:

"With its bends and turns, its design seems to have been based on an old-fashioned, very ceremonial dance—the Polonaise—in which the dancers advance by four in a straight line and then separate, two going to the right and two to the left: they turn, turn again, curtsy, meet again on the large landing, advance together, separate once more to the left and right, and finally meet again at the topmost terrace where they turn to face the view and see Rome lying at their feet. . . . In the Spanish Steps we can see a petrification of the dancing rhythm of a period of gallantry; it gives us an inkling of something that was, something our generation will never know."<sup>10</sup>

For an indication of the corresponding rhythm of our own times we perhaps must turn to Piet Mondrian. Does his "Broadway Boogie-Woogie" suggest the beat of a new age? On wheels today Mondrian's rhythm becomes apparent in the spotlight jazz symphony of the urban gridiron pattern. The new experience of the city of the freeway, however, is suggested by Gyorgy Kepes' mobile light mural (in the New York KLM offices): a fluctuating, changing interaction of moving and static patterns.

In their own terms the achievements of our much-maligned highway engineers today border on the heroic, and they have provided us with a new quality of experience unknown to previous generations. The approach to the city via the fast highway is part of this. Those who have driven to San Francisco from the south, or over the Golden Gate or Bay Bridge certainly have been aroused to a new level of awareness. The approach to New York, first over the Jersey freeways and then through the Hudson tubes, is another approach variation. Kevin Lynch points out the significance of these experiences in connection with the problem of "reading" the city and relating to it. He also suggests some image-form principles and design criteria for use in shaping our new and rebuilt cities for the observer-in-motion.

And his colleague Gyorgy Kepes reminds us: "The basic unit of our urban vision . . . is not the fixed spatial location but the transportation-defined pattern of a sequence of vistas. . . . In the visual field, particularly in the successive images we perceive in our environment, the juxtaposition of images offers the most potent symbolic qualities. The contrast of the towering cathedral with the

cluster of small dwellings in a medieval city had a symbolic quality. . . . It is self-evident that the architect or planner cannot consciously create this grand scale of poetry with such symbolic juxtapositions; but, on the other hand, awareness of the power and meaning of contrasting forms is necessary if we are to guide the shaping of a rich poetic city. In the intricate and numerous visual-sequence relationships that the city offers its population, meanings are conveyed in accordance with the structure of the sequence path that we follow."<sup>11</sup>

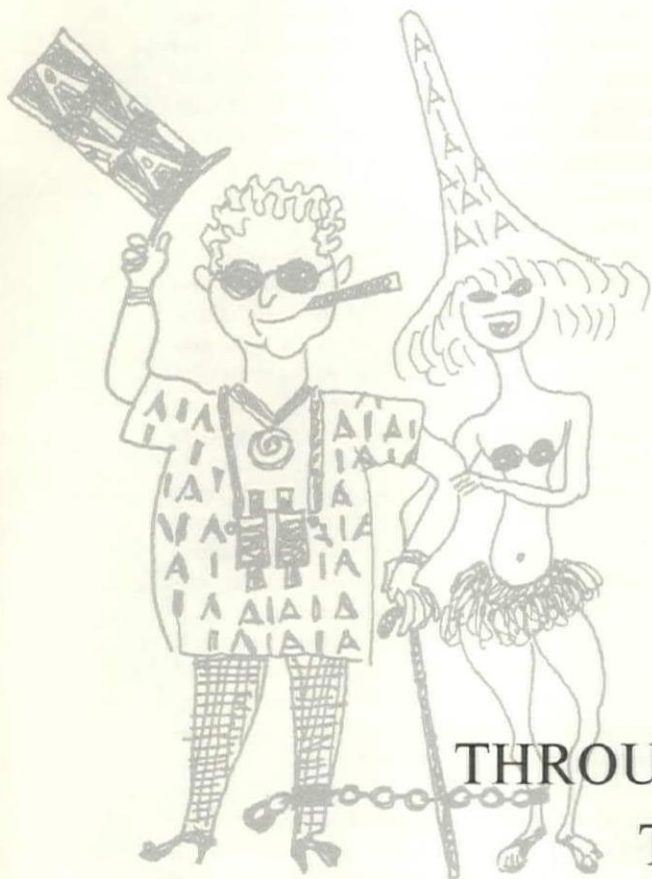
Thus movement forms the context of our spatial experience, and the challenge of the art of architecture lies in the structuring of this time-based pattern of experience so that it will be of value and significance to all those who will perceive it in their own time and way. This of course is also the challenge of other temporal arts: music, the dance, drama and the film; but it is important to note that while the composer, the choreographer, the dramatist and the film-director can usually count on the fact that they alone determine the type, rate and sequence of the stimuli available to a voluntary and alert audience, the architect is usually faced with a shared, distracted or indifferent audience over whose stimuli-experience type, rate and sequence he seldom has complete control.

In practicing his art the architect has the possibility of building in this control (for example, by a means such as the stepping-stones of the Japanese garden), or of developing an art-form independent of a single ideal sequence. As Lynch suggests, jazz may provide a prototype in this case. In any case, the architect's success depends on his understanding of the factors involved, on the tools available for his use in dealing with these factors, and on his sensitivity to the whole issue of contemporary professional opportunities.

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## THROUGH THE MARTINI GLASS

*Having passed up the Miami Beach convention, and then gone abroad, and then into the hospital, Al has been catching up by reading his back Journals*

EVER SINCE I GOT BACK from Europe and was having my attack of subacute bacterial endocarditis I got to thinking about how maybe it was a mistake to run out on the Miami Convention, but when my fever went down and reason got the better judgment over sentiment I remembered that the motif was to be "The Quest for Quality," with a line-up of speakers which included the same old stuffys, a *New York Times* Critic, an olde-school-tie Architect, a new-school-tie Architect, an Englishman and other stars.

Whoever had the brilliant idea of seeking Quality in Miami Beach of all places should be put out to graze in the Elysian fields.

Now that I have been reading the releases and the *Journal* on that Convention, I guess everybody would wish that I wouldn't bring the subject up.

My complaints about one of the speakers I think I should note. There was no excuse for Ada Louise Huxtable to be so offensive and rude to her hosts the Architects, and if she was going to be the paragon of good taste she should have pulled herself together and combed her hair and gotten into something beside that wash-and-wear flower job. After all you should look stuffy and strait-laced *New York Timesy* if you are going to be preachy about Architecture.

Now to get to the point. Miami Beach is no place to talk about Quality. London or maybe Boston are Quality towns, where the talk is shrill and nasal and pitched to a key where even if you can't understand the language, at least it sounds tony and correct and something you should read about at home.

Miami Beach is a Bad Taste Convention town and we missed the boat and maybe we should go back there, "or equal," and have a *Bad Taste Convention*. Since every speaker seems to take great delight in telling us that we are a dull bunch of dopes who don't know enough to get our noses out of the stock-size catalogues, we should take a hint and enjoy ourselves with most of the rest of the world and certainly never invite anybody with Taste to bore us again.

I believe that as an Architect you should see and hear everything which is going on around you. That takes so much time I hardly have enough hours left to do awful Modern Architecture. In my studies and travelling about I find that Bad Taste has its points and in many ways is more interesting and amusing than good taste and you don't need the Critics to explain it all and ruin it. For example I would rather sit around St Mark's than Chartres any day. I love and revere both of them but I also can like Oistrakh scratching out Bartok and Cosy Cole drumming and Callas singing and Pearl Bailey belting out Carmen Jones. It's a big world and unlimited talent at your disposal.

I know that I am in the great minority and for an FAIA to be saying such outrageous things is liable to get me booted out of the club and my beard taken away.

I realize that to be a Success Kid in Architecture today you must get the *Forum* to publish your masterpiece which turns out to look like the unfinished concrete underside of a football stadium, but photographs well, with shadows. If you get by the *Forum* hurdle, the rest is easy. *Time* will coat it with verbal Boston-out-of-Bauhaus schmaltz and declare it "the Greatest Building of the Twentieth Century" and from there on there's no place to go but down.



Myself I could be content with having done a gay night club or a boxing ring where a lot of people can relax and don't have to read the program notes to appreciate the great work of Art they are sitting in without even realizing it.

So, we missed the boat at Miami, but there are other places. I guess the West is better. It's younger and "we are such a young nation you know."

First of all a "Bad Taste Convention" town is no place to take your wife. That is nonsense. Wives want to talk to other members' wives. Members want to look at Bikinis and take photographs. You should take to a "Bad Taste Convention" a young round playgirl and chain her to a nest-egg so she doesn't wander off and talk to other men. Then you can go and get a couple of sandwiches of four layers of rye bread interlaced with Pastrami, Swiss cheese, spiced ham, Virginia turkey, ox tongue, covered with slices of Bermuda onion and pinned together with gold toothpicks. In the other hand you can carry two bottles of No-Cal and a copy of *Playboy*. After that you can start the day and go on through sun bathing, sleeping, having lunch, resting and relaxing, going to the races, or boating, fishing, visiting the gambling casinos or dining, night-clubbing and generally relaxing, and enjoying all the other Bad Taste deals. These are the things so dear to the hearts of ninety-nine point nine per cent of "awful" people who seem to keep all those paper-box hotels jammed winter and summer.

After a couple of weeks of sheer unalloyed joy and wallowing in Bad Taste no husband returns to his same-old-one-wife with enough energy to be annoying and he can easily be led through Culture, concerts, cocktail parties and art exhibits without getting kittenish and a problem to his hostess.

From the Architectural point of view we could learn a lot and a lot we have to learn because most of the "lowbrows" who inhabit these places never heard of Le Corbusier unless it was something which placed in the daily double. But if we Architects are going to learn, I think we should have better manners than to go around insulting our fellow-members in public and especially in front of the press. In reading the clippings in Europe I found that somebody took a pass at the designer of the Host Hotel, a member named Mr Morris Lapidus. Of course the newspapers picked that up where they should have been reporting on a "Quest for Quality." I think Mr Lapidus replied brilliantly, indicating as I have, that most old Architects are too stuffy to enjoy Miami Beach and shouldn't have come in the first place. I envy Mr Lapidus his Architecture because I can't do it and because he seems to be having all the fun and what is more he has a clientele which understands and orders more. He is the Barocco Rococo architect lost in a world of concrete-refined Ictinuses, or is it Ictinusae (Ictinus was the Architect of the Parthenon). He is the Hot Mozart School of Design. He knows how to do a pleasure dome that suits the taste of the set which would be bored stiff in the Plaza. You have to have know-how because the turnover is fast for people who travel with the sun. They are quick, heavy, spenders and come loaded with

furs and real jewelry and long gowns and string bikinis and the background has to be "Gorgeous," that's the word, and loaded with glitter, spit and polish and coats in the dining rooms but no ties as a basic. If you can gulp and try not to look so "Brooks Brothers-breakfast-eating type" and just relax and let it come to you, you can enjoy yourself.

Architects are raised with the snotty idea that we are the "kings of the Fine Arts creators and Sculpture and Painting are our handmaidens," but if you hang around Architects long enough you must realize that many of us are a pretty stuffy front with a lot of sawdust inside, and not much understanding of people. I had thought that this old-hat Convention snobbery had gone out of style a couple of Presidents ago, but no. So why don't we try a change and have a Bad Taste Convention? We could assemble somewhere near a track which is running and professional baseball is close at hand and there should be a gambling town with slots, wheels and faro and maybe a hot night club or two, some striptease joints around the clock and perhaps a couple of palaces of forbidden pleasures so the goats from Sioux Falls could go home and brag.

There would be lots of things which architects could learn which don't require seminars: the handling of traffic, small city planning and circulation, the care and protection of loose money, cabaret and cafe design, the art of hiring honest dealers, engaging capable help who can handle themselves well, and ex-boxer waiters who look good in tuxedos and study the problems involved in managing, feeding and getting to their places a large floating population of tourists who are to be treated gently and not "rolled" so they will have a good time and recommending the place to others. I know it would be fascinating because I have drawn pictures in a lot of these places and just by asking you can learn that with nothing but silver dollars used at the tables, nobody in his right mind could steal even a hundred dollars and he probably wouldn't make the door without being massacred.

And what a relief from "Precast concrete lintel forms as a change from steel." Maybe for speakers we could get Casey Stengel to explain the great American Ballet which is Baseball and even give him the Medal for Achievement in the Fine Arts and of course the Gold Medal to the designer of "Aqueduct" or "Santa Anita," and a couple of medals for Candlestick Park and the Las Vegas Strip. They are first-class design and the public would finally look at them with a fresh eye and maybe begin to believe that Architects could do something beside Fine Arts Schools, Laboratories and Airports.

Ah me, well it is only an idea for the advancement of the Profession and maybe a relief from the exhausting rounds of seminars, forums, cocktail parties, exhibits, award luncheons, award dinners and manufacturers' breakfasts.

But think of the joy of picking the winner of the FAIA Derby and seeing the new Fellows be-medaled in the winners' circle. ■

August Bendure '75



# TWO BUILDINGS: Their Street and Their City

PLINTH

EDITOR'S NOTE: *Architects frequently ask architectural editors "Why don't you print more architectural criticism?" The answer is, of course, that the questioner means criticism of the other fellow's building, not his own. In spite of that, however, the magazines do print architectural criticism.*

*Naturally, a critic should be qualified to speak: This critic is a graduate of Harvard in architecture who has worked in various offices including that of I. M. Pei, has been Assistant Professor of Architecture at a major university, is a member of AIP and is now a site planner with a government agency*

BETWEEN WASHINGTON'S SCOTT AND DUPONT CIRCLES is a two-block section of Massachusetts Avenue which I propose to examine as a critic of literature might a sprawling chapter in an unfinished and perhaps unfinishable novel. I note the stretch here because I was struck by the presence of one of the best and one of the worst of the new office buildings that mark the city's recent boom. Their completion emphasized the presence of new and old in a relatively short distance and focussed my attention on the street which, with its double row of magnificent old basswood trees on either side and still-remaining older masonry buildings, is one of the handsomest of L'Enfant's plotted diagonals. I reacted first to individual buildings, then to spaces, then to the street common to them, and finally to the larger city of which all were a part.

The two buildings varying so much in merit are the Forest Products building and the Brookings Institution building and my favorable and unfavorable reactions respectively are to their external characteristics. A view from the street is a special sort of architectural criticism; my interest is whether the building, in reflecting its activities, augments its surroundings, and not whether the activities are housed adequately or in orderly fashion. The Forest Products building is not only inherently interesting *qua* building but contributes positively to its setting; its counterpart fails on both counts. Thus I must consider the street as well as the individual structures.

A legitimate question at this point is: Of what interest is knowledge of streets to most individuals? A fair question, perhaps, but the very fact that it is necessary to pose it is indication of the depths of in-

comprehension most city-dwellers have of their own visual environs. I know how easily one blinds oneself to one's surroundings where the ugliness is too great to bear; we refuse to see, cutting off the painful sight since amelioration of the condition is beyond the power of any single individual. But too-frequent blinding dulls the senses and prevents appreciation of worthwhile visual elements. It is necessary, therefore, to restore our awareness of the seeable. Such knowledge is a first step toward restoring and improving our environment.

Of the two way-stations that act as termini for this essay, Dupont Circle is actually a circle and has enough distinction to help overcome the inherent difficulties imposed by the essential traffic function of both. Scott Circle is, in plan, an ellipse within a rectangle. Neither of these plan-forms is apparent to an observer viewing the area; the rectangle is broken up by the many streets which meet in this location and only a purist would know that the mounted General Scott is at the center of the ellipse's major axis. Between ellipse and rectangle flows a constant stream of traffic, always visible, and this remains the dominant impression.

Dupont Circle also lacks definition by buildings. Converging streets at the circumference of the circle occupy so much of the perimeter that the buildings face away from the circle and ignore the possibility of creating enclosure. However, in Dupont Circle this failing is offset by a splendid growth of trees surrounding Admiral Dupont's memorial fountain. From a distance one sees the fountain as a wide shallow saucer supported on a tall sculptured cylinder, recalling the circular motif. Around the fountain are many sitting places; hedges near the roadway serve the double function of screening the traffic and recalling the form. The resulting small park may not be an ideal *place*, but it provides a possible clue to how Washington's many circles were meant to act.

Massachusetts Avenue also gains from its fine basswood trees. I judge them better than eighty years old with a height in feet at least equal to their age. They do much to offset the 160 feet between the faces of the flanking buildings. Originally the buildings rarely exceeded four stories; recent building, particularly on the north side, has raised the height to the permitted local maximum of ninety feet. Given these dimensions, a canyon-like street is obviously impos-



sible. Indeed, Washington's streets are noted for having so much width in proportion to the height of the facing buildings. Under these circumstances it is possible to view even a 130-foot structure (the maximum permitted) in a single glance and from a distance which allows some examination of details. The important point is that both the over-all and the particular view are always seen related to the foreground setting. The space common to a group of buildings is thus equal in importance to the buildings, from a visual standpoint.

The new Brookings Institution fails to recognize this aspect of its setting. The double row of trees present elsewhere between roadway and buildings is gone, and an asphalt driveway replaces them. The building's entrance is hidden in a projecting arcade which runs between, but does not open into, two one-story wings that flank the main nine-story section. The arcade thus leads nowhere; the wings merely provide a symmetrical facade. This alone is a striking novelty in a time when most architects strive for a more dynamic relation between elements. Perhaps the architects of the Brookings Institution thought they were less likely to offend by a "balanced" approach; if so, I can only say since they sought no challenge they achieved no success. The building has a smooth stone face with small windows organized in vertical strips of no special distinction which is calm to the point of blandness. Before the construction of an additional section, the low flanking wings isolated the building from others along the streets. The symmetry is now contradicted as a nine-story addition has been built to the east. The first disharmony caused by ignoring the surroundings is further heightened as a jagged and jumpy skyline of low-high-low-high replaces the uniform and unifying single height still apparent on the south side of the street.

I shan't leave discussion of the Brookings Institution building without quoting Edward Carter, Director of London's Architectural Association, who in "The Future of London," provides an excellent summary:

"The 'look of a place' is, of course, not the whole of architecture, and the common defense of an ugly building is that it 'works.' Whether it works or not is obviously of first importance to the few people who work or live in it; but how it looks from the outside is of first importance to the millions of people who pass by, or who sit in their own buildings, subtly and continually enlivened or depressed by the view from their windows. The look of London is, too, its public character."

The notion of "public character" is an interesting as well as unfamiliar one, and I engage in this long exegesis because I am committed to it. The problem for a contemporary architect dealing with a setting with pronounced character is not only to determine its nature in visual terms but to determine, too, whether it is possible or necessary to reinterpret that character—given his client's needs and the state of building technology. One aspect of the buildings of Massachusetts Avenue deserves mention in this connection in order to appreciate what the architects of the Forest Products building have done. I describe this aspect as the sense of familiarity effected by the use of relatively small brick or stone units.

Brick or stone as building materials no longer seem to provide that economy in construction that owners usually require—and perhaps they are now somewhat unfashionable. With this situation, the problem for the architect is to relate material and technique to traditional design controls—proportions, spatial awareness, play of sun and shadow, functional relationships of activities. The architects of the Forest

*Brookings Institution building*



*Massachusetts Avenue with its basswoods*





Products building solve these conditions with a unifying framework containing familiar elements organized so as to have a beginning, middle and end. The familiar elements are the windows, frames, sash and muntins of redwood, divided by stone mullions and grouped in threes between the stone piers—thus each window unit is composed of relatively small parts. I judge that apart from the recessed ground-floor lobby, the largest pane of glass is approximately two feet by five feet and within visually measurable bounds.

Since glass is the preponderant surface of the exterior, the Forest Products headquarters is unquestionably a contemporary building. This is but a first step, since more than small-sized elements are necessary for a building to have special distinction. A means of organizing those elements is essential. The clearly detailed frame, mentioned above, is one. The sense of a well-designed entity achieved by the recessed ground-floor lobby and covered terrace of the uppermost floor is another. The recessed top story has three interrelated virtues. Of prime importance is the fact that since there is a dark shadow at this level there is always a contrast between this floor and the lower ones; the darker element acts as a terminus for the building, echoing the recessed lobby. This horizontal division of the building lessens the effect of the height and avoids overwhelming the adjacent lower-storied buildings on either side; this, the second virtue. Finally the top-floor recessed terrace proves to be a contemporary interpretation of the upper-level porch, a feature on many of the older buildings nearby.

By now a question may have presented itself concerning my constant reference to the nineteenth and early twentieth century buildings which still exist along this portion of Massachusetts Avenue. Are they of such interest and importance to warrant the attention of architects? Individually, which is to say if each

one were isolated and had no neighbors of like nature, perhaps not. And this despite the fact that there are details of considerable interest on many of them: the broad arch and columns of Roman brick and sandstone at number 1708, the ornate stone carvings at number 1620, the porches mentioned above, and the spaciousness suggested by the tall windows of the mansions now occupied by the Canadian Chancery and the American Council on Education. But it is not these details that add up to suggest the worth of these buildings; rather it is the combined effect of their groupings. The uniform skyline, the similar materials and the sense of recognizable size and use provide a common background within which the separate details add interest.

The main significance of the collection of older buildings is the insight it gives to the history and development of the city. The presence of buildings of varying style, age, provenance and use is, at the very least, a fair indication of a city's diversity and history. Lewis Mumford, the foremost interpreter of the role of cities in our lives and heritage, has written, in "The City in History," on this matter:

"... in its own right, the historic city retains by reason of its amplitude and its long past, a larger and more varied collection of cultural specimens than can be found elsewhere. Every variety of human function, every experiment in human association, every technological process, every mode of architecture and planning, can be found somewhere within its crowded area."

In view of his last sentence it is not surprising that sympathy for this approach is most apparent among architects and planners. On the evidence of Massachusetts Avenue, however, it is clear that there is no universal understanding of the city as museum. The two buildings discussed above represent the dichotomy among designers; even more distressing is the lack of recognition among investors to whom the only worth buildings have is economic.

I have concentrated on these two buildings because I feel their architects made an attempt at serious architecture. I recognize such attempt is the exception rather than the rule. The yellow brick apartment houses, for example, that occupy a considerable part of the distance between the buildings under discussion, are, to my mind, building rather than architecture. Nonetheless, these apartment buildings are part of the street, and their builders had the grace to maintain the old trees that give so much character. Residential uses contribute, in addition, to the street's diversity. Unadventurous buildings may not make a street exciting visually, but it is worth recalling that not only may they keep it from being ugly but also they can serve a positive function of acting as foil or contrast.

A street is both simple and complex. Though it is possible to agree on a definition and term it a communicating way, even this brief discussion of Massachusetts Avenue suggests many other possible connotations. The street is not only interesting in itself, but for its larger role in the city. On the one hand, for example, Massachusetts Avenue is noted as the location of most of the foreign embassies in Washington.

*Forest Products building*



PHOTOS BY THE AUTHOR



On the other, as one of the plotted streets in the original plan for Washington, its diagonal orientation aids in explaining the old city's basic organization of a spider-web radial plan superimposed on a rectangular grid. These are descriptions of the street's physical aspects and we have barely begun to touch the possibilities. But to make some general comments on streets necessitates putting aside Massachusetts Avenue for the moment.

A street is not only a place of interest, it can also be a place of fear. It is thus the place where the best and worst of our contemporary urban civilization, to say nothing of the shades between, are exhibited. The street is very nearly the only spatial element of a city that still shows the communal nature of society, and the resulting diversity of use is, therefore, not surprising. The reason lies in the literal and figurative spread of streets. Roads, highways, avenues, boulevards, alleys and public ways are the greatest space-eaters of the developed area of a city. Some authorities have worked out the amount of land they occupy as between twenty-five and thirty per cent of a city's total area. And this figure is remarkably constant whether one speaks of "satellite cities," "center cities" or "urban areas." No other activity, residential, institutional, commercial or industrial, approaches this figure. This measure gives some indication of the streets' quantitative importance, but they are also, of course, important qualitatively.

In our lives in cities the street provides a means of physical contact with others of our kind. This is true whether our meeting takes place on the street or whether the street is the passage linking the meeters. The intermingling of humans for mutual benefit is one of the prime aspects of cities and civilization. Of course, in an age where instant "artificial" communication is not only possible, but prevalent, physical intermingling fades into a subsidiary activity. The streets' functions change and less salutary activities take over: gangs and fights, congestion, and perhaps worst of all, the aseptic quality that indicates no one really cares. I suggest to anyone who has forgotten how a street can teem with life to visit the Rue Mouffetard in Paris on a shopping morning. Forget your supermarkets and their antiseptic aisles. The chaotic Parisians sharing a common interest in good food may be less efficient and out-of-date but I'll wager a French meal they're none the worse for it and may still have something to teach us.

There is not much doubt about the diversity of streets: Commercial or residential, traffic arteries and pedestrian ways, play streets and market streets, all are a response to human needs in cities. That many of them are ugly is not surprising, for the communal aspects of a city too often show society's worst face. Yet, evidence of streets whose aspects are pleasant to look on still exist. That this is truer of those parts of older cities that have managed to retain their prime function or absorb new ones without visual deterioration is, conceivably, only a temporary condition. New streets start with a clean slate; if older streets change, a serious concern may be whether that change is worthwhile.

Unquestionably, change takes place; the evidence

is easily found as this essay has already attested. Older buildings, built for different purposes unrelated to economic investment, slowly diminish in number and quality. In some cases gaps appear among them as apparently inexorable economic laws suggest that a parking lot, complete with blatant sign and cashier's hut not unlike a windowed outhouse, provides a greater return. To the pocket, perhaps, but to the eye? The neighboring buildings stay, for the moment, though boarders or professional offices or shops, replace the building's original single family. Windows or doors are changed, signs appear, and trees and grass are replaced by more utilitarian (read "less care") materials. Each step so distorts the original that the old structures' final removal is almost welcome for relieving us of the miserable sight. The new buildings hastily built in their place generally care as little for their older neighbors as they do for any standard of good taste. Sleek metal faces or bland stone walls serve them equally well. Traffic accumulates, with all attendant regulatory devices: lights, meters, painted areas, poles, signs, fumes and curses. And whatever older trees may still be present gradually disappear. They are unwanted: They interfere with efficient lighting standards, parking driveways, street-cleaning maintenance and, Lord help us, even pedestrians, who must walk around a particularly large root that has forced its way through a sidewalk. Of the cooling shade of leaves and branches, the comfort of the colors, the possibility of reminder, however brief, of the natural world, still to be fleetingly grasped, little or nothing is said.

The street need not be more unnatural than any other man-made work. It shares with the natural as well as the man-made the characteristic of undergoing fairly constant change, either in physical modification or in use by a changing society, or both. Massachusetts Avenue demonstrates this phenomenon. One may walk there and be aware of its former dignity, still evident though tarnished on the south side, while aware also of the onrushing changes resulting from our times, occurring across the street. That it occurs here is the logical outcome of pressing demands which are recognized and met by the city's Zoning Ordinance. Such a code perpetuates an existing situation in legislation. The area of Massachusetts Avenue I have discussed is designated a Special Purpose District in this Ordinance. An SP District, despite its possibly high-sounding name is, in point of fact, only a title for a transition area. As the code defines the District it ". . . is designed to stabilize those areas adjacent to the C-4 [Central Business] District which contain office, other Central Business District supporting uses, as well as desirable sites for residential buildings. Offices, apartment houses, hotels and controlled parking facilities are to be encouraged therein and the district will be generally restricted to the periphery of the C-4 District." This quotation is an accurate brief description of Massachusetts Avenue and its immediate surroundings at present. Unfortunately it ignores the street both as it was or might become; neither, after all, are within the province of the code. If Massachusetts Avenue is to improve, other means are needed.



Transition areas in a city are inevitably places of change, representing, as they do, never-never lands between sections of varying thrust designated for more specific and limiting uses. It is impossible to predict accurately the land needs of different uses; thus, a constant shifting of forces, economic and otherwise, takes place ceaselessly. A recognition, even an acceptance of change, inherent in such urban development, doesn't mean we must adopt a pessimistic outlook. Part of my purpose in the foregoing description was to emphasize the worthwhile characteristics of both the old and new elements along a stretch of Massachusetts Avenue. At worst, in doing so, I record the situation at a particular point in time. At best, in increasing awareness of the constancy of change as well as of worthwhile traditional elements worth emulating, I may suggest the possibility of directing change.

To heighten the challenge posed by my last sentence as well as to conclude my remarks, I recall a factor mentioned briefly earlier—the preponderance of traffic. My descriptions have been mostly static; the dynamic moving aspect of a stream of cars was only a blur in the foreground. It is unfortunately true, however, that the automobile cannot be ignored. The dispersive, disruptive effects of their numbers are too disheartening for that. Though I have paid little attention to traffic it was not for lack of concern, but because I wished to restore other urban values to a proper place. Clearly a conflict exists, and victory in this continuing battle between unequal antagonists may well fall to the explosive element. But if this happens, at least some effort, such as this, must be made to record what will be lost. And what will happen to the street then? Let a distinguished British planner, C. D. Buchanan, who has devoted much thought to the effects of traffic on our cities, have the penultimate word:

"It may be questioned whether the fundamental nature of the transport revolution has yet been grasped, whether it is appreciated that the advent of a means of personal mechanical locomotion adaptable for a host of everyday journeys has, by turning the streets into rivers of jostling, lethal vehicles, rendered out-of-date at a stroke the conventional arrangement of streets and buildings that has served us for so long."

The thesis I have expounded and to which Buchanan's words add a warning note is not, of course, a novel one. I can summarize it briefly by paraphrasing a familiar aphorism, "We make our cities, our cities make us." I have tried to highlight this by concentrating attention on a small part of the city, hoping the points emphasized will have larger validity. Changes are intimately related to the cumulative needs and aspirations of city dwellers. The face of a city is an extension of the citizens therein, which they knowingly or not permit to represent them. The lesson is clear: As change occurs some effort is necessary to guarantee it is a change for the better. This implies as much a reorientation of social custom as of physical rebuilding. How else can we prevent a recurrence of the inevitable malady visible everywhere around us? ■



## Four Short Stories

WILLIAM LYMAN AIA

*William Lyman is a hard-thinking, hard-speaking architect in Birmingham, Michigan, who has spoken in the Journal before—and always aroused attention*

### **Public Relations, The Architect and His Community**

Several years ago a questionnaire was sent to members of the Detroit Chapter requesting suggestions for improving the Chapter's public relations program. The best answer contained six words: "Improving the quality of architects' work." There is no better answer.

What good is a public relations program when architects pull such monumental boners as the Long Island high school which was found to need \$1.7 million of corrective treatment to keep out the sun's heat? Or when they create a Philharmonic Hall? Better to save the PR money and use it to pay for better instructors in design.

If the public image of the architect is confused, it is mainly because the architect's own image of himself is confused. His profession has become so competitive that he is unable to serve his community's best interests. He is afraid to participate actively and controversially in public affairs and he is never quite able to identify himself with the mass of people. No amount of Madison Avenue treatment in the mass-circulation magazines will ever accomplish what the architect will not do for himself. There is only one true program of public relations: better design and leadership by every architect in the vital affairs of his own community.



### **The Myth of the Large Self-Contained Office**

The head of one of the engineering departments in a large metropolitan office called an independent consulting engineer to congratulate him for an outstanding job from the standpoint of low construction cost and quality of drawings and specifications. "But did you make any money?" he asked. He could not believe the latter made a profit and readily admitted his office could not have turned out comparable work for the same fee.

Here in Detroit the small architectural office is gaining in stature. No longer does it live in the shadow of the 200-man office employing a full complement of engineers and other specialists. Clients are beginning to realize that every building is designed by a small team regardless of the size of the office. Where is the client most apt to find the most competent team—in a large office where responsibility and control tend to be dispersed, or in a small office where individual responsibility and close control come more naturally? In the small office the principal can be head of both the design and production teams. This is how architecture should be practiced.

### **Architecture, Planning and the English Language**

Here are three examples of gobbledygook that architects and planners can easily do without:

"The basis of a philosophy of dynamic design is the recognition that the shape of each space body is generated by its inner nature. Where two space bodies come into contact, friction occurs. This friction—a sort of conflict of wills—creates a corporeal barrier. This barrier, in its specific form, is what we see. And although it seems to be shaping and defining space, actually it is the spatial forces which shape it—which are responsible for the barrier's location, form and appearance. The barrier is what has materialized as a result of opposing forces coming into contact and limiting each other."

"The strong structural statement gives cohesive unity to a variety of spatial experiences within a changing scale pattern that progresses from the bold strokes of the motor entrance through the entrance court to the almost Japanese character of the smaller courts."

"Belief as a decision system requires the ritualization of as many separate decisions as possible. It breaks down when the number of ritual solutions to specific problems increases beyond the capacity of human memory or methods of storing ritual solutions in writing or diagrams."

The last one is far beyond the capacity of this writer.

### **The Mis-Education of American Architects**

To write a short story on the failings of American architectural education would be an impossible task unless I were to go no further than to recommend a careful reading of James E. Adams, John E. Burchard and Buford Pickens. The latter had the courage to state the facts bluntly: "Few if any department heads or deans would care to admit the fact, but schools of architecture have reached an apparent dead end."

How many architectural schools have taken the time to spell out an architectural philosophy and put it down in writing? How many have established in writing the degree of competence expected of students at each stage of advancement from the first year to the fifth? And how many have devised a curriculum that progressively distinguishes each year from the preceding year?

The first task is to take a searching look at the architectural profession. What is an architect in the 1960's? What will an architect be in the year 2000? What are his responsibilities and opportunities? What is meant in saying, "The architect of tomorrow must first be educated as a generalist"? Is it meant he should have a smattering of everything, or that he should have a strong liberal arts background, a thorough grounding in architectural history, and a full awareness of the design possibilities of an ever-widening building technology?

Architectural schools will not be able to decide what to teach until they squarely face the fact that they cannot make a creative genius, or even a designer, or even an architect out of every student who comes through the front door. The amount of disappointment and frustration caused by this theory in the past, in students and faculty alike, defies the imagination. It is time the curriculum recognized the difference between innovators and practitioners and those with the talents of neither.

The biggest step forward would be to make architecture a graduate program. Only students with three years of liberal arts would be admitted. A more mature entering student would permit the available teaching talent to function more effectively. There is no reason in the world why the traditional four-year liberal arts program should not be telescoped to three years, thus easing an already critical college enrollment crisis.

A three-year, four-track curriculum would include architectural design, building engineering, planning and landscape architecture. A two-year, three-track curriculum would include building construction, building materials development and manufacture and project development and financing. These seven programs would lead to bachelor degrees. In the three-year curriculum, one additional year in the same field would be required for a master's degree.

Proposals have been made to expand the offerings in architectural schools to include some of the liberal arts disciplines. This would be a disastrous mistake, reducing schools of architecture to the low status of those schools of education which, in some colleges and universities, have usurped the function of the academic departments. If architects are to spend six years in school, let's not subject them to watered-down humanities courses and let's give them the benefit of three years in each of two different educational environments.

Whether or not the foregoing comments deserve serious consideration, there is one challenging task on which most architects and teachers of architecture can probably agree: How may we reduce the ever-widening breach that separates the schools and the profession? ■



# A Quest for LIVINGSPLACE in Architecture

MORRIS LAPIDUS AIA

*About two years ago the Journal published Mr Lapidus' "Quest for Emotion in Architecture." During the Miami Beach convention, he unintentionally became a bit involved in the "Quest for Quality." He continues his quest, for he feels that too many architects do not sufficiently involve themselves in the actual creation of the interior livingspaces of the buildings they design*

BEFORE SETTING OUT on a quest one must determine what one is really seeking—and just as important, why one is seeking it. The word "livingspace" is used here to designate the space in which we live. In its broader sense it applies to our cities, our towns and our villages. For the purpose of this quest let us limit ourselves to the interior spaces within which we spend a good part of our lives. These spaces, except in rare exceptions, are in buildings. Buildings are designed by architects. Our quest logically begins with the architect and the building he designs.

It seems to me, after over thirty years of practice, that the term "architecture" almost defies definition. Simply stated, it can be called the art of designing buildings. In its most flowery definition it is sometimes called "frozen music" or "sculpture in space." No matter what it is called, architecture as a profession concerns itself with the demands of the many-faceted activities of man's existence on earth. From the moment we are born to the day when our friends come to bid their last farewells, we spend much of our lives in the spaces that the architect has designed and the builder has built from the architect's plans. These are the spaces in which we live, learn, play, work, become healed, create, are judged, are punished, are governed, arrive or take our leave, are amused, worship, and finally, are bid farewell. I am referring, of course, to emotionally and visually satisfying and pleasing spaces. If simple spaces *per se* were sufficient, then the creation of such spaces could well be left to the engineer or the builder.

It goes without saying that the mere creation of livingspaces is only one phase of the complex responsibilities of the architect. We must be sure that these spaces are arranged in a natural or logical or comfortable sequence. Of necessity we are concerned with the structure to form and firmly hold these spaces, and finally, we must enclose this grouping of livingspaces in an envelope or a shell. This may seem like an extreme over-simplification but I doubt if it leaves much to quibble about. As architects we are duty-bound to make sure that the spaces are practically, esthetically and emotionally satisfying. Our structures must be sound. The envelope or the shell that encloses (or exposes) the structure devised to contain the various elements of our livingspaces should, in a pleasing manner, express what goes on within the envelope. It should be esthetically and architecturally beautiful. One last consideration is the interrelationship and the grouping of the envelopes or enclosures themselves into a pleasing composition. The arrangements of the envelopes, or, to give them their proper names, the buildings, in a larger sense, further form livingspaces. These are our streets, our neighborhoods, our squares, our towns, our cities.

Man spends a few brief moments in the streets, but endless hours inside the buildings where he lives, works, plays and worships. If, indeed, it is the interior of our buildings that plays so great a part in our lives, why are we so preoccupied with the exterior to the apparent exclusion of all else? I can hear a vast cacophony of architectural indignation cry, "You're wrong!" Am I?

Let us examine what has happened to our interiors, the *raison d'être* for practically all architecture—the livingspaces. If we are overlooking or underestimating or ignoring these spaces there must be a reason. I know that architects feel that their plans, which precede their designs, always consider interiors first. But are they really designing livingspaces, and not merely planned spaces? Or, are they creating planned spaces which must grow and be nurtured by an interior designer and decorator—or as some firms call themselves, "Designers for Living" or "Designs for Business"? Some interior designers have gone so far as to state that they feel architects create their buildings as if they were working with an Erector set, with no thought to what will happen to the interiors. They say that windows are in the wrong place, that the dimensions of the rooms do not lend themselves to attractive interior design. In short, the architect, they feel, seems to be more concerned with his structure and his outward appearance than with the possibilities of creating fine interior spaces. The drama of interior spaces, aside from the decorating of the spaces, is something that is definitely the province of the architect: That drama must be created while the building is being designed; outstanding buildings of the past were invariably the work of the architect, even to the designing of the furnishings.



Let me cite an example: We may have some reservations as to the exterior appearance of the winning design for the Boston City Hall by Gerhard Kallman and his associates, but a study of the plans and sections reveals a drama in the concept of interior spaces which one rarely finds in contemporary buildings. The scope and arrangement of these interior spaces is exciting and daring. They are born of a true understanding of what makes a building great.

Of course the interior designer is one of our team, just as the landscape architect and the mechanical and structural engineers are part of our team. But just as they develop the basic concept of the architect, so the interior designer should develop the basic concept of the architect's living spaces. At all times all of these members of the team are working with the architect and expressing within the scope of their own field the structure and the spaces that the architect has created. How often does the architect really concern himself with these spaces? Usually he seems to be content with the determination of the height, the width and the length of the space and the rest is left to others.

A successful living space has six dimensions and the architect must and should be sensitively aware of all of these dimensions. The first three are easy—height, width and length. But the other three are usually forgotten. One is movement: Interiors are not seen from a single vantage point. People come into them. They move through them and even when they are sitting down their eyes keep moving. Nothing is stationary; nothing is fixed. Another dimension is light. Light plays as important a role as any other feature in our contemporary living spaces. The designers of great baroque interiors understood the value of light in creating additional dimensions. The only real source of light at their disposal was daylight. Today, thanks to our lighting experts, we have a multiplicity of artificial light sources that vary from the faint flicker of candlelight to the tremendous power of lighting sources almost rivaling sunlight. Wisely used, artificial as well as natural light, are as important in our living spaces, as steel and concrete are to our structures. Finally, we come to the last dimension, the emotional dimension—the most difficult to describe and at the same time the most easily recognized. An interior is a compilation of height, depth, width, vista, color, texture, light, sound, temperature and movement. It is a place for looking in, a place for looking out. It is a place for the observer and it is a place in which to be observed. It is a place for being alone. It is a place for crowds. It should be a place for people—in short, it is *living space*.

Just as important as each individual living space is the importance of the interrelationship of the various spaces to each other. Our contemporary buildings, with their monotonous fixed ceiling heights, the ubiquitous level floors, the restraining influence of a structural grid, have created an aridity in our thinking when it comes to the design of living spaces. The arrangement and variety and interplay of space has always been the province of the architect. The ever-changing vistas and relationship of one interior

space to another has created drama, excitement, and where necessary, repose. Successful architects of all ages have manipulated spaces with skill and daring. Rarely has space been just space—it has been molded, adorned, colored and embellished.

One could give many examples of successful buildings and completely unsuccessful living spaces. I will let one example suffice. One of Saarinen's last works was the Dulles Airport, which has been recently published. Seen from the outside, it is undeniably a beautifully bold and daring expression of a cover or shell or a method of enclosing a space. On the inside it leaves much to be desired. Here we find little scale, no embellishment, nothing to rouse the emotions. The beautifully suspended catenary roof is a concept of the drawing board. It means absolutely nothing to the man inside the terminal. The expression of cover, daring from an engineering point of view, leaves the observer emotionally cold. To him, engineering is no expression of space. There is no feeling of grandeur. In fact, the dipping ceiling seems to make the space shrink in height. The arrangement of the various offices and ticket booths is unimaginative and completely out of scale with the interior. The huge walls of glass may be interesting for a view of the outside, but unfortunately there is nothing to see but a huge expanse of airport with no focal point of interest. At night these bleak, black, dreary walls of glass do nothing but reflect an emptiness—not only of space, but also of emotion.

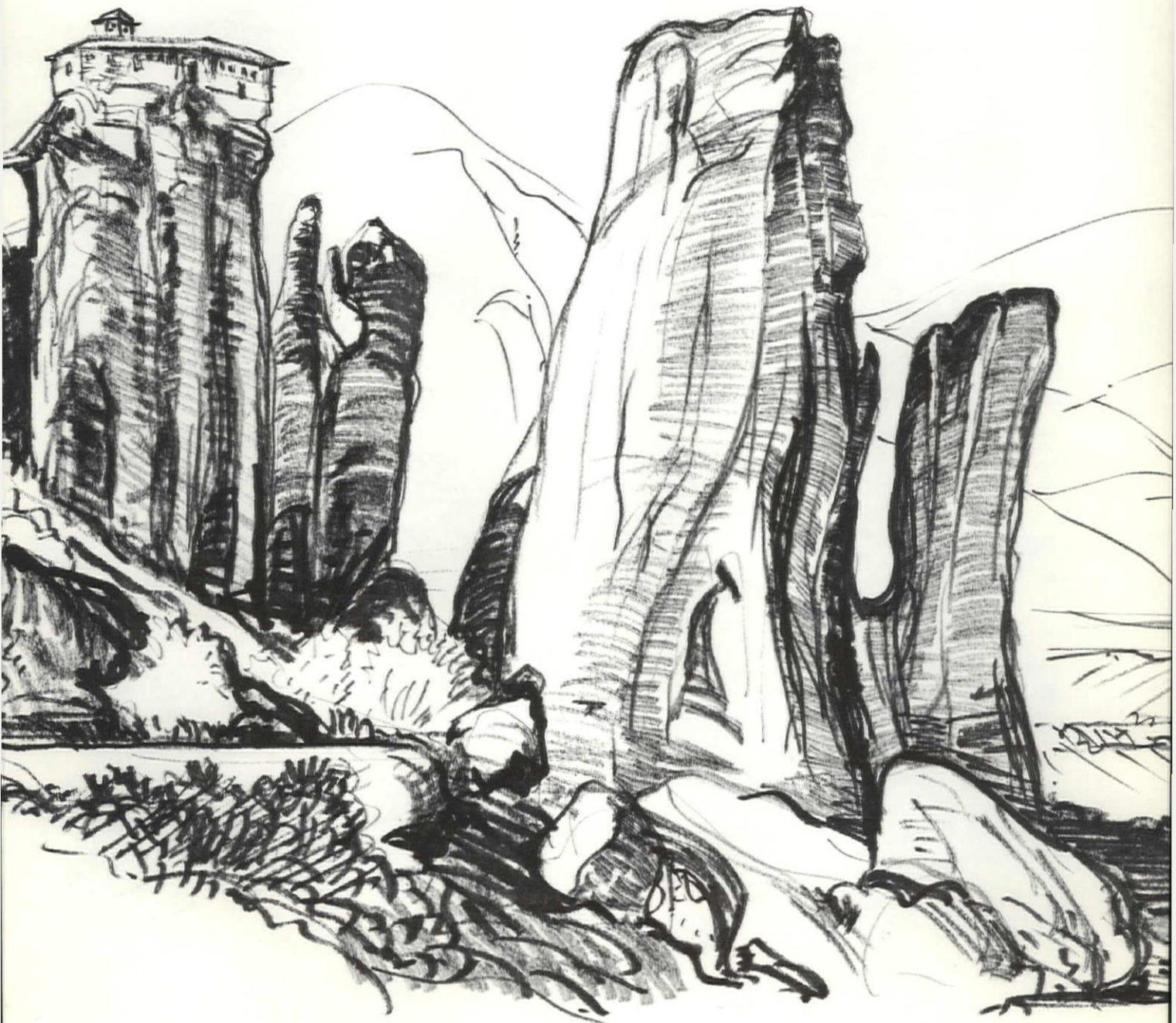
On the other hand, let's look at the airport in Copenhagen. Here is a building which deserves no awards for its exterior appearance, but the interior is a delightful experience. It has charm and color and emotional satisfaction. Here are spaces in scale with the people who are in the terminal. Airport terminals are places in which people arrive and from which they depart. Primarily they are places in which we spend a good deal of time waiting—waiting for planes to arrive, waiting to take off, waiting for our friends to arrive. They are, in fact, primarily waiting spaces or waiting rooms. Waiting in the Dulles Airport is a trying and seemingly endless experience. Waiting in the Copenhagen Airport is a delightful experience. The architects sensed that people waiting for planes are nervous and impatient. Waiting in Copenhagen takes care of this. One can relax; one can visit shops; one can sit in comfortable furniture groupings; have a bite; have a drink. In short, everything is designed to relax and reassure. Dulles has none of these merits. Saarinen's Airport will probably win many kudos for its design but my personal award goes to the designer of the Copenhagen Airport. He has made waiting a pleasure, not a chore.

Architecture seems to be at a crossroads—so many paths beckoning: Emotionalism, Functionalism, Sensualism, Brutalism, Formalism and Undying Traditionalism. Whichever the architect chooses to express in his structures, there is one unifying force: All styles are created to achieve living spaces. That is why buildings are built. That is the alpha and omega of all architecture—the creation of spaces within which civilized man lives most of his days on earth. ■



*Sketches by*  
*Charles A. Blessing FAIA*

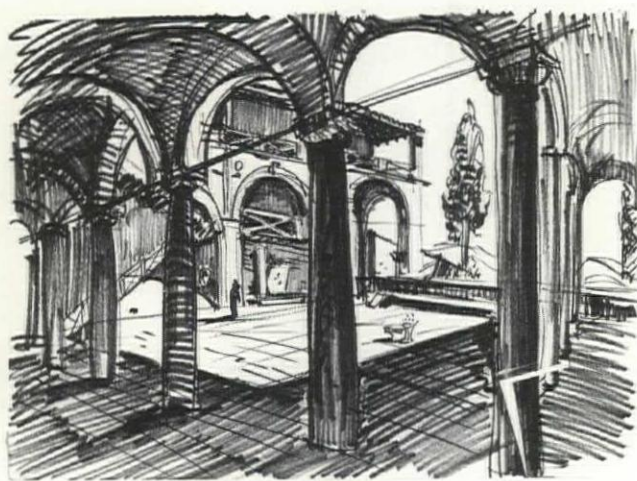
*The ancient skyscraper city of Meteora, Greece  
was among the most dramatic examples  
studied on a two-month sketching trip through  
Greece, Crete and the Middle East*







*The Grand Colonnade of Palmyra, one of the most impressive examples of large-scale urban design in a colonial city which brings into relation the palace enclosure, theater, other temples and related buildings*

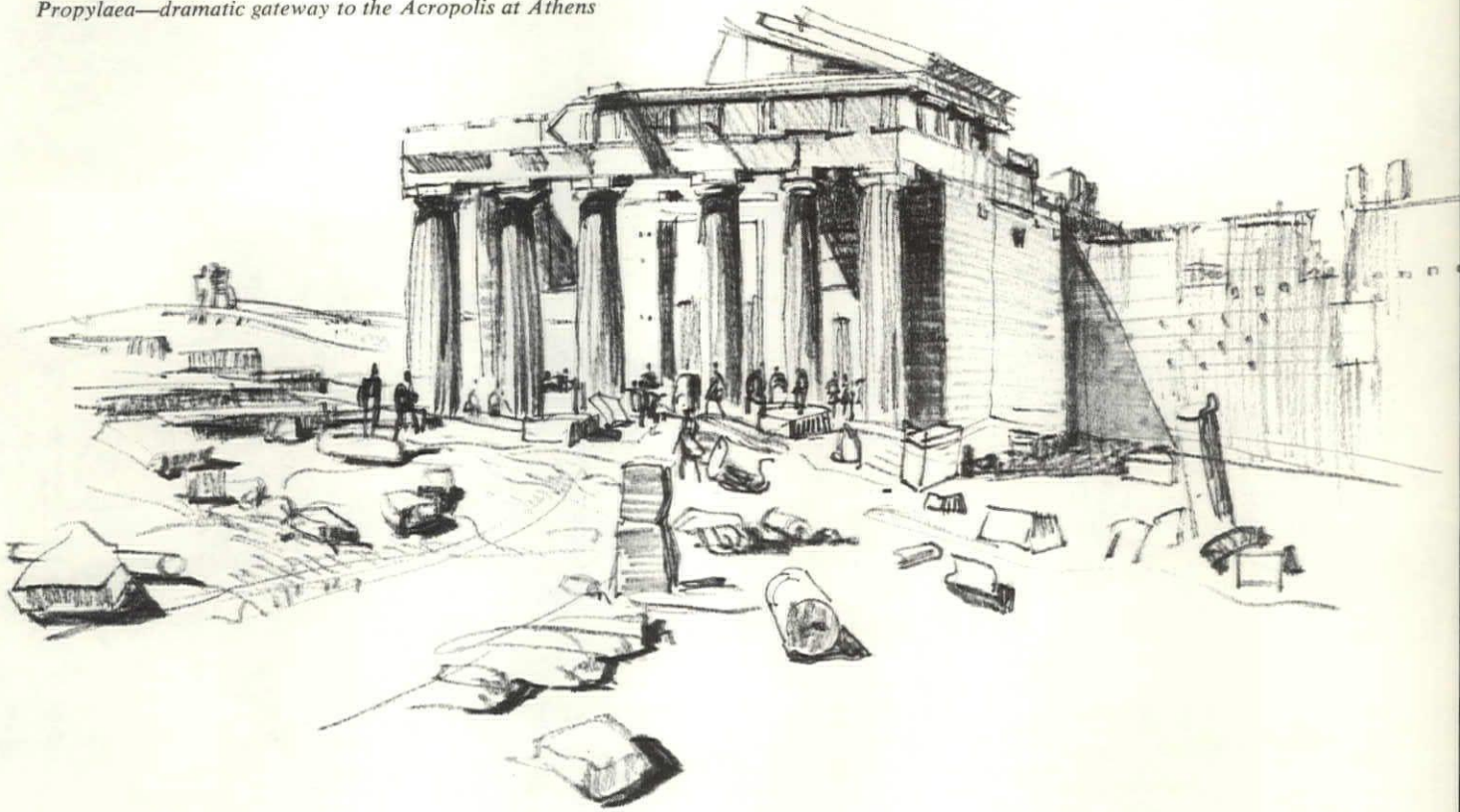


*Courtyard of a convent in Mistra*

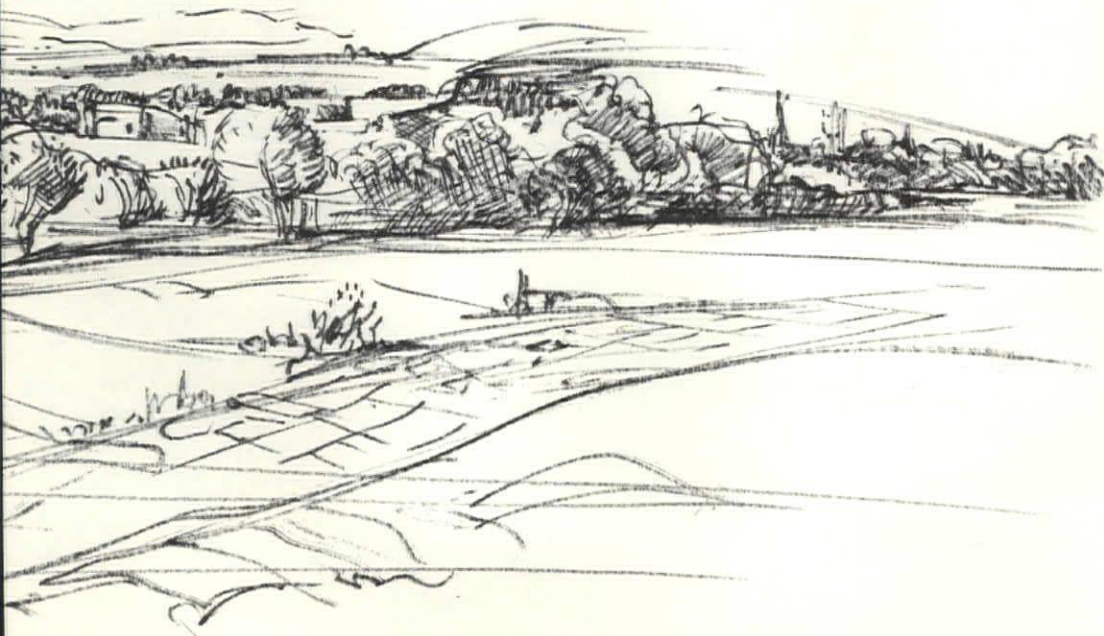




*Propylaea—dramatic gateway to the Acropolis at Athens*



*The Acropolis—after 2,500 years still the dominate heart of Athens  
—historic counterpart of the skyscraper core of the modern city*







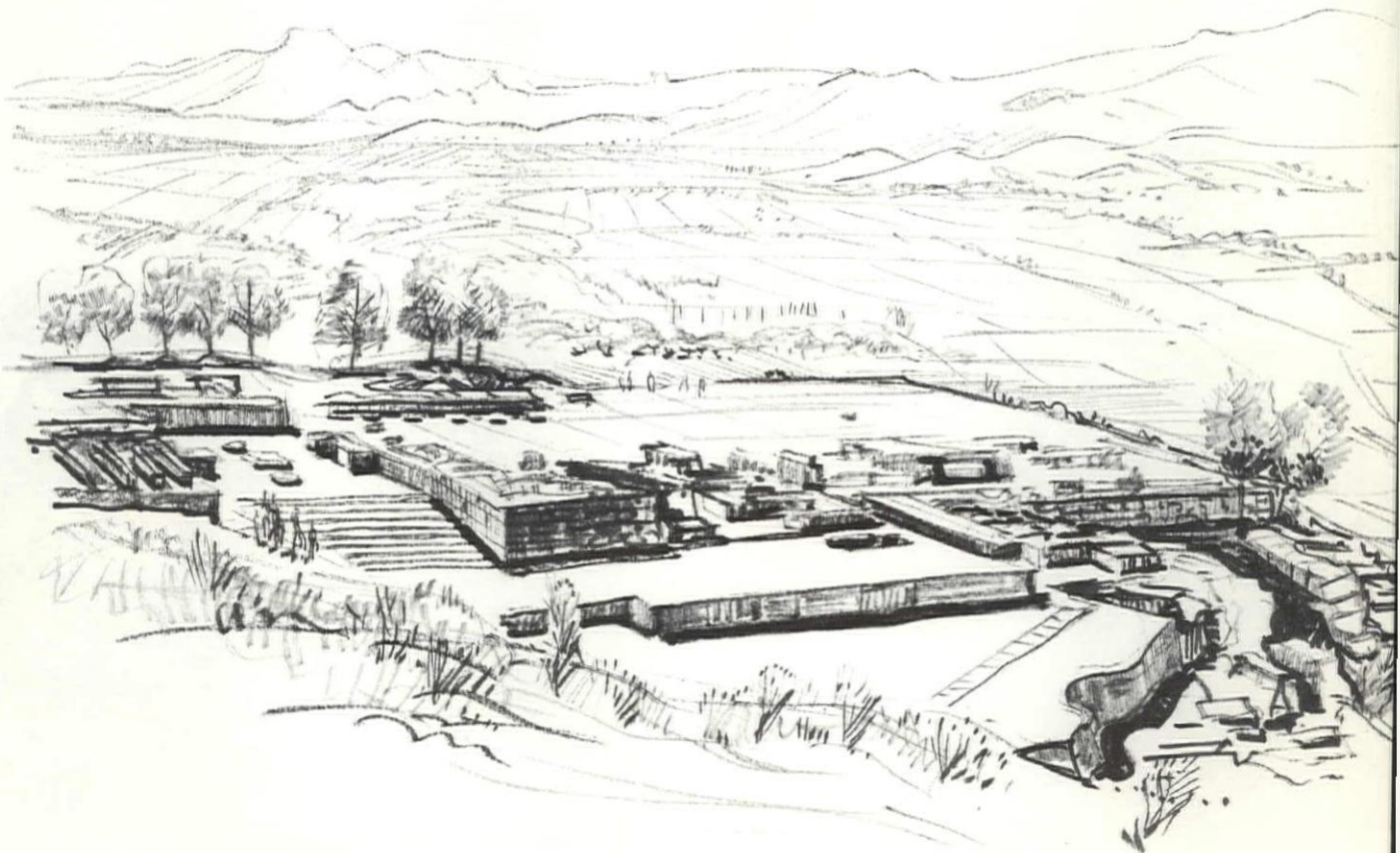
*A beautiful outdoor living room focused on the town well in a village on the way to the Temple of Bassae in the heart of the Peloponnesian Peninsula*



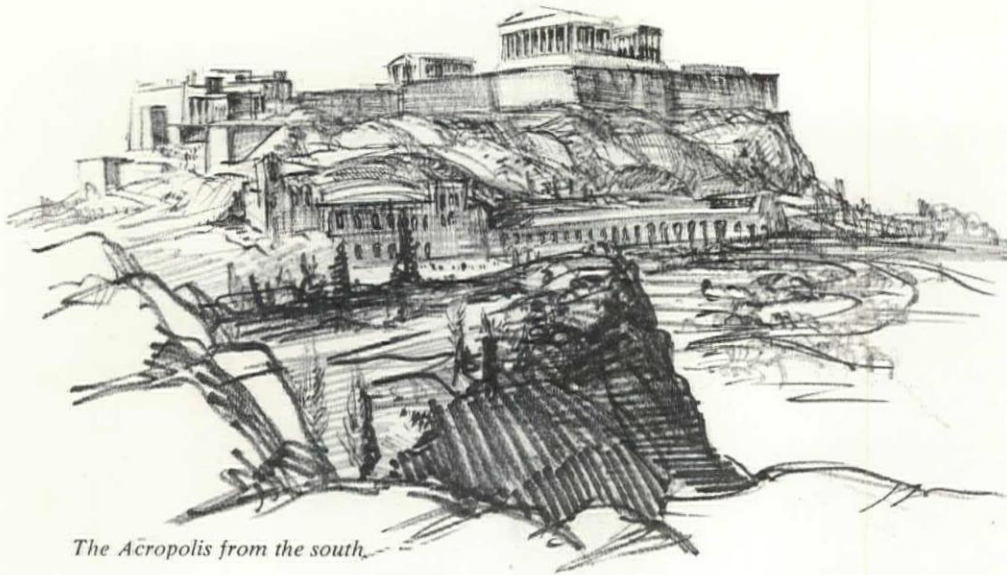


*Ephesus, with its many shrines and temples along the sacred way provides one of the Middle East's greatest Hellenistic and Roman colonial town plans*

*Phaestos, the great palace city in Southern Crete (1000 BC), skillfully exploited a dramatic setting. Add a residence tower and parking under the deck for an ideal year 2,000 solution!*







*The Acropolis from the south.*

*Approaching the Great Hall of the Temple of Karnak. The Egyptian temples after three thousand years still offer the most dramatic examples of urban form and space in the history of architecture and cities*





# A Guide for Planning KINGDOM HALLS of JEHOVAH'S WITNESSES

H. WALTER DAMON AIA

*Commission on Architectural Design,  
Morris Ketchum Jr, FAIA, Chairman.*

*Committee on Religious Buildings,  
Kenneth E. Richardson AIA, Chairman*



*The twelfth in a series of reports prepared by the AIA Committee on Religious Buildings intended to serve as guides for the architect faced with planning a building for a religious faith other than his own*

JEHOVAH'S WITNESSES of modern times date from the early 1870's when Charles T. Russell and some Christian associates of Pittsburgh (Allegheny), Pennsylvania, began a systematic and analytical study of the Bible. Like many others of that time, they realized that Christ's return was imminent, but this group recognized the responsibility of proclaiming their new-found truths to prepare other people of the world for this return. To expand their rapidly-growing preaching campaign, they chartered in 1884, the nonprofit corporation, Watch Tower Bible and Tract Society of Pennsylvania, which has become the legal and administrative servant of Jehovah's Witnesses worldwide. International headquarters was moved in 1909 to Brooklyn, New York, at 124 Columbia Heights, where it is still located. That year the Watch Tower Bible and Tract Society of New York, Inc, was formed. This corporation, along with the International Bible Students Association, London, and others, is used to advance the work. C. T. Russell was succeeded by J. F. Rutherford as president of the Watch Tower Society upon his death in 1916. The present president, Nathan H. Knorr, succeeded in 1942, upon Rutherford's death. The modern organization adopted the name "Jehovah's Witnesses" by resolution at a convention which was held in Columbus, Ohio, in 1931.

## **Basic Beliefs**

Jehovah's Witnesses received their name through prophecy of the Bible. Isaiah 43:10 (American Standard Version) identifies them with the words, "Ye are my witnesses, saith Jehovah, and my servant whom I have chosen." From the time of Abel, 6,000 years ago, faithful men have served as Jehovah's Witnesses. Paul testifies to this (Hebrews chapters 11 and 12:1). Jesus himself is referred to as the "faithful and true witness" (Revelation 3:14).

As indicated by their name, Jehovah's Witnesses give testimony to others as to God's purpose. They use the Bible as the basis for all doctrine, recognizing it as a series of inspired revelations which God saw fit to have written for man's instruction and which He keeps hidden as to interpretation until His own due time to give the understanding. Jehovah's Witnesses believe that God's purpose is to sanctify His name in the earth through the complete restoration of the paradise that He created and which Adam, the first man, forfeited. They believe that man's present dying condition is the result of Adam's sin and disobedience of God's law which brought death to him and condemnation to all his offspring (Romans 5:12). God's justice required the forfeiture of Adam's right to life but God's mercy toward those of Adam's children who desire to return to God's



favor makes possible a provision for their reconciliation and eventual restoration to the right of everlasting life. That provision is the ransom sacrifice of Jesus Christ, who left His prehuman existence in heaven as a spirit son of God and became flesh and blood as an exact corresponding price for the life forfeited by Adam (Matthew 20:28; 1 Timothy 2:5, 6). His voluntary sacrifice of His perfect human life has not only resulted in a way of redemption for obedient mankind, but has brought Jesus Himself a reward of a resurrection to heaven, this time at the right hand of God as an immortal spirit, now in position to rule as God's rightful King of all the world (1 Peter 3:18-22). As predicted by Russell, since 1914 God's kingdom government has been ruling in heaven and within this generation will move against all governments of men on earth, replacing them after the final war of Armageddon with a rule of righteousness that will never end. Those now warned who find God's way of escape will survive Armageddon into that endless paradise that will then be restored (Revelation 16:13-16; 21:1-5).

Jehovah's Witnesses deny the doctrine of the trinity, believing that Jesus Christ is a creature separate from his Father, the Creator and Supreme God Jehovah. God's power or active force that He sends out is holy spirit, but not a living person. Jehovah's Witnesses are opposed to the teaching that man has an immortal soul and is tormented in consciousness in purgatory or a fiery hell.

#### **Church Government and Sequence of Authority**

As a society of Christian ministers, Jehovah's Witnesses follow Jesus Christ, who said he "came, not to be ministered to, but to minister" (Matthew 20:28). Following the pattern of the apostolic congregation, they are not governed by democratic vote. All presiding ministers of the congregations are "servants" appointed by the governing body at headquarters. They recognize the leadership only of Jehovah God as exercised through His Son and enthroned King, Jesus Christ. This makes the organization theocratic in structure.

Administration of the organization is from international headquarters in Brooklyn, New York, operating through worldwide branches. The branches (eighty-seven in number in 1962) are visited each year by the President of the Society or by a specially appointed representative. Similarly, congregations are visited about three times a year by a *circuit servant* who is responsible for twelve to fifteen congregations. All the congregations in a circuit assemble twice a year at which time they are visited by a *district servant* who serves ten to twelve circuits. District servants report directly to the branch office. This system of organizational assistance has contributed much to the growth of the work in recent years. In 1962 there were 989,192 of Jehovah's Witnesses in 22,166 congregations preaching in 189 lands. An important part of the activity of each congregation is preaching from house to house, making return visits on interested persons and conducting home Bible studies.

Each congregation has an appointed presiding minister known as the congregation servant or over-

seer. He is given special training at the Kingdom Ministry School, usually at the branch office of the Society. In this responsibility of shepherding God's flock the overseer has a number of assistants called ministerial servants. The assistant congregation servant has oversight of the congregation in the overseer's absence. The Bible study servant helps those in the congregation in the overseer's absence, and he also helps the congregation in Bible studies. The literature servant orders and maintains books and booklets at the literature counter. The magazine-territory servant orders and maintains issues of the *Watchtower* and *Awake!* The accounts servant cares for funds received and their use to advance the preaching work and the Kingdom's interests.

#### **Buildings**

Congregational meetings of Jehovah's Witnesses are primarily for instruction and study. The place of meeting is called the Kingdom Hall, which puts the emphasis on the main purpose of Jehovah's Witnesses: to advertise God's kingdom as the hope of the world. Worship of the Witnesses is carried on by preaching at the homes of the people, as Jesus foretold, "This good news of the kingdom will be preached in all the inhabited earth for a witness to all the nations" (Matthew 24:14). Since all congregations are kept small (two congregations being formed from one when it reaches about two hundred persons), Kingdom Halls are moderate in size. The decision as to these matters rests with the individual congregation and is generally influenced by the prevailing architecture of the neighborhood and the financial means of the congregation.

Requirements as to facilities are few. The main hall has good lighting (important because of the emphasis of study during meetings); seating is the simplest or as available; there is a platform at the front, usually a foot or two high. In the larger Halls, provision is also made for the use of sound equipment. Space is provided for a book counter where the Society's publications can be obtained for distribution in the house-to-house ministry. Many Halls provide a smaller room as an office and conference room for the presiding ministers and to house a small library for use by the congregation in preparing sermons for their house-to-house preaching.

There are no other mandatory requirements. The following are uses of the building requiring no special provisions. Kingdom Halls are used for weddings and occasionally for funerals.

Once a year there is celebrated "The Lord's Evening Meal" or last supper, wherein very few partake of the emblems of wine and unleavened bread.

Baptism, as practiced by Jehovah's Witnesses, requires total submersion. Candidates are usually from teen-age and older. The baptism is usually done at conventions, although a few Kingdom Halls have facilities for baptism.

#### **Provisions for Church School and Other Services**

There are five regular meetings held each week. Early in the week Jehovah's Witnesses and persons who have been studying the Bible with them go to



the nearest home designated by the congregation for a one-hour group study, using the Bible and textbook provided. One evening each week a double meeting is held at the Kingdom Hall. This starts with the Theocratic Ministry School which is a perpetual training school. This is followed by the Service Meeting which is based on instructions in a monthly pamphlet entitled "Kingdom Ministry."

Most congregations take advantage of Sunday morning for house-to-house preaching and the congregation assembles at the Kingdom Hall on Sunday afternoon or evening for the weekly public talk and Watchtower study. The public is invited to the talk, followed by the Watchtower study which is considered the most important congregation meeting. This is a question-and-answer discussion, using material found in the *Watchtower* magazine.

### Glossary

*Presiding Minister:* He who presides over a congregation (non-paid).

*Servant:* One who presides over a group of other ministers, performing certain specific administrative duties according to his position.

*Circuit:* The twelve to fifteen congregations assigned to the supervision of a traveling representative of the Society, the circuit servant, who gives counsel and assistance in the ministry to the congregations as he visits them individually three times a year.

*Circuit Assembly:* A convention of the twelve to fifteen congregations comprising a circuit, held semiannually for the training and instruction of the members of the congregation.

*District:* That territory covered by a district servant, composed of from ten to twelve circuits which the district servant visits semiannually on the occasion of the circuit assembly.

*Branch:* A local division of the Society established in a country to exercise oversight of all preaching activity within its assigned territory, yet remaining under the direct supervision of the office of the Society's president to which it reports regularly.

*Governing Body:* The central directive body, acting as representative for all of Jehovah's Witnesses and who are charged theocratically with the administration and supervision of the ministerial work of Jehovah's Witnesses worldwide.

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"Qualified to Be Ministers," published by the Watch Tower Society

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"Faith on the March," by A. H. Macmillan ■

ED NOTE: *Inquiries concerning the religious buildings series should be directed to the Director, State, Chapter and Public Affairs, AIA, 1735 New York Ave NW, Washington, DC, 20006.*

## Amateur Supervision

(or *The Architect Takes a Busman's Holiday*)

Won't you come over to look at our new house? I always receive this sort of invitation with the deepest apprehension. Shall I say that I am off-duty for the weekend, trying to forget all about buildings, construction and supervision? There is nothing I would less like to do than inspect the house.

I know that these invitations are meant kindly. I know that, next to matrimony, building a house is probably the most important and expensive step a man will ever take. I know that he has toiled and skimped and saved for years in order to do this. But now he needs comfort, consolation and courage. He wants his friends to admire, praise and perhaps envy what he is doing. The kind and possibly insincere words of a visiting architect (not in his employ) are balm to his soul.

If I accept the invitation to visit your house, shall I return evil for good? Shall I say that the plan is dull, the elevations are absurd and the details are unstudied? I cannot say this as a guest in your unfinished house, not even as a former friend. And it would be unethical for me to damage the reputation of a fellow architect. It is even possible that you have designed the monstrosity yourself. Or, worse yet, that your wife is the culprit. No, I must look alert though bored to extinction. I must be polite even if I cannot be enthusiastic. Why do friends do this to me?

I hesitate to visit an artist's studio while he is present because I feel that I am being given a lie-detector test. Similarly, while inspecting your house I am afraid that I may run out of effusions before the ordeal is over and that I may tell the truth. I would not think of inviting a dentist to drop in any time and look at my new inlay, designed by an absent colleague. I wouldn't dream of inviting a doctor friend to dinner and then asking him to examine the scars from a recent operation performed by another surgeon. Operations are dramatic, full of excitement and expensive, but I feel sure that my medico would gladly pass up the opportunity to view what his profession calls the "parts."

On the other hand, perhaps the dentist or the physician would enjoy inspecting a house under construction. Why not invite them? My trouble is that I have to do too much of this during the year, but then I get paid for my trouble.

If you are building a house, gentle reader, please don't ask me to look at it. Invite your doctor or your dentist to do this instead of me. Call me in to look at the cavity in your tooth, rather than the excavation on your new site. It would be a welcome change.

VITRUVIUS



# THE CALIFORNIA PRACTICE ACT

## The "Written Notice Clause" Is Dead!

ULYSSES FLOYD RIBLE FAIA

*The architects in so many states are still having trouble getting effective laws controlling proper licensing, and in keeping unlicensed persons from operating, and the Journal editors thought California's recent experience would be of general interest*

### THE "WRITTEN NOTICE CLAUSE" IS DEAD!

With one of the earliest architectural registration acts, California nonetheless had, until July 25, 1963, one of the most inadequate practice Acts of any of the states.

The Act protected the title "architect," but failed to provide broad protection for the public health, safety and welfare. The most critical aspect arose through a "loophole" known as the "Written Notice Clause," which allowed any person to design a structure merely by advising his client in writing that he was "not an architect."

The depression offered an excuse for the first substantial increase in unlicensed persons practicing through the loophole. The exploding population after World War II and its demand for quick plans resulted in a phenomenal increase of unlicensed persons. Although the number is not known (because all unlicensed persons are not members of the two existing societies of unlicensed persons), estimates range from several hundred to more than a thousand.

The existing Act further failed to provide a definition of the practice of architecture, or for an injunctive procedure essential to the State Board of Architectural Examiners to discipline the profession and to properly administer its responsibilities. There were many other inadequacies in the Act.

Specifically, in the last ten years, the California Council AIA has presented corrective legislation at each Legislative Session. CCAIA-sponsored revision of the Act was adopted by the Assembly in 1961, but failed in the Senate. In this same year an association of unlicensed persons (American Institute of

Building Design) endeavored to obtain legislation providing for its own registration act, but were defeated by CCAIA. Conflict between architects and unlicensed persons over the last twenty years reached its climax at the time of these dual proposals.

After testimony by architects and unlicensed persons, an Assembly Interim Committee flatly advised the two groups to "get together" or not to bother the legislature further by interprofession "squabbles."

At this time the California Council AIA appointed a five-man statewide Committee on Professional Licensing (PLC) charged with the responsibility of taking a hard and searching look at the entire licensing problem to ascertain if a solution might ever be anticipated. The Committee was composed of two younger men and three seasoned practitioners, those representing small practices and larger practices—an exceptionally well diversified membership.

The first meeting was held in October 1961. The initial meetings were devoted to thorough analyses of principal components of the problem, including a study of the practice Acts of the other forty-nine states.

Several preliminary meetings were held with all of the engineering groups in the state and on several occasions with the State Board of Architectural Examiners. On January 30, 1962, the PLC met for the first time with a Committee similarly appointed by the larger of two designer associations. To clearly state their position each submitted a formal statement. That of the architects was geared to the principle that under some plan to be determined, it was imperative that the practice of architecture be limited to licensed architects (and engineers in certain instances).

From the initial meeting it was agreed that no information regarding deliberations would be permitted outside the Committees, except for the Executive Committee of the CCAIA. This was to prevent misinformation, exaggerations, half-truths and antagonisms from being transmitted to our mutual societies. Later this very subject of secrecy became a serious criticism of the PLC by a segment of our own profession. However, in recognition of the extreme complexity and numerous facets of the problem, it could not have been successfully prosecuted without such preliminary control.

Mutual agreement of the Committees was given to the objective to formulate a plan which would ultimately provide for the practice of architecture by licensed architects only. This objective obviously required elimination of practice by unlicensed persons. At the same time, all were cognizant of legislative policy which permitted no legislation that would interfere with the livelihood of those legally conducting their businesses.

Gradually a solution emerged which provided that, (1) after due notice, entry of unlicensed persons into the field of building design would be prohibited, (2) over a period of years the practice of unlicensed persons would be phased-out and incentives provided to interest such persons in becoming architects. During this period, the legal status of unlicensed persons would permit them to continue to no



greater or lesser extent than that which they enjoyed under the existing Act.

A summary of PLC activities outlining probable solutions of the many-faceted problem was presented to the Board of Directors of CCAIA in June of 1962. After several hours of discussion, the Board voted unanimously to authorize the PLC to continue its deliberations in anticipation of ultimate success. During the next few months, small groups of "dissenters" to the policies being considered developed in both the architects' and unlicensed persons' groups. Although small in number the volume of opposition became a major hurdle in advancing toward the ultimate goal.

In October 1962, the Board of Directors of CCAIA again considered proposed legislation in some detail. A motion was approved which required all chapters of AIA and individuals to provide the PLC with careful analyses and criticisms within the following sixty days. A special meeting of the Board was called in December to consider these as they applied to the then updated draft. A protracted meeting, after effecting some revisions, once again authorized PLC to consider its endeavors.

At its next regular meeting in February 1963, the Board of Directors unanimously approved the sixth official draft and authorized the PLC to conduct further (and hopefully) final negotiations with interested organizations which included two societies representing unlicensed persons, four societies representing various specialties of licensed engineering in the state, the landscape architects, the State Board of Architectural Examiners, the general contractors associations, the subcontractor associations, the utility companies (who are strong in requiring exemptions in certain fields) and the homebuilders' organizations.

During this final period the PLC was frequently dismayed, and admittedly frustrated on occasions, upon learning that the several groups whose approval was politically necessary had in the interim period of several months changed their position on certain aspects of the proposed legislation from former approval to current disapproval—revisions and compromises were required.

A final draft, however, was heard before the Assembly Governmental Efficiency and Economy Committee who voted it out "Do Pass" and the Assembly concurred by a 74 to 4 vote. A significant change, however, was made by the Hearing Committee, which eliminated the time limit on the phasing-out period of the unlicensed persons. Certain incentives for unlicensed persons to become architects expire in eight years, but normal attrition ultimately will complete the phasing-out period. At a Committee hearing by the Senate a number of our own CCAIA Board of Directors vehemently opposed his own Committee's effort and official Board action. Other opposition was also heard, but finally the Committee sent the adjusted Bill to the Senate with a "Do Pass" recommendation. The Senate concurred by a 21 to 5 vote.

Between the time of the hearing by the Senate Committee on Business and Professions and final consideration of the Bill by the Senate, the Board of

Directors of CCAIA, at a regular meeting, again seriously considered "pros and cons" of continuing support of the Bill in view of elimination by the Assembly of the (eight-year) phasing-out period. An entire day was given to pertinent deliberations. Wisely, the Board ultimately concluded realism to be prudent, that no legislation is static, and that inadequacies may be rectified by future action. By a vote of 39 to 10 the Board approved vigorous support in recognition of numerous significant advantages yet contained in the Bill as follows:

**1** It establishes a temporary Qualification Committee on which three unlicensed persons and three architects serve to receive applications for "Registration" from presently practicing unlicensed persons. Such persons are required to become "registered" within six months of date of enactment of the legislation, after which no one may enter the field of unlicensed service. Further growth of the group of unlicensed persons is thereby prohibited.

This provision intends to "flush-out" all persons currently operating in the unlicensed field and will permit obtaining information on their degree of competence and extent of experience. An exceptionally qualified unlicensed person may be "recommended" to the State Board of Architectural Examiners as one apparently qualified to be examined for potential licensing as an architect.

**2** During a period of eight years, certain "incentives" to the registered person are offered to interest him in becoming an architect through recognition by the State Board of Architectural Examiners of qualifications (in one or more areas of examination) equal to "the standard of competency required of any other applicant." The written examination (as determined by the State Board of Architectural Examiners) may be waived except that in structural engineering, which remains mandatory.

**3** A definition of the "practice" of architecture and the inclusion of an "injunctive" process provides the State Board of Architectural Examiners with tools necessary to properly discipline the profession on behalf of the public welfare.

**4** In the interest of the public, the area of "exempt" work has been greatly reduced. Under the new Act, only the following may be designed by an unlicensed or unregistered person:

- a) Buildings for a person's own use unless the public health, safety or welfare is involved
- b) Farm buildings with a like restriction
- c) Single family dwellings of wood frame construction not more than two stories high
- d) Store fronts, interior alterations, etc, where no alteration to building structure is included.

Governor Brown signed the Bill on July 24, thus concluding successfully two years of concentrated effort in adoption of the most important advance in professional legislation in California since an architectural practice Act first became law. In addition to providing increased protection of the public through ultimate elimination of unlicensed persons, final legislation included numerous other improvements to insure responsible practice and otherwise to preserve the public health, welfare and safety. ■



# NCARB:

## Headquarters Office Administrative Study

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**ABOUT THE AUTHOR:** *Originally retained as Administrative Consultant, he was recently appointed Administrative Director at NCARB Council Offices. Dick joins Executive Director Sadler after extensive experience with General Foods Corporation as Administrative Services Planner and Division Manager of Office (Administrative) Services; prior experience was in a variety of capacities as Operations Analyst, Assistant Sales Engineer, Expediting Analyst and Retail Manager. He is immediate Past President and Board Chairman, Society for Advancement of Management, Northern NJ Chapter. Age 38, married; BS in Business Administration, New York University; MS in Management Engineering, Stevens Institute of Technology; Navy veteran.*

No amount of scientific management technique can import additional quality to an NCARB applicant record. No type of communication yet designed will satisfy the wishes of an applicant whose record does not conform to the exacting requirements of NCARB. No amount of pressure can be manifested to process an application before another equally-deserving prior application. Where does an administrative study begin and what is the occasion?

An architect within the language and distributive limits of this article is well aware of the heavy workload coupled with the high purposes of the National Council. These purposes are to promote high standards of architectural practice, foster enact-

ment of laws pertaining to architecture, improve standards for the examination of applicants and compile records to facilitate licensing between states.

The Council offices in Washington, DC, are directly involved with these specific services: to facilitate registrations, maintain Council Records, establish standards of qualification by which a State Board may judge qualifications for registration in relation to its own legal requirements, provide standard examinations in some subjects, examine applicants' qualifications for Certification and provide periodic review and annual renewal of Certifications. This important and uninterrupted service to the profession requires current and professional attention to detail. Here originated the dilemma faced by NCARB President Paul Drake and the members of the Council Board. How to accelerate applications processing in increasing quantities, while maintaining the high standards required for architectural practice? The occasion arose and the decision was made by the Council Board requesting an administrative review of Council office operations.

The general plan which I submitted was a thorough investigation of office administrative practices without interruption of vital processing activity. Specific objectives agreed upon were to accelerate and simplify the four major processes: basic applications for Council Record or Certificate, applications for Transmittal of Council Record or Certificate, timely Renewals of Certificates and Periodic Reviews of Certifications.

Executive Director James Sadler and I joined in a program which centered on the principles of work simplification and began the collaborative effort with the cooperation of the office staff.

The first step involved the fact-finding phase. Daily tasks of each of the staff were recorded and verified by cross-check. Tasks were plotted on a work distribution chart which indicated where the majority of office activity was concentrated. Immediate equalization of tasks took place and we looked further for duplication or backtracking. The questions were asked, "What actually is necessary to do the job? What may be eliminated?"

Automatic equipment was sought for labor savings and faster processing. A Bruning Copytron 2000 copying machine was installed to replace a faithful, but slower, machine and helped speed up copies of Reciprocal Applications to State Boards. We purchased a semi-automatic mail opener to expedite heavy internal mail distribution. Outgoing mail processing, which often runs extremely heavy, was facilitated by purchase of outgoing mail processing equipment. One of the advantages of the relocation of Council offices to Washington, DC, was the availability of AIA services. Through a mutually advantageous financial arrangement, AIA tabulating machines assist in the processing of NCARB annual renewals. Result: economies, while providing increased mailing flexibility and compilation of important statistical data. Improvements to the internal telephone system were made to allow more flexible communications with applicants. A procedure for telephone appointments was designed



to provide the Executive Director with scheduled time to discuss complicated applications. Senior members of the office staff now handle a large volume of telephone activity.

The administrative study proceeded into intricate flow charting of each of the four major processes: basic application, transmittal, renewal and periodic review. Each step of each alternate procedure and each operations phase was plotted and analyzed. Jim Sadler made decisions wherever necessary to accelerate work flow. Forms flow charts were prepared and traced through processing activity. Layout flow charts, indicating proximity of each employee to required activity, were analyzed.

Detailed job descriptions and man specifications for each job title provided authority and responsibility and firmly established optimum personnel requirements. An organization chart was constructed which clearly established a departmentalized organization suitable to handle present and future needs. Supervisory and staff in-training programs were started. A wage and salary review assisted the economical attraction of qualified personnel in this highly competitive Washington, DC, area. Interviewing, selection, hiring and separation practices were carefully reviewed. Time, cost and processing standards are under continuing study. Predictable processing activity has been established by daily charting of work. This allows us to determine which portion of processing activity requires special attention. To literally enclose the entire office operation between two covers, standard practice procedure manuals were drafted and provided for each employee. This reliably established standard work methods and procedures.

What does all of this mean to the practicing architect who wishes to avail himself of NCARB Council office service? Can this type of administrative analysis result in more expeditious processing of applications? Will the applicant have the inevitable question answered regarding, "Where do I stand regarding my application with NCARB?"

The answers lie in the expanding mobility of the architectural profession which has an ever-increasing number of applicants who desire NCARB recognition—and then request almost simultaneous reciprocal registration. To meet this challenge, NCARB President Drake and members of the Council Board have taken constructive steps to strengthen Council office operations to provide the long-range Council services stability required by the profession.

Understandably, the Council office has had its share of problems. Hopefully, we have taken steps to overcome many of the major obstacles. Expeditious processing of Council Certification to qualified architects, coupled with commensurate Transmittal of Certificates freely throughout the fifty-three member Boards, is our immediate concern. Continuing professional effort and sound administrative practices will help us achieve our goals. We will continue to search for reliable methods for increased communication with applicants, all of whose records are being given the best attention that available talent, time and money will allow. ■

## *Coming in the March Journal*

### *The UIA International Symposium on Architecture 1963*

The feature of the issue will be a report to the membership on the Symposium on Architecture of the Union Internationale des Architectes, held in Mexico City in October. It will include a statement on the objectives of the UIA, written by the Chairman of the AIA Delegation, James Lawrence Jr FAIA, who is also a member of the Executive Committee of the UIA; and a briefing on the Institute's policy in participating more fully in UIA activities, prepared by AIA President Carroll.

There will be illustrated stories from each of the four members of the Working Commissions: Carl Feiss FAIA, Town Planning; Neil Connor AIA, Housing; Daniel Schwartzman FAIA, Professional Practice; and Mario C. Celli AIA, School Building—and perhaps a brief general "mop-up" by the *Journal* Editor, who also attended.

### *The Government Client*

LEONARD L. HUNTER AIA

In the series, "The New Role of the Architect," the former Assistant Commissioner for Design and Construction of the Public Buildings Service of the GSA tells of the unmatched opportunities offered by the Federal government to architects who are prepared to satisfy its complex requirements.

### *Principles of Feasibility for Revenue-Producing Real Estate*

LARRY SMITH, Real Estate Consultant

An introduction to the principles of real estate investment for architects who work with clients who build for the use of others.

### *The College Union Story*

PORTER BUTTS, Association of College Unions

### *Laboratory Animal Housing*

ROBERT F. RUNKLE, National Institutes of Health

The two above titles speak for the content of the two articles.



# Library Page

## Over the Library Desk

If we can believe Euripides who wrote, "Variety is sweet in all things," then the life of the AIA Library is sweet, indeed. There well may be "the dust and silence of the upper shelf," but even that is disturbed on occasion, as it was a few days ago when we were pleased to receive a request for such ancient tomes as Scamozzi's "Les Batimens et Desseins de André Palladio," 1786, and Serlio's "Architettura," 1545.

All the requests we receive are not such scholarly ones, however. Members will be interested to know that we often think every schoolchild in America knows about The American Institute of Architects. We sometimes seem deluged with laboriously composed letters seeking our help on school projects and term papers. Last year Frank Lloyd Wright was the rage with schoolchildren. Recently, however, they are wanting information on "the man who was famous for pored concreat" (Auguste Perret, we managed to deduce), on Mies van der Rohe, on Philip C. Johnson and others. Perennial and perpetual is the interest in Greek and Egyptian architecture.

Inquiries from students come from other countries, as well. Just this week in one morning's mail there were five letters from foreign architectural students. Three letters were from Nigeria alone. Information was wanted on such topics as the design of museums and theaters, sun-breakers and domestic architecture in California. Although we have to restrict our answers to students because of limited staff and other duties, we do try to give each one some evidence of our concern and interest.

Members, who are always our primary concern, of course, use the resources of the AIA Library, too. Within the past month we have lent books to them on such subjects as acoustics, English historical architecture, research laboratories, factories and the design of monuments. We have recently had requests from members for material on such specific topics as institutional laundries and pet motels. Occasionally, we know the bliss of serendipity. A member wrote us recently asking for books about Japanese influences on American architecture. We filled his request as best we could, and then the Librarian, who frequently uses his lunch hour to browse in a bookstore nearby (busman's holiday, for sure), unexpectedly came across a new book on the topic, "The Japanese Influence in America," by Clay Lancaster (New York, W. H. Rawls, 1963). We bought it, and now it has been sent to our Iowa member who is happily reading it (we hope) at this very moment.

Word about the AIA Library resources has gone out to others than members and students. Several government agencies make frequent use of

the Library. A variety of questions come by mail and by telephone, asking for help on such problems as office space requirements, the identification of the figures sculptured in the altar rail of the Cathedral of St John the Divine and where to find portraits of such architects as John Russell Pope. Recently a research writer wanted the "correct version" about the ghosts who are claimed to haunt the Octagon House.

We are pleased that generally we manage to answer the queries, but on occasion we search in vain. Such was the case this week when we received a letter asking for the date that "snow birds" came into usage and the manner of installing them on the eighteenth century house. We searched through architectural dictionaries, books on domestic architecture, on roofs and on carpentry, in old hardware catalogs and under every topic we could think of. Although we found a few references to "snow guards," we never found "snow birds" and could only conclude that perhaps it was a patented device. We found examples of the use of snow guards on colonial buildings, but we were unable to determine whether they were put there when the building was originally constructed or by a more recent owner who wanted to avoid damage suits from passers-by hit by falling snow from a sloping roof.

Distinguished visitors brighten our days, and we often learn bits of information from them that we can pass along to our library patrons. Within the past few days among our visitors have been Mrs Catharine Hunt Paxton, the great-granddaughter of Richard M. Hunt; Honorary Fellow, Professor J. H. van den Broek; and the English writer and critic of architecture, Ian McCallum.

Our library is more than books, and the use of the audio-visual materials is pleasant to note. The film on the Coventry Cathedral, first provided us by John Laing and Son Ltd, through the gracious services of Sir Basil Spence, has been so popular that we found it necessary to buy a second print. The other films we distribute are used steadily, as well. Our slide collection is being increasingly used and this year we have bought more slides to help fill the demand for a variety of requests. Slide sets of AIA Exhibits (Student Theses, Washington in Transition and Contemporary School Buildings) are available for rental or purchase, and orders for them have been coming in with regularity. In addition, we are now equipped to duplicate tapes, and several of these records of student forums are available for borrowing.

Within the space of a month's time we have had other variety. We have tied Christmas tree balls all over the bulletin board for our exhibition of books on Gothic architecture. We have searched through book-dealers' catalogs for books old and new to add to our ever-increasing collection, we have gone to meetings, we have cataloged books and filed periodicals, we have answered staff queries, and checked out books and checked them in again.

In conclusion, we quote from Paul Hamilton Hayne: "This is my World! within these narrow walls, I own a princely service." G.E.P & M.E.O.



## Book Reviews

**Washington, Capital City, 1879-1950.** Constance McLaughlin Green. Princeton, NJ, Princeton University Press, 1963. 558 pp illus 6" x 9¼" \$9.50

*Reviewed for the AIA Journal by Francis D. Lethbridge AIA, Washington architect and historian*

The second and concluding volume of Mrs Green's history of the nation's capital is both an important and a disappointing book. In choosing to direct the greatest part of her attention to the history of race relations in the District during the seventy-year period covered by her book, and in describing these problems in black and white as a "tale of two cities," she has succeeded in documenting a phase of Washington's history that needed to be written. She has produced a book that will be conceded by most to be a valuable record of the ups and downs of relations between Washington's white and negro communities against the background of the course of history. The disappointment stems from the disturbing lack of balance that this overemphasis has given her work, considered as a general social and political history of the capital.

In the author's defense it should be said that she has described the work in the introduction to her first volume as "not in any true sense a definitive history," and has suggested that "the result may be called an interpretive rather than a comprehensive fool-proof history." Furthermore, she warns the reader in the foreword to the second volume of her "choice of emphasis," and one can do no more than to wish that she had continued the more balanced narrative sweep of volume one through to the completion of her work and that she had made the detailed course of race relations the subject of a separate book, for the style of the two-volume history has suffered from this particular preoccupation. The pace of volume two is in skips and stops, and the perspective is that of a telescope constantly shifted from end to end.

So much for what it should have been, or might have been; for what it is we can still be grateful. Books about Washington have very seldom risen above the level of a collection of political and social anecdotes, and the general histories of the capital, barring a very few, have been simply rewritings of earlier works, contributing nothing new other than illustrations of the same scenes by different hands. Mrs Green writes with a great deal of perception, and has sifted through a contradictory mass of facts to arrange them and analyze them objectively within the

bounds she has chosen. The very unevenness of the story reflects the alternating discouraging and encouraging progress of the capital as a model of American social democracy. Criticism and praise fall alternately on both sides of Washington's color front, and the smallest skirmishes in that important struggle are minutely described, while other persons and events in Washington's history pass unnoticed or with only the briefest mention. The course of planning in the city, however, from the turn of the century onward, is one other phase of Washington's history that receives its share of attention. One chapter, "The City Beautiful," is as lucid, interesting and informative as anything that has been written on the subject. Brief as it is, this account of the work of the Park Commission, in launching the McMillan Plan of 1901, should make us realize anew both the power of imaginative proposals for constructive change, and the determined effort that is required to sustain them through to even a partial achievement of their objectives.

The choice of illustrations is not up to the excellent standard of the earlier book, but they are free from the errors that marred those in the first volume—errors worth mentioning here because they have some architectural significance. The portrait of the "Planner of the city, Major Pierre Charles L'Enfant" (Volume I, plate 2) is a pastel sketch of his father, Pierre L'Enfant (1704-1787), a French court painter, by Charles Parocel.\* Again, in volume one, plate 30 is described as follows: "The arched roofed building on the right is the drydock designed by the versatile Benjamin Latrobe." The arched building illustrated is a traditionally framed wooden covered ways, or ship slip. The great masonry drydock designed by Latrobe at Jefferson's request in 1802 was never constructed.\*\* The editors of the latest volume should have caught the reference to "The Birth of a Nation" as "the offensive DeMille film." DeMille may have produced some offensively bad films in his career, but never one so "offensively" controversial as the famous D. W. Griffith epic.

All things considered, "Washington, Village and Capital, 1800-1878" and "Washington, Capital City, 1879-1950" are an admirable pair of volumes, whose great merits far overshadow their minor faults. Everyone interested in the growth of American cities as well as those interested in their capital city will find much to learn from this account of the growth of Washington and its changing population. Mrs Green's second volume will probably prove to be more important and more influential than if it had been written from a more distant historical perspective, for the challenge today is our continued responsibility to work unselfishly in the creation of a more beautiful city, whose pleasures and opportunities are to be shared by all.

\* Caemmerer, "Life of Pierre Charles L'Enfant," pp 7-8 \*\* Hamlin, "Benjamin Henry Latrobe," pp 257-258, pl 21; Peck, Taylor, "Roundshot to Rockets, a History of the Washington Navy Yard," p 18, 19; Richards, J. M., "The Functional Tradition in Early Industrial Buildings," pp 57-73



**Buildings, Projects, Structures, 1953-1963.** Pier Luigi Nervi. New York, Frederick A. Praeger, 1963. 167 pp illus 9" x 11" \$15.00

Since this is a review of a book and not a critical essay on the architecture of Pier Luigi Nervi, about all one is allowed to do is describe the book as an effective photographic essay. The photographs are beautiful, and attention is given to the process of construction as well as to details of it. The photographs are accompanied by brief descriptive comments. The volume is concerned with the last ten years of Nervi's works. Most of the completed projects have been photographed previously and have appeared in architectural journals. The advantage here, of course, is in the unity of presentation.

The three-and-one-half page essay by Nervi which introduces the book is a criticism of architectural education and an exaltation of architecture as the fusion of mathematics and poetry. It is a superb short statement of Nervi's philosophy of architecture.

In addition to Nervi's essay there are 157 pages of illustrations beginning with the Pirelli Building in Milan and concluding with the projections for several works such as the bus passenger facility at the George Washington Bridge and a paper mill in Mantua.

The photographs of the details provide interesting insights into Nervi's "vocabulary of architectural speech." It is the increase in the scale of building and the necessary change of technique to meet new architectural scale, however, that stand out in the visual presentation of Nervi's approach to architecture. This is a book of interest to any architect.

M. E. O.

**Chinese Architecture.** Andrew Boyd, ARIBA. Chicago University of Chicago Press, 1962. 310 pp illus 6½" x 7½" \$7.50

An ambitious summary (with the subtitle ". . . and town planning 1500 BC-AD 1911") which comes off extremely well. A fifteen-page historical background is followed by chapters on structure, city planning, house and garden, religious buildings and engineering works. Concise references, chronology, index and a clear small map make it a useful reference in itself.

One reason for the fairly modest price of this book lies in the relegation of nearly 150 photographs to glossary pages in the back. Shifting back and forth for illustrations of the text is never quite satisfactory and the reproductions of the photos themselves are occasionally rather poor—but the text is knowledgeable and concise and the illustrations adequate if not exciting.

**World Architecture—An Illustrated History.** Introduction by H. R. Hitchcock; text by Seton Lloyd, David Talbot Rice, Norbert Lynton, Andrew Boyd, Andrew Carden, Philip Rawson, John Jacobus. New York, McGraw-Hill Book Co, 1963. 348 pp 10" x 13¼" \$17.95

Gorgeous "art books" are the rage now, and it is amazing to see the beautiful color reproductions

so handsomely presented and bound. The public *must* buy them, for they are too expensive to produce for the publishers to rely only on the connoisseurs. This reviewer calls them "coffee-table books," in the trade they are known as "furniture."

This, however, is far more than a coffee-table book, although it is that too. It is a remarkable collection of photographs and plans, usually four to six on a page, with fifty-seven fine full-page color plates. Accompanying them is a text written by seven scholars, covering each period of our Western historical styles—including "modern"—and sections on Chinese, Japanese, Indian and Islamic architecture. It is very thorough in its coverage, and surprisingly detailed in its discussion of examples in the text as well as in the photographs—which are beautifully reproduced.

One might almost call this book a modern Fletcher—a Fletcher based upon photographs, a highly readable Fletcher. That is meant as high praise—for Fletcher is still invaluable as a reference book, although perhaps outdated here and there in a few matters of scholarship. But this is a valuable reference book too, for practically everything is in it; and it will also serve as an introduction to the oriental styles of which so many Americans, architects included, are ignorant.

There are 1026 fine illustrations, each with a sometimes lengthy descriptive caption. This reviewer's only criticism of this otherwise almost incredible book, is that many of the captions seem to be loosely and even incorrectly written—not written, obviously, by the same scholars who wrote the text. It is misleading to see Vitruvius referred to as a "Roman general," and annoying to read on page 70 that the height of the dome of the Pantheon is seventy-one feet and on page 168 that it is 143 feet. There may be more such blunders—it was possible for reviewing purposes to read only two or three hundred captions. There are eight hundred more!

This handsome tome (and it is just that) should not only be on every coffee-table, but on every architect's shelves. It should do much to inform the public on our pet topic, and it can inform plenty of architects, too.

J.W.

#### **In the Magazines:**

In the November-December 1963 issue of the *Harvard Business Review* is an article entitled "Opportunity and Threat in Technological Change," by James R. Bright, which is strongly recommended to the profession by Herbert H. Swinburne FAIA as required reading.

The December 1963 issue of *Soil Conservation*, published by the Soil Conservation Service of the US Department of Agriculture, is a special issue devoted entirely to the use of soil surveys in urban planning and developing. Eight articles show the uses of and great value to planners of the soil surveys obtainable through the Soil Conservation Service. The magazine is fifteen cents a copy, \$1.50 a year, obtainable from the Superintendent of Documents, Government Printing Office, Washington, DC, 20402.



# CPM and the Architect

HERBERT BERMAN, PE

*"CPM is the first major breakthrough in project management in twenty-five years." The old progress schedule is outdated—it never did work anyway. CPM and computers will help you prepare a job progress schedule which will work for all trades—and which can readily be adjusted if a calamity occurs like twenty-four inches of snow and below-zero weather.*

*Mr Berman is an expert in the field of the Critical-Path Method. He was formerly Vice President of Mauchly Associates Inc, in charge of all management consulting work using CPM, on projects ranging from \$60,000 to \$150 million. He is now a partner in the firm of CPM Engineers.*

CPM IS THE FIRST MAJOR BREAKTHROUGH in project management in twenty-five years. The construction industry has recognized the Critical-Path Method as the most effective means for planning, scheduling and controlling construction projects. Project completion times are being reduced 10% to 20% due to the use of CPM. Some architects are presently incorporating the required use of CPM as a part of the General Conditions of the Contract.

For years management has recognized the serious limitations of the Gantt Chart or Bar Chart as a scheduling device. These traditional methods:

- Do not show the interrelationships among jobs
- Cannot define which jobs are genuinely critical
- Cannot show the entire plan of the project
- Cannot be readily modified when unexpected problems occur
- Cannot indicate a corrective course of action when delays, changes or other problems arise
- Are over-simplifications or are detailed in some areas and sketchy in others
- Are generally developed on a time base alone; the variables, available personnel and budgeted funds, cannot be evaluated easily.

Organizations using CPM have counted among its advantages:

- Helps avoid sharp peaks and valleys in manpower usage curves
- Saves time and money through efficient use of resources—men, equipment, financing and material
- Gives a clear, three-dimensional (time, personnel, cost) picture of the project that is readily understood

- Makes possible the rescheduling of a project, or a portion of a project, to meet changes or other unpredictable situations
- Brings about true management-by-exception. The CPM reporting system and the arrow diagram requires that management need be advised and asked for a decision only when something goes wrong with the project
- Results in true control of projects previously considered too large, too complex or too unwieldy to control effectively
- Provides management with up-to-date, scientifically derived data on which to base decisions and plans for minimizing costs, maximizing return on the investment of time, money and manpower.

*In short it is a dynamic system that can move with the project and at all times reflect the current state of affairs.*

CPM has been field-tested on many diverse applications; a representative listing to date: the design and construction of a modern hospital, of a large power plant; construction of an elementary, junior high and high school, of a multi-story apartment building and of a luxury hotel; validating claims for lost construction time and extra work; a study for improving city planning; the complete cash-flow projection for a long-term urban redevelopment project.

The architect will gain a deeper understanding of this management system by a review of the basic principles, by discussing the use of computers in CPM, by examining the design and construction of a demonstration project and noting the place of the CPM consultant in the design and construction phases.

## How CPM Works—Basic Principles

CPM terms and basic principles of application are standardized. Thus, a firm having offices in New York and Los Angeles can freely interchange their CPM-based information, since it is as informative to the recipient as to the person who prepared it. Occasionally, some people do try to adapt what they consider to be improvements to the basic techniques; for instance, the concept of drawing arrow diagrams to scale. Firms attempting to do this found that the high drafting cost required to prepare and maintain such a chart was out of all proportion to the advantages that this technique seemed to offer. This should not be construed to mean that CPM now supplies everything in the way of information. Improvements in computer techniques and new computational methods, such as the resource allocation technique (RPSM), have been developed in the past two years and have greatly increased the effectiveness of this method. However, the basic mechanics of CPM remain unchanged, and these must be clearly understood if one is to understand and use CPM.

These can best be conveyed by illustrations on a simple project, a small school for instance: The architect's scope of work is limited to the development of schematics. Later, the scope of work will be expanded.

The project is first broken down into the various jobs of which it is comprised. A three-dimensional



chart is then drawn (fig 1) showing the sequence in which these jobs must be done, the degree of their interdependence, and the extent to which they can be performed in parallel. Starting with the first operation—*Meet with Owner and Develop Scope*—draw an arrow to represent it. When this is completed the two other jobs can be completed in parallel: *Work out Owner-Architect Agreement, Select Engineering Consultant*. To proceed, one thought process is followed completely through, until the network representing the project is completed. *When completed, the network or arrow diagram must represent the scope of work and the ordered process for carrying out the work.*

Based on the best estimates available, units of time are then associated with each job (fig 2). The same unit of time must be used throughout. Then the tail and head of each arrow is numbered; each job must have a unique number. This is required for clarity and in case computer processing of the data is to be used.

The project time boundaries must now be represented (fig 3). Starting with time 0 the first job 0-1, *Meet with Owner and Develop Scope*, takes 5 days. The earliest time that this job can be complete is 0 plus 5 equals 5. The next job, job 1-2, *Work out Owner-Architect Agreement*, starts when the first job is complete. This job also takes 5 days, and therefore, cannot be completed until time 10. Proceed through the entire network calculating the earliest event times

(the theoretical point in time when one or more jobs end and one or more jobs start). In this project, the last event can occur at day 61. This is very significant since only one answer can be arrived at for a given set of conditions.

Having determined how *early* the events can occur, next determine how *late* the events can occur staying within the 61-day project duration. Reverse the process and subtract the time that each job requires from the preceding event time (fig 3). With the end time of 61, subtract the time for performance of the last job, *Draw Schematics*, 25 days, and arrive at the latest event time of 36. Continue this process until back at the project start.

Referring to figure 4, it will be noted that there are a number of events having the same earliest and latest time. These events are on the critical path and all jobs with one exception (6-8) connecting these events are critical and have been drawn in extra weight lines to so indicate. Thus, through the project there is a critical path of jobs whose duration total the highest elapsed time. The jobs add up to 61 days total. No other series of jobs exceeds this total. *In order to shorten the over-all project duration, the time of performance for one or more of the critical jobs must be reduced.*

In this illustration there are 12 jobs, 7 being critical. On actual projects the number of critical jobs runs between 2% to 10%. The larger the project the fewer the critical jobs as a percentage of the

FIGURE NO. 1

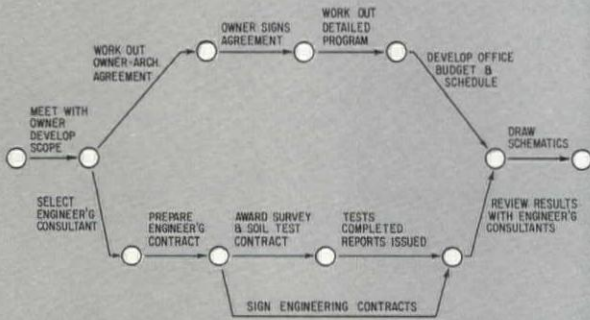


FIGURE NO. 3

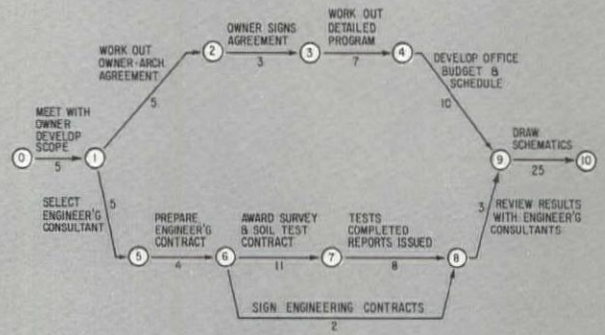


FIGURE NO. 2

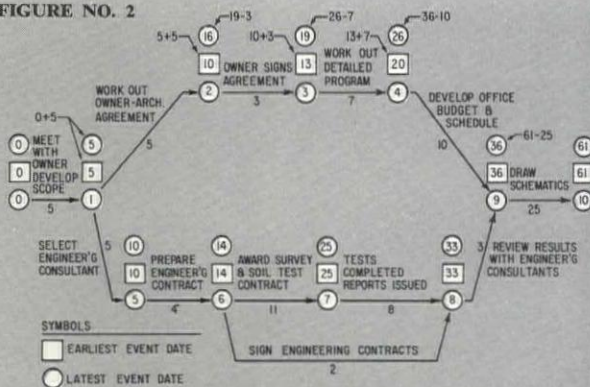
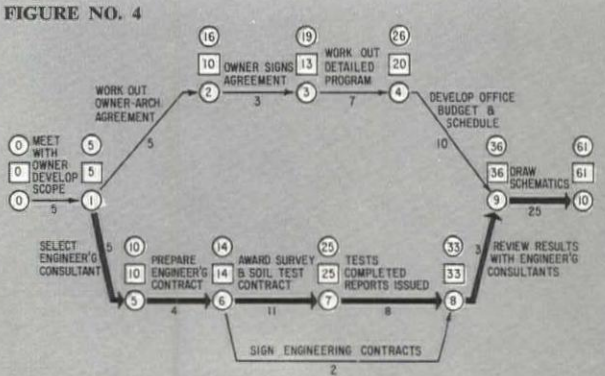


FIGURE NO. 4





total number. Thus 90% to 98% of the jobs on any project have free time or float, ie, they have more time available for their performance than they require. This free time or float is used to optimize manpower, budgeted funds or equipment depending upon where the float is and how much exists. Total float represents the total amount of excess time available to all of the jobs in a series. An example of total float is shown by the job 6-8, *Sign Engineering Contracts*. It can start as early as the 14th day, and doesn't have to be completed until the 33rd day or 19 available days. The job requires only 2 days, therefore there are 17 days of total float available. How this float is used to optimize manpower is illustrated further on in the article.

### The Use of Computers in CPM

The illustrative project cited above was calculated manually. However, actual projects generally require arrow diagrams of 500 or more jobs or arrows, and the calculation becomes tedious and the potential for errors high. CPM computer programs reduce this tedium and chance for error. Other advantages are:

- Quick conversion of the arrow diagram from project days to calendar dates by beginning with the start date and omitting specified holidays and weekends
- Changes to the plan and schedule can be evaluated rapidly, and new schedules can be computed in a relatively short time
- The schedule information can be sorted in a number of different formats: schedules for each department; schedule of shop drawings; chronological schedule; schedule by criticality of the job.

To illustrate, refer again to the above project. Figure 2 represents the entire input required. For each job the following information is required: the job number, the job description, the duration of the job. The computer results are shown on figure 5. The schedule is listed by the job number. (The listing could also have been done by the criticality of the job, ie, those jobs that are critical could have been listed first and the remaining jobs listed by the amount of float time available to them. This format has proven to be ideal when one is reviewing the project duration and those jobs directly affecting the over-all solution.) The complete network as shown on figure 2 and the computed solution as shown on figure 5 represent the plan for performing this project. If management agrees to the 61-day duration, the network and computed solution become the schedule.

### A Demonstration Project

In planning, scheduling and controlling a project, the architect approaches his services from two different vantage points: 1) As the owner's representative, he considers the owner's needs for completion of the project at the earliest possible time and at best *over-all* cost. 2) As the design agency, he considers the most expeditious means for completing all of his work within his fee.

In support of these two general concerns the architect can use CPM to: 1) Effectively plan, schedule and control the time available for the project

from its inception through occupancy. 2) Plan, schedule and control his services, making the most effective use of time and manpower.

To demonstrate, assume that the architect has been selected to design a school. First, he develops a master project plan and schedule, to include all of the significant design stages, administrative stages, the pre-construction and construction features (fig 6). This provides a master timetable for everyone to work against.

FIGURE NO. 5

Job Number	Duration	Job Description	Early Start	Late Finish	Total Float
0- 1	5	Meet with Owner Develop Scope	12-02-63	12-09-63	*
1- 2	5	Work out Owner Arch Agreement	12-09-63	12-24-63	6
1- 5	5	Select Engineering Consultants	12-09-63	12-16-63	*
2- 3	3	Owner Signs Agreement	12-16-63	12-30-63	6
3- 4	7	Work Put Detailed Program	12-19-63	1-09-64	6
4- 9	10	Develop Office Budget & Schdl	12-31-63	1-23-64	6
5- 6	4	Prepare Engineering Contract	12-16-63	12-20-63	*
6- 7	11	Awd Survey & Soil Test Contr	12-20-63	1-08-64	*
6- 8	2	Sign Engineering Contracts	12-20-63	1-20-64	17
7- 8	8	Test Completed Reports Issued	1-08-64	1-20-64	*
8- 9	3	Review Results Engr Consts	1-20-64	1-23-64	*
9-10	25	Draw Schematics	1-23-64	2-27-64	*

### PROJECT COMPLETION 61

To date, this initial approach has not been widely accepted. It is often remarked that "We don't know enough about the work" or "Let's wait until things firm up." However, a plan and schedule should *always* be available prior to work-commencing. This is a good schedule's greatest value—namely, supplying direction.

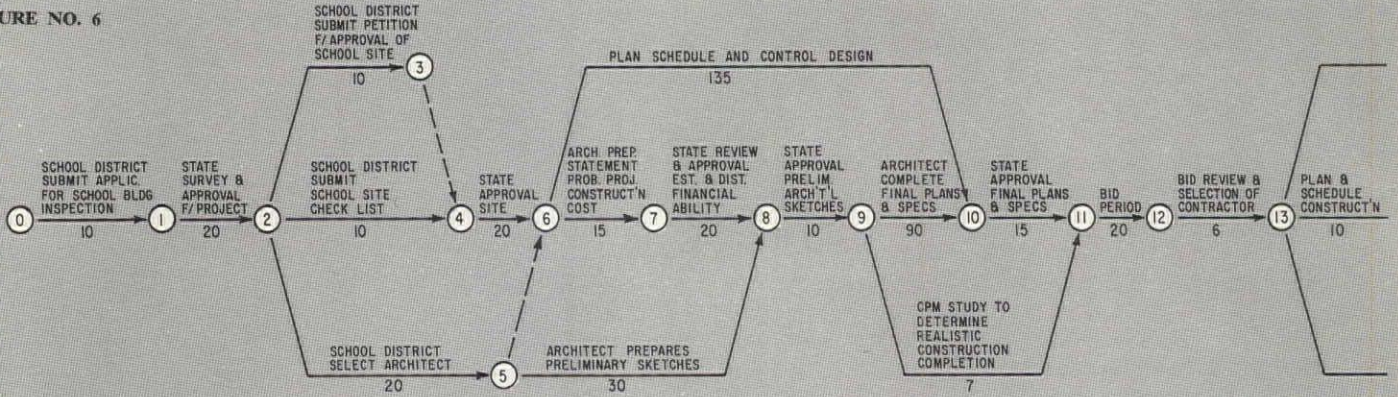
With traditional methods there was some foundation for fears that once a schedule was established, the project was stuck with it. However, CPM can rapidly analyze the current position and evaluate how best to realize established objectives. Developing and maintaining an over-all plan and schedule in a current condition as depicted in figure 6 can be of great value in the owner-architect relationship. Thus, changes made during design are done with a full understanding of the effects upon other jobs and the project duration.

Figure 7 is the computed solution for the project as diagrammed in figure 6. This computation was done in project days since it would not yet be known if it will be a satisfactory solution. The time boundaries are thus established:

Project start	day	0
Design completion		
(after state approval)	day	210
Construction starts	day	236
Construction completes	day	343



FIGURE NO. 6



The network as shown was abstracted from actual design and construction networks, but the information was greatly condensed for this presentation. To analyze a complete project adequately, the number of jobs would be closer to 500 than the 40 or so jobs shown

FIGURE NO. 7

Job Number	Job Description	Early Start	Late Finish	Total Float
0.	1 10			10 *
1.	2 20		10	30 *
2.	3 10	30	40	*
2.	4 10	30	40	*
2.	5 20	30	60	10
3.	4 0	40	40	*
4.	6 20	40	60	*
5.	6 0	50	60	10
5.	8 30	50	95	15
6.	7 15	60	75	*
6.	10 135	60	195	*
7.	8 20	75	95	*
8.	9 10	95	105	*
9.	10 90	105	195	*
9.	11 7	105	210	98
10.	11 15	195	210	*
11.	12 20	210	230	*
12.	13 6	230	236	*
13.	14 10	236	246	*
13.	15 20	236	261	5
13.	18 30	236	276	10
14.	15 15	246	261	*
15.	16 5	261	266	*
16.	17 10	266	276	*
16.	19 5	266	281	10
17.	18 0	276	276	*
17.	20 15	276	303	12
18.	19 5	276	281	*
19.	21 7	281	288	*
20.	22 0	291	303	12
20.	23 0	291	318	27
21.	22 15	288	303	*
21.	23 0	288	318	30
22.	24 10	303	313	*
23.	26 5	291	323	27
24.	25 10	313	323	*
25.	27 15	323	338	*
26.	27 15	296	338	27
27.	28 5	338	343	*
<b>Project Completion</b>		<b>343</b>		

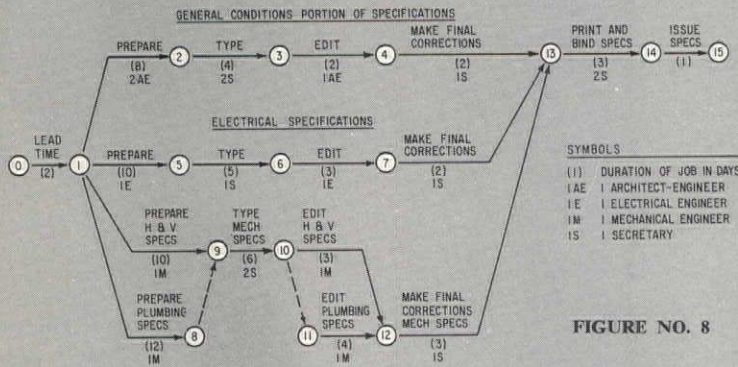


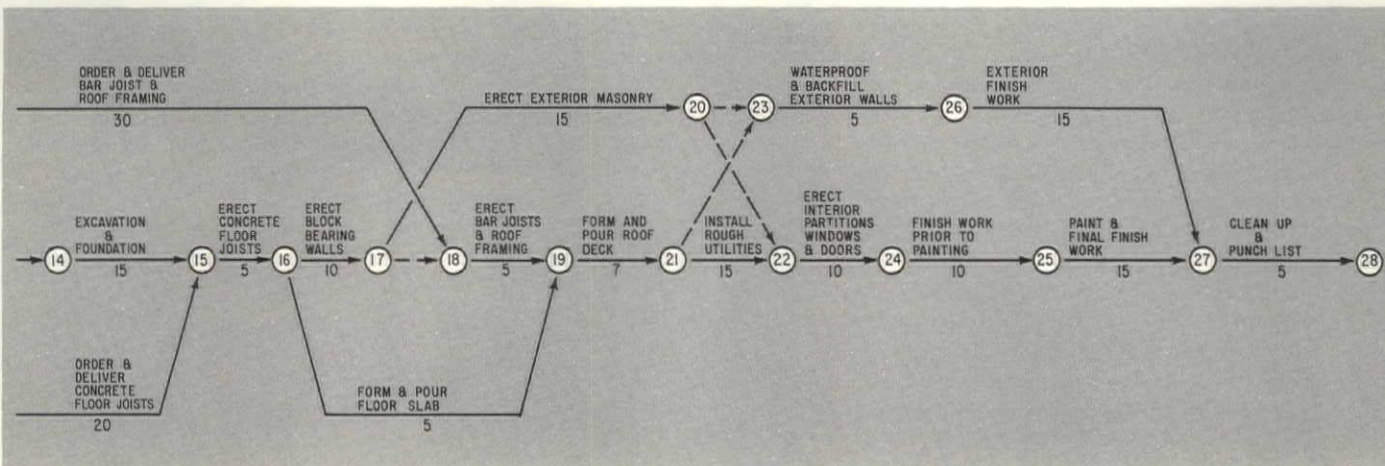
FIGURE NO. 8

FIGURE NO. 9

Job Number	Duration	Job Description	Early Start	Late Finish	Total Float
0-1	2	Lead Time	12-02-63	12-04-63	*
1-2	8	Prepare Genl Con Portion Spec	12-04-63	12-30-63	9
1-5	10	Prepare Electrical Specs	12-04-63	12-26-63	5
1-9	10	Prepare H & V Specs	12-04-63	12-20-63	2
1-8	12	Prepare Plumbing Specs	12-04-63	12-20-63	*
2-3	4	Type Genl Cond Portion Specs	12-16-63	1-06-64	9
3-4	2	Edit	12-20-63	1-08-64	9
4-13	2	Make Final Crtns To Genl Conds	12-24-63	1-10-64	9
5-6	5	Type Electrical Specs	12-18-63	1-03-74	5
6-7	3	Edit	12-26-63	1-08-64	5
7-13	2	Make Final Crtns to Elect Spec	12-31-63	1-10-64	5
8-9	0	Dummy	12-20-63	12-20-63	*
9-10	6	Type Mech Specs	12-20-63	12-31-63	*
10-12	3	Edit H V Specs	12-31-63	1-07-64	*
11-12	4	Edit Plumbing Specs	12-31-63	1-07-64	*
10-11	0	Dummy	12-31-63	12-31-63	*
12-13	3	Final Crtns H & V & Plbg Specs	1-07-64	1-10-64	*
13-14	3	Print & Bind Specs	1-10-64	1-15-64	*
14-15	1	Issue Specs	1-15-64	1-16-64	*

PROJECT COMPLETION 31





An example of a critical job is job 6-7, *Architect Prepares Statement of Probable Project Construction Cost*. It is to start on project day 60 and complete on project day 75. Any delay in this job will push the entire schedule out beyond the established completion time of 343 days.

Since the architect has to consider the most *expeditious* means for completing all of his work within his fee and within the time available to him, he must examine each element of his services, i.e., schematics, design development, working drawings, specifications, bid documents, contract forms, construction administration, etc., in terms of time, personnel and available funds, and schedule them accordingly.

To illustrate such an examination and schedule of a particular element of service, a demonstration project, *The Preparation of Specifications* (fig 8 through 12), representing only a portion of the total project shown in figures 6 and 7 is discussed below.

The architect's or project managers's aim in planning this project may be summarized:

- To represent graphically the existence of a job and the ordered sequence in which the jobs have to be performed. (This allows for review by other interested groups and tends to clarify the scope of the intent of the manager in pursuing the work)
- To establish a medium for estimating the time and manpower necessary for carrying out each job (A review of the estimates by interested groups should be possible without the need for extensive research)
- To have available, based on the scope of work, the sequential arrangement of jobs and the estimate of resources, the alternative solutions weighing the project duration versus varying numbers of men.

The following steps were taken in planning *The Preparation of Specifications*:

- 1) Develop the arrow diagram. See figure 8.

2) Estimate time duration and manpower requirements for each job. (Figure 8, now commonly referred to as the arrow diagram or network, represents the computer input information required for computation as specified in steps 3 and 4 below.)

3) Compute a project plan considering time only (see fig 9). The project start date was arbitrarily set at December 2, 1963. The computer converted the project days to calendar dates based on a 5-day week with no work on legal holidays. The project can be completed in 31 days. Starting on December 2, 1963, we can complete on January 16, 1964. (A project plan is represented by the arrow diagram and a computed solution indicating the project duration, the scheduled start and scheduled completion of each job, and the manpower requirements, by skill for each project day. See figures 10 and 11.)

4) Compute a project plan as outlined in step 3 but place a limit thereon based on a maximum work force of 2 architects, 1 mechanical engineer, 1 electrical engineer, 3 secretaries.

The author has taken some liberties in presenting the material in figures 10 and 11. The information actually generated by the computer is a schedule and manpower usage table for each solution individually. In order to present the information in a concise manner the two solutions were compared side-by-side as depicted in figures 10 and 11.

One of the objectives in using CPM is to be able to consider alternatives; CPM does not make decisions. Here then, management is offered two solutions:

Project	Duration	No of Archts	No of Elec Eng	No of Mech Eng	No of Sec'y's
Case #1	31 days	2	1	1	3
Case #2	44 days	2	1	2	4

There is a 13-day difference in the schedules due largely to the need for 2 mechanical engineers instead of 1. This illustrates that a schedule developed



FIGURE NO. 10

Job Number	Duration	Description	Case #1*		Case #2**	
			Scheduled Start Day	Scheduled Completion Day	Scheduled Start Day	Scheduled Completion Day
- 1	2	Lead Time	12-03-63	12-04-63	12-03-63	12-04-63
1- 2	8	Prepare Genl Cond Portion Spe	12-05-63	12-16-63	12-05-63	12-16-63
1- 5	10	Prepare Electrical Specs	12-05-63	12-18-63	12-05-63	12-18-63
1- 8	12	Prepare Plumbing Specs	12-05-63	12-20-63	12-05-63	12-20-63
1- 9	10	Prepare H & V Specs	12-05-63	12-18-63	12-23-63	1-07-64
2- 3	4	Type Genl Cond Portion Specs	12-17-63	12-20-63	12-17-63	12-20-63
3- 4	2	Edit	12-23-63	12-24-63	12-23-63	12-24-63
4-13	2	Make Final Crtns to Genl Cond	12-26-63	12-27-63	12-26-63	12-27-63
5- 6	5	Type Electrical Specs	12-19-63	12-26-63	12-19-63	12-26-63
6- 7	3	Edit	12-27-63	12-31-63	12-27-63	12-31-63
7-13	2	Make Final Crtns to Elect Spe	1-02-64	1-03-64	1-02-64	1-03-64
8- 9	0	Dummy	12-23-63	12-20-63	12-23-63	12-20-63
9-10	6	Type Mech Specs	12-23-63	12-31-63	1-08-64	1-15-64
10-11	0	Dummy	1-02-64	12-31-63	1-16-64	1-15-64
10-12	3	Edit H & V Specs	1-02-64	1-06-64	1-22-64	1-24-64
11-12	4	Edit Plumbing Specs	1-02-64	1-07-64	1-16-64	1-21-64
12-13	3	Final Crtns H & V Plbg Specs	1-08-64	1-10-64	1-27-64	1-29-64
13-14	3	Print & Bind Specs	1-13-64	1-15-64	1-30-64	2-03-64
14-15	1	Issue Specs	1-16-64	1-16-64	2-04-64	2-04-64

\* Schedule based on having unlimited manpower 31 working days  
 \*\* Schedule based on having only 7 persons available 44 working days

on a *time base alone* may not be a realistic one when considering the personnel required to carry out the schedule. The architect selects either case 1 or case 2, depending upon the time available to him for completing the design. It should be noted that in a demonstration project dealing with so few resources, a small change is magnified; in actual projects small changes are not as dramatic.

This type of analysis, known as Resource Planning Scheduling Method (RPSM\*), is an analysis of a project made by weighing varying project durations based on the availability of resources, ie, manpower, equipment or budget funds. Since the duration of a project varies with the resources applied in completing the work, and since the architect relies upon a more-or-less fixed staff of key management-design personnel and a drafting group which can be expanded within reasonable limits, time permitting, it is necessary that he develop his schedule taking into account his available manpower resources. The architect wants to *complete his work in the minimum of elapsed time while at the same time, making the best use of his manpower.* These objectives are quite often diametrically opposed to each other. The demonstration project, *The Preparation of Specifications* (fig 9), and the computed solutions (fig 10 and 11) are an illustration.

It can then be seen that a schedule which is developed to complete the project in the minimum over-all time will require a maximum size workforce with sharp peaks and valleys in manpower loading. Or, conversely, a schedule which is developed to make the best use of the available workforce eliminating any sharp peaks and valleys in manpower loading can only be accomplished at the expense of the project time required to perform the work. These

\* RPSM is a specific program developed jointly by Mauchly Associates and the Detroit Edison Co for the IBM 1620 computer. There are similar programs for other computers which produce the same type of information.

FIGURE NO. 11

Project Day	Unlimited Case Personnel Required				Limited Case Personnel Required			
	Arch Eng.	Elect Eng.	Mech Eng.	Secretarial	Arch Eng.	Elect Eng.	Mech Eng.	Secretarial
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	2	1	2	0	2	1	1	0
4	2	1	2	0	2	1	1	
5	2	1	2	0	2	1	1	
6	2	1	2	0	2	1	1	
7	2	1	2	0	2	1	1	
8	2	1	2	0	2	1	1	
9	2	1	2	0	2	1	1	
10	2	1	2	0	2	1	1	0
11	0	1	2	2	1	1	1	2
12	0	1	2	2	1	1	1	2
13	0	0	1	3			1	3
14	0	0	1	3			1	3
15	1	0	0	3	1	0	1	1
16	1	0	0	3	1	0	1	1
17	0	0	0	4	0	0	1	2
18	0	1	0	3	0	1	1	1
19	0	1	0	2	0	1	1	0
20	0	1	0	2	0	1	1	0
21	0	0	2	1	0	0	1	1
22	0	0	2	1	0	0	1	1
23	0	0	2	0	0	0	1	0
24	0	0	1	0	0	0	1	0
25				1	0	0	0	2
26				1				2
27				1				2
28				2				2
29				2				2
30				2				2
31								1
32								1
33								1
34								1
35								1
36								1
37								1
38								1
39								1
40								1
41								2
42								2
43								2
44								0

statements are brought into clear focus for the first time by the use of CPM and the computational extension to the basic method known as RPSM. CPM alone is basically an information system. With CPM plus RPSM the architect is furnished with a "family of schedules" and the day-by-day or week-by-week requirement of personnel required to carry out each schedule. He can select the schedule that more nearly fits the design schedule imposed upon him by the owner and the project's requirements, thereby making the most effective use of his personnel.

The RPSM computation assumes the use of electronic computers. When introducing the concept of RPSM in training programs, participants are asked to calculate manually a schedule based on an arrow diagram of only 11 arrows and only two different



**FIGURE 12**

Table of Relative Computer Costs  
(Abstracted from a report made for the City of Philadelphia Planning Commission)

*Normal Time Calc.		
Computer	Computing Time	Cost
IBM 650	900 jobs—3/4 hr.	\$ 60
IBM 1620	1000 jobs—1/3 hr.	\$ 33
IBM 1401	900 jobs—1/4 hr.	\$ 20
GE 225	1000 jobs—1/6 hr.	\$ 20
IBM 704	500 jobs—1/6 hr.	\$ 35
IBM 7090	1000 jobs—1/10 hr.	\$ 50
Univac 1	1000 jobs—1/2 hr.	\$ 60
*RPSM Calculations (Resource Planning Scheduling Method)		
IBM 650	1000 jobs—1 hr.	\$100
IBM 1620	1000 jobs—1 1/4 hr.	\$125
IBM 7090	1500 jobs—1/5 hr.	\$100

\* These figures represent the initial computation time and cost for one style of job listing. Additional formats as mentioned in the section "The Use of Computers in CPM" will increase the costs as stated herein.

manpower skills are considered with the available manpower in each skill indicated. After one or two hours of studying various combinations of job sequences some solutions are developed. As actual design projects usually exceed 500 arrows and the number of design skills generally exceed 12, the architect would be completely exasperated with the trial-and-error process required to develop such a schedule, and would find it most uneconomical to attempt to compute a number of different schedules. Computer programs will perform all of the required calculations given the information required, ie: the job number, the job description, the duration of the job, the resources required for the job. Essentially, this is all of the information depicted on the arrow diagram, *The Preparation of Specifications* (fig 9). The architect is then furnished a spectrum of schedules showing the resultant effect upon the overall time for project completion caused by varying the amount of manpower that can be made available. The relative cost of making such calculations on readily available computers is shown in figure 12.

To this point, a good job of planning and scheduling the project has been done. However, all projects change in scope due to delays and design changes. The plan and schedule must be maintained in a current condition to continue furnishing the information required for decision making. A formal reporting and control procedure must be available to do this.

## Review

We have discussed the basic principles of CPM and reviewed its function in planning, scheduling and controlling the specification phase only of a theoretical project. It may be well to step back a bit and view the project as an entity.

### 1) Master Project Plan and Schedule

This master project plan and schedule will include all of the administrative activities, design phases, and the construction activities to occupancy, and will

evaluate project time versus the costs of acceleration and income to be derived from early or timely completion.

### 2) CPM Specifications

This all-inclusive specification will spell out how CPM will be used during the design phase and the bid and construction phase of the project.

### 3) Review Meetings

Throughout the project, review of the schedule should be maintained on a regular monthly basis. Continuous review of the project master plan to consider alternatives to the original plan is required to maintain the most profitable schedule. This review allows the owner and architect to make realistic decisions based upon trading off time versus cost.

### 4) Plan and Schedule the Design Phase

This will include the development of a detailed arrow diagram outlining all of the design activities, assigning to each a time and manpower estimate. If cost control is to be utilized a dollar estimate would also be assigned. Computations are then made weighing available project time against available or required manpower. The design planning phase is complete when the project duration and manpower usage is acceptable to the owner and architect. This becomes the design schedule.

### 5) Control of the Design Phase

An orientation seminar for all design personnel, covering the project reporting and control features of CPM, will be required. Based on an agreed reporting cycle (every week or every other week), the architect will determine the project status. The effects of all changes and delays will be calculated. The computer results are analyzed and reported to the architect by the responsible consultant.

### 6) Preliminary Construction Schedule

When the design phase has progressed to the point where a clear picture of the construction project is available, an arrow diagram and schedule covering the construction phase of the project is developed. This may later form a part of the request for bid sent to each prospective contractor. The schedule as developed is intended to show *one* way of completing the project in a given time. The contractor *does not* and *is not* obligated to follow the sequence as shown. It is clearly stated in the specification that the method and sequence of work is the contractor's responsibility.

The following has been abstracted from the General Conditions section of a typical specification:

The consulting firm of \_\_\_\_\_, hereinafter referred to as the Consultant, has been retained by \_\_\_\_\_, hereinafter referred to as the Owner, to develop a preliminary construction schedule, using the Critical-Path Method.

The Architect will work with the Consultant and furnish him with all drawings and information that he may require.

The Consultant has developed an Arrow Diagram of approximately 500 activity arrows. These activities represent the salient construction phases and include, but are not limited to, shop drawings, procurement activities and construction processes. The arrows are arranged to represent the logical



sequence of construction. Each arrow is assigned a time estimate in project days. The Consultant has also developed a computed solution showing: 1) the project duration; 2) the earliest and latest times when each job can start and finish; 3) the amount of total float available for each job.

The Arrow Diagram drawing No \_\_\_\_\_ and the Computed Solution, drawing No \_\_\_\_\_, are included in this section of the Specification.

The Project Completion has been established as \_\_\_\_\_. The Arrow Diagram and Computer Solution represent *one* feasible way of completing this project by the specified date. The contractor is not required to follow the sequence of work established in the referenced Arrow Diagram. The timely completion of the project and the construction methods used are the responsibility of the contractor. Unless the contractor can show due cause in his bid for extending the date specified all bids must be based on this established completion date.

No claims will be allowed for extra compensation on the part of the contractor for overtime or additional personnel or equipment in maintaining this completion date.

The contractor may elect to offer an alternative scheduled completion more suitable to himself. The owner using the original CPM schedule can make an accurate decision to accept, reject or negotiate the contractor's proposal. Thus the responsibility for completion will be established and a plan and schedule will be available immediately.

#### 7) *Pre-bid Construction Conference*

This session chaired by the architect and CPM consultant will answer any questions that the bidders might have on the Critical-Path Method as covered in the specifications.

#### 8) *CPM Orientation Seminar for Successful Bidder*

When the contractor is selected, it is desirable to conduct an orientation seminar for the contractor to acquaint him with the specific details of CPM as it will be used to schedule, report and control the project.

#### 9) *Plan and Schedule the Construction Phase*

This report provides a narrative review of the project, detailing the recommended plan and schedule and indicating areas critical to over-all completion of the project.

a) Develop with the *assistance of the contractor's* personnel an arrow diagram or plan of the project covering all phases of the work. The contractor will provide the time estimates.

b) Prepare all necessary computer input data including data sheet preparation and punched cards.

c) Computer-analyze the entire project for a scheduled completion date.

d) Prepare a formal project report with construction arrow diagram and computer output data.

#### 10) *Project Reporting and Control*

Once each month the effects of all changes and delays to the project should be computed. All contrac-

tors, the architect and the owner then participate in a project-status review meeting.

### **The Consultant**

CPM is a new concept and it must be recognized as such. To realize its possible benefits requires use and experience. Retaining a CPM consultant enables the architect to put the consultant's experience to immediate use on his project. The owner often retains the consultant. If this be done it is mandatory that the architect be an integral part of this decision. The retaining of experienced consultants to implement CPM has a number of advantages:

- Owner and architect avoid many pitfalls in the process of learning how to apply CPM
- The consultant can be completely objective in his analysis of the project problems. Since he has no direct design or construction responsibility he transcends the day-to-day job problems
- There may be times when it is difficult for the architect to get decisions from the owner. The CPM consultant can clearly show the owner the effect of a late decision.

The consulting firm may be retained to utilize CPM in performing the following work:

- Develop a plan and schedule for the design work, considering time and available design personnel
- Develop a plan and schedule for renovation work or new construction considering time and available maintenance and construction capabilities in the community
- When the design phase was sufficiently advanced, to develop a realistic construction schedule and specification outlining the role of the consultant and CPM during the renovation or construction
- To participate in the pre-bid conference and answer questions relating to the CPM function
- Upon the notice to the contractor to proceed, to work with the prime contractors and plan and schedule the construction
- Maintain all schedules in current condition for the duration of the work.

CPM is recognized as a superior planning and scheduling tool. Many architects are seriously considering its role, but it has become increasingly clear that simply specifying that "CPM is to be used to plan and schedule the construction" is not the answer. The arrow diagram is not only a tool to replace the bar chart schedule but is a complete information system to control time and manpower, and budgeted funds as well. As such it should be utilized throughout the project from schematics to final completion.

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# ARBITRATION OF DISPUTES—I

*Arising from Architectural, Engineering and Construction Contracts*

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ATTORNEYS REPRESENTING ARCHITECTS, contractors, engineers and other members of the building industry had little reason to be interested in arbitration laws until the introduction of Article 40 in the standard form AIA agreement No A-201 entitled: "The General Conditions of the Contract for the Construction of Buildings." This Article states:

All disputes, claims or questions subject to arbitration under this contract shall be submitted to arbitration in accordance with the provisions, then obtaining, of the Standard Form of Arbitration Procedure of The American Institute of Architects, and this agreement shall be specifically enforceable under the prevailing arbitration law, and judgment upon the award rendered may be entered in the court of the forum, state or Federal, having jurisdiction. It is mutually agreed that the decision of arbitrators shall be a condition precedent to any right of legal action that either party may have against the other.

The standard form of arbitration procedure referred to above is contained in AIA document No M-201. Sec 1 therein says:

A party intending to arbitrate any dispute, claim or question subject to arbitration under any of the Standard Documents of The American Institute of Architects shall make a demand therefor in writing upon the other party or parties, which demand shall state accurately and concisely the matter in controversy and shall designate whether the arbitration shall be administered in accordance with the Standard Form of Arbitration Procedure of The American Institute of Architects or with the Rules of the American Arbitration Association.

It is immediately apparent that the initiating party has the choice of commencing arbitration with the procedures of The American Institute of Architects or with the rules of the American Arbitration Association.

In order to properly utilize the above-mentioned arbitration procedures, it is necessary for the attorney to have knowledge of the appropriate arbitration law in his state, the arbitration procedures of the AIA and AAA, and the advantages of arbitration in construction disputes. The purpose of this paper is to discuss the above considerations for the benefit of attorneys representing clients who are parties to an AIA contract.

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Adapted from an address delivered at a meeting held in Miami Beach in May, of lawyers from all parts of the country who are interested in arbitration as it affects architects, engineers and the construction industry.

Arbitration agreements today are recognized by statute in all but four states. However, the extent to which these agreements are enforceable differs widely. It will be convenient, therefore, for purposes of comparison, to divide the states into three groups.

The breakdown will be based upon those states which have by statute or judicial law changed the common law rule of revocability which permitted either party to an arbitration agreement to terminate it at his will at any time prior to the rendition of an award. At this point it is important to note that even at common law, arbitration itself was not considered revocable, but only the agreement to arbitrate a dispute which might arise in the future. In cases of existing disputes, however, an arbitration agreement, if made a rule of the court, became irrevocable and enforceable by court order. Furthermore, the agreement to submit future disputes to arbitration was not void but merely unenforceable in the courts. Some confusion has been caused by text-writers' statements that agreements to arbitrate future disputes are void. All such agreements are valid in the sense that it is permissible to enter into such agreements. The only problem that remains is one of enforceability.

The first group of states to be discussed are those in which there is specific authority by statute or judicial ruling holding an arbitration clause in a commercial contract to be valid, irrevocable and enforceable. The first twenty states listed below have statutes which conform to or embody the principal features of what I shall hereinafter refer to as a "modern arbitration law."

In addition there are cases from Colorado and Nevada which have judicially declared that agreements to arbitrate future disputes are valid and enforceable without the aid of any enabling statutes. The Supreme Court of Colorado held in 1925 that a contract requiring the arbitration of future controversies arising thereunder is binding upon the parties thereto. *Ezell v Rocky Mountain Bean & Elev. Co*, 76 Colo. 409, 232 Pac. 680 (1925). The decision states that the only material difference between statutory arbitration and the common law procedure is that under the latter, suit must be brought upon the award in order to enforce it, whereas an award under statutory arbitration has the benefit of summary procedures.

Nevada has a statute similar to the early Uniform Arbitration Act of 1925 which provided that agreements to arbitrate existing controversies were valid, irrevocable and enforceable. This early Uniform Act had no provision for agreements to arbitrate future controversies. In 1960, however, the Supreme Court of this state upheld a contract requiring arbitration of future controversies. In an unprecedented decision the court discarded the common law concept



of arbitration which treats agreements to submit future disputes to arbitration as revocable at the will of either party prior to the award. The decision would be unique if only because it is the first time a state court has declined to follow the common law doctrine on revocability without enabling legislation making future arbitration clauses valid, irrevocable and enforceable. In justifying its result the court said, "We should be greatly at fault if we felt that our hands were tied by a common law rule enunciated 350 years ago, of doubtful jurisdiction even then and of confused and uncertain interpretation ever since." *United Ass'n of Journeymen Union v Stine*, 76 Nev. 189, 351 P. 2d 965 (1960).

In the District of Columbia the Federal Arbitration Act applies so that this may be considered another jurisdiction applying modern arbitration proceedings. Title 9, US Code Sections 1-14.

The twenty-three jurisdictions in Group I are shown below with brief reference to applicable statutes and court decisions:

#### Group I

- 1) Ariz. Rev. Stat. Ann. Section 12-1501
- 2) Cal. Civ. Proc. Code Section 1280
- 3) Conn. Gen. Stat. Rev. Section 52-408
- 4) Fla. Stat. Section 47.11
- 5) Rev. Laws of Hawaii 1955, Chapter 188, Section 188-1
- 6) Ill. Ann. Stats., Chapter 10, Sections 101-123
- 7) La. Rev. Stat. Ann. Section 9:4201
- 8) Mass. Ann. Laws Chapter 251, Section 1
- 9) Mich. Stat. Ann. Section 27-2483
- 10) Minn. Stat. Ann. Section 572.08
- 11) N.H. Rev. Stat. Ann. 542.1
- 12) N.J. Rev. Stat. Section 2A-24-1
- 13) N.Y. Civ. Prac. Act. Article 84, Section 1448  
(To be replaced by new Article 75, Sections 7501-7514 of the CPLR, effective Sept. 1, 1963)
- 14) Ohio Rev. Code Ann. Section 2711.01
- 15) Ore. O.R.S. Title 3, Chapter 33, Section 33,210
- 16) Pa. Stat. Ann. Title 5, Section 161
- 17) R.I. Gen. Laws Ann. Section 28-9-1
- 18) Wash. Rev. Code Ann. Section 704. 010
- 19) Wis. Stat. Ann. Section 298.01
- 20) Wyo. Stat. Ann. Section 1-1048
- 21) District of Columbia, United States Code, Title 9, Section 1-2
- 22) Colorado, Rule 109 Rules of Civil Proc., Colorado Revised Statute, *Ezell v Rocky Mountain Bean & Elevator Company*, 76 Colo. 409, 232 P. 680
- 23) Nevada, Title 3, Chapter 38, Nevada Revised Statutes, *United Association of Journeymen, etc v Stine*, 76 Nev. 189, 351 P. 2d 965

The following twenty-four states have statutes which provide essentially that agreements to arbitrate existing controversies are valid.

The statutes in these states make no express provision with respect to contracts calling for arbitration of future controversies arising thereunder, such as in the AIA form documents. In two states, Texas and Utah, such agreements have been held to be against public policy or invalid as ousting the courts of

jurisdiction. Other courts upheld awards made under such contracts when the arbitration proceedings had been carried to conclusion, while most courts which have considered this point apply the common law rule that such agreements are revocable at any time prior to rendition of the award. Another interesting feature is found in Delaware, Maryland and Arkansas where statutory arbitration procedure is limited to actions pending in court. Nevertheless in these three states other agreements to arbitrate both existing and future controversies have been recognized as valid although revocable at any time prior to the award. The following list of states will indicate the many variations in the statutes of the states in Group II.

#### Group II

1) Alabama—Code of Alabama, 1958. Title 7, Civil Remedies & Procedure, Chapter 19, Section 829 et seq. Agreements valid to arbitrate existing disputes; and future disputes as to amount only.

2) Arkansas—Volume 3, Arkansas Statutes 1947 annotated, Title 34, Chapter 5, Sections 34-501 to 34-510. Parties may submit all controversies which might be the subject of a suit, for arbitration by rule of court having jurisdiction of the subject matter. However, the provisions of this statute do not repeal the common law and parties are not prohibited from submitting controversies to arbitration without intervention of a court. *Collins & Karatopsky*, Ark. 316; *Harris v Hanie*, 37 Ark., 348.

3) Delaware—In any action, upon agreement of the parties, a rule of court may be had referring the controversy to "three indifferent referees." This provision extends to amicable actions as well. Delaware Code Annotated. Title 10, Part IV, Chapter 57, Sections 5701 to 5706. Although the statute does not describe authority for agreements to arbitrate future controversies, the policy of Delaware is not opposed to such agreements. They are revocable, but the party revoking may be held liable for damages. Where revocation was found to be unjustified and onerous to the adversary it was held that the agreement might be pleaded as a bar to suit in *Vitaphone Corporation v Electrical Research Products*, 19 Del. Ch. 247, 166 A. 255 (1933), affirmed 19 Del. Ch. 354, 167 A. 345, reversed 20 Del. Ch. 417, 171 A. 738.

4) Georgia—Title 7-101-Common Law Arbitration. Title 7-201-Statutory Arbitration—existing disputes only.

5) Idaho—Civil Procedure—Title 7, Chapter 9, Section 7-901 to 7-910. (C. C. P. 1881). Authorizes agreement in writing to submit to arbitration (excepting title to real property) and if stipulated that the agreement be entered as order of district court then contract is irrevocable and award may be enforced like a judgment. If not entered as a court order, the agreement is revocable, but a party who revokes may be liable for costs and damages sustained in preparing for and attending arbitration.

6) Indiana—Burns, Indiana statutes annotated, Volume 2, Part 2, Chapter 2, Section 3-201 to 3-226 provides that persons competent to sue may by written agreement submit to arbitration any existing controversies except title to real estate.



7) Iowa—Chapter 679, Sections 679-1 to 679-18 cover existing disputes.

8) Kansas—Chapter 5, Article 2, Sections 5-201 to 5-213 of General Statutes of Kansas, 1949, sanction agreements to arbitrate existing controversies. Court decisions indicate contracts which require arbitration of future disputes are not illegal.

9) Kentucky—Existing controversies may by agreement be submitted to arbitration. Sections 417.010-417.040. Contracts not valid as to future controversies, *Catliff Coal Company v Cox* 142 F.2d 876.

10) Maine—Chapter 121, Sections 1-5. Reference of Disputes of Consent of Parties, Section 1. Effect limited to existing controversies since agreement of submission must describe the subject matter and name the arbitrators. Award is invalid as to matters not included in this submission. *Wyman v Hammond*, 55 Me. 534; *Stanwood v Mitchell*, 59 Me. 121.

11) Maryland—The statute authorizes reference to arbitration of any cause of action in a pending suit by consent of the parties and by a rule of the court. Article 75, Sections 16 to 21, Annotated Code of Maryland. Where the parties have voluntarily agreed to submit to arbitration a controversy not in suit, or controversies arising in the future it has been held that the award, in the absence of fraud, is binding and conclusive on the parties, *Continental Milling Company v Doughnut Corporation*, 186 Md. 669, 48 A. 2d 447; *Pumphrey v Pumphrey*, 172 Md. 323, 191 A. 235.

12) Mississippi—Title 3, Chapter 1. Section 279 validates arbitration of existing controversies. Either party may revoke an agreement to arbitrate future disputes, *McClendon v Shutt*, 115 S. 2d 740, 237 Miss. 703.

13) Missouri—22 Vernon's Annotated Statutes, Section 335.020 authorizes written agreement to arbitrate an existing controversy with agreement for judgment on the award. Section 435.010 provides such agreement does not bar a suit by any party. Section 435.259 makes the revoking party liable for costs, expenses, damages including attorney fees in preparing for arbitration. Agreement is not revocable after submission upon a hearing.

14) Montana—Title 93, Chapter 201. Covers existing controversies only.

15) Nebraska—Chapter 25, Section 25-2103 et seq covers arbitration of existing controversies. Contracts requiring arbitration of future disputes or as condition precedent to suit are not enforceable. *Phoenix Insurance Company v Zlotky*, 66 Neb. 584, 92 N. W. 736. *Schrandt v Young*, 62 Neb. 254, 86 N. W. 1085. *German American Insurance Company v Etherton*, 25 Neb. 505, 41 N. W. 406.

16) New Mexico—Chapter 22, Article 3, Section 22-3-1 et seq authorize arbitration of existing controversies whether in suit or before suit brought, by an agreement naming the arbitrators, or the parties naming one each who shall select an umpire.

17) North Carolina—Article 1-544 covers existing controversies. Contract as to future disputes is unenforceable, *Skinner v Gaither Corporation*, 234 N. C. 385, 67 S. E. 2d 267 (1951). Common law

rules not abrogated by this statute, *Andrews v Jordan*, (1934) 205 N. C. 618, 172 S. E. 319.

18) North Dakota—Chapter 32.29 Arbitration. Section 32.29.01 et seq authorize arbitration of existing controversies. But see Title 32, Judicial Remedies, Section 32-04-12 providing that an agreement to submit a controversy to arbitration may not be the subject of an action for specific enforcement.

19) South Carolina—Any persons may by agreement submit the settlement of differences to arbitration upon each party giving bond in double the amount involved to abide the result of the arbitration. Chapter 22, Section 10-1901, code of laws South Carolina 1952.

20) Tennessee—Title 23, Chapter 5, Section 23, 501 et seq authorize arbitration of existing controversies whether or not in suit, except certain causes relating to real estate and cases of incompetent persons. As to future controversies contract was not void as ousting courts of jurisdiction where it provided that arbitration should be held under the statute. *R. Lee Tolley Company v Marr* (1931) 12 Tenn. App. 505. Held contrary to public policy when contract precludes an appeal from the award. *Harmon v Komisar* (1932) 15 Tenn. App. 405.

21) Texas—Title 10, Article 225 et seq. Existing controversies may be submitted to arbitration by agreement describing the dispute, and when over \$200 filed with Justice of Peace who fixes time limit for arbitration. When not held under the statute may be valid as common law arbitration. *Texas Development Company v McGough Brothers* (1948), 165 F. 2d 276, 167 F. 2d 268. Agreement to arbitrate future disputes is against public policy. *Huntington Corporation v Inwood*, 348 S. W. 2d 442.

22) Utah—Judicial Code, Chapter 31, Section 78-31-1 covers agreements to arbitrate existing controversies. Contracts to arbitrate future disputes held invalid as ousting courts of jurisdiction in *Johnson v Brinkerhoff*, (1936) 89 Utah 530, 57 P. 2d 1132, *Giannopoulos v Pappas*, (1932) 80 Utah 442, 15 P. 2d 353. *Latter v Holsum Bread Company*, 108 Utah 364, 160 P 2d 421 (1945).

23) Virginia—Code of Virginia 1952, Chapter 22, Section 8-503. Parties may submit a controversy to arbitration and agree that submission be entered of record in court. Upon proof of the agreement out of court, or by consent of parties given in court, it must be entered of record and a rule made that parties submit to the resultant award.

24) West Virginia—Chapter 55. Article 10, Sections 1-7, Official Code of 1931, covers agreements to arbitrate existing controversies. Although a contract to submit future differences to arbitration is not binding, where a contract for future arbitration of controversies has become executed in respect to any pertinent matter of difference between the parties, the award is binding. *Hughes v National Fuel Company*, 121 W. Va. 392, 3 S. E. 2d 621. Statutory procedure is not exclusive, but is supplementary to that already existing at common law. *United Fuel Gas Company v Columbian Fuel Corporation*, 165 F. 2d 746.

In the third category there are four states which have no statutes on commercial arbitration. Alaska



does have an arbitration law which deals only with labor disputes between unions and management.

Despite the lack of an applicable statute, it is probable that these states would apply common law principles of arbitration law. Accordingly, a pending dispute could be submitted to arbitration. In such event a suit could be maintained on the award or the award might be asserted in defense to an action brought by the losing party to the arbitration. The following states comprise this category:

#### Group III

1) Alaska—No commercial arbitration statute. However Chapter 4, Section 54-4-1 contains provisions for arbitration of disputes in employer-employee relations.

2) Oklahoma—Has no arbitration statute. However, agreements to arbitrate future disputes have been judicially declared to be against public policy and invalid, *Boughton v Farmers Insurance Exchange*, 255 P. 2d 517.

3) South Dakota—There is no arbitration statute making either future or existing controversies enforceable. Further, specific performance of an agreement to arbitrate is prohibited by statute, Chapter 37.46, Section 37.4602. However, among the defenses which must be affirmatively pleaded is included "arbitration and award." Section 33.0905.

4) Vermont—For a discussion of the arbitration law of this state, see *Bernhardt v Polygraphic Co. of America*, 350 U. S. 198 (1956).

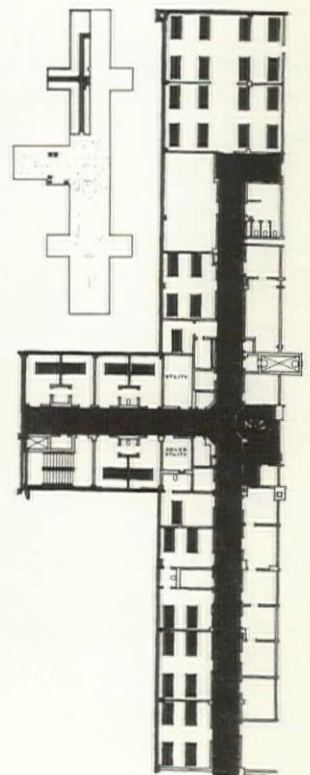
#### Summary

Whether the arbitration clause contained in the standard form AIA documents is capable of specific enforcement is normally dependent upon the law of the state where the contract is drawn. This means that these agreements to arbitrate future disputes are enforceable in all the states mentioned in Group I which have overruled the common law hostility toward arbitration by statute or judicial direction.

However, the lack of enforceability of the future controversy does not prevent voluntary submission to arbitration of existing disputes arising under the AIA contract. Indeed, by recommending the use of arbitration the architectural profession has indicated its willingness to arbitrate; the attorney representing an architect even in common law jurisdictions has the option of presenting his claim before an arbitrator or the court. The attorney should do all possible to persuade the other party to the contract to submit to arbitration. Once both parties have participated in the arbitral proceedings which culminate in an award, all states, including those which adhere to the common law view, will, in all probability, enforce the terms of the award.

In the states with modern arbitration statutes, once the award has been rendered, there are relatively few grounds for setting it aside. In general, the only basis for vacating the award stems from some type of fraud or misconduct by the arbitrator. This includes refusal to hear material and pertinent evidence or failure to postpone hearings when sufficient cause is shown, as well as imperfectly executing a final and definite award. (To be completed in March) ■

Jackson, Mississippi



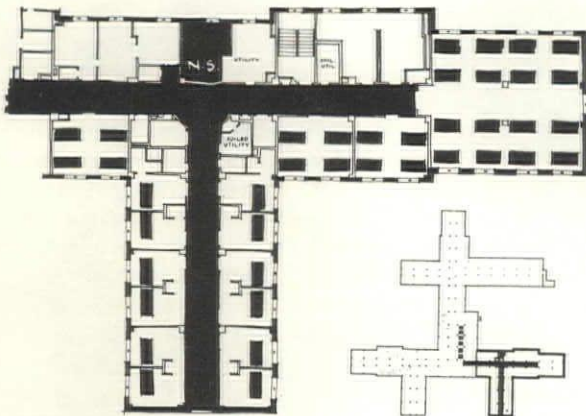


# Design and Construction of VETERANS ADMINISTRATION HOSPITALS

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*(Small plan shows location of nursing unit in nursing floor)*

THE VETERANS ADMINISTRATION is the largest independent agency in the Federal government. It also has a hospital system that is the largest in the world under a single administration. It includes 169 hospitals and 93 out-patient clinics for the care of ill and disabled veterans. The Veterans Administration employs nearly 5000 full-time physicians, which is about 4% of all the doctors in the United States. It is the largest employer of nurses, physical therapists, medical and psychiatric social workers and a number of other professions associated with the medical program.

It is important, at this point, for the reader to recognize that there are certain basic differences between Veterans Administration hospitals and non-VA hospitals. By comparison, most proprietary or voluntary hospitals provide facilities for obstetrics and pediatrics which are not provided for in Veterans Administration hospitals; the average patient stay in such hospitals is six or seven days; the patients are, for the most part, bedfast, and Hill-Burton hospitals run from fewer than 25 beds to 300- or 400-bed hospitals, with a very small portion of these hospitals in the 300-or-more-bed class.

On the other hand, the Veterans Administration hospitals require a greater variety and more extensive facilities for therapy, recreation, dining and laundry than are usually found in a proprietary or voluntary hospital. Some Veterans Administration hospitals also have Regional Offices and Office Clinics. The average patient stay is 29 to 30 days; the hospitals are usually 500 to 1000 beds with some 1200-bed hospitals. A special study of general medical and surgical patients in Veterans Administration hospitals, completed on October 31, 1961, indicated that 41% of the patients were completely ambulatory, 21% had limited ambulation, 13% were wheelchair patients, 12% were partially bedfast, 12% were completely bedfast and on approximately 1% no information was available. The above figures do not include neuropsychiatric patients, the largest percentage of which are ambulatory.

In the field of medical care, the Veterans Administration is as interested in the welfare of its hospital staff as it is in that of its patients. Just as a kitchen can be a blessing or a curse to a housewife, depending on the efficiency of its planning, so a hospital can be a blessing or an affliction to its staff or its patients.

Simply repeating what has been done in the past is not the policy of the Veterans Administration architects. The compelling consideration in the construction program is that of providing a design that would permit the best possible patient care, and, at the same time, keep costs within reasonable limits. In the meanwhile, the practice of medicine is becoming more complicated and costs of construction are constantly rising. This might be compared with the problem of tub bathing of which Professor James Fitch of Columbia University spoke in his book, "American Building." He said, "This is an attempt at becoming progressively clean in water which is becoming progressively dirty." In spite of this antithesis, the Veterans Administration is daily giving



**Table 1**

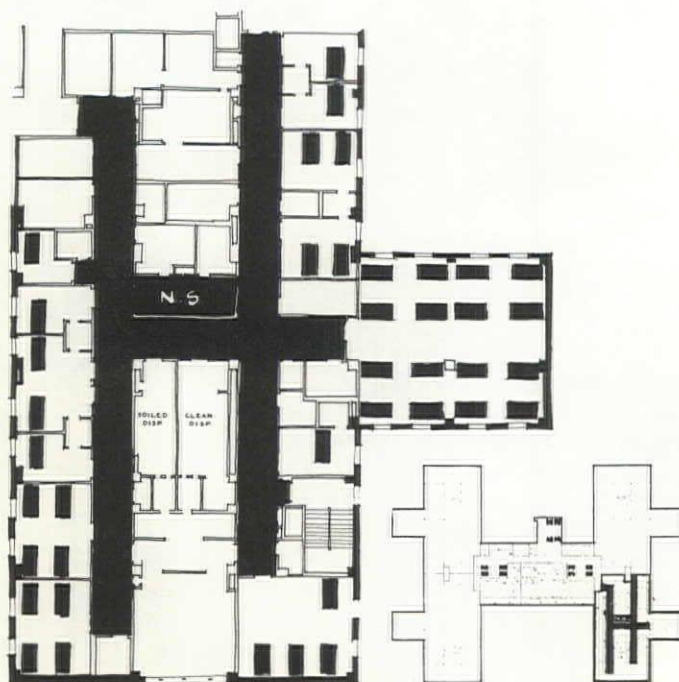
Hospitals	(1) No of hospitals studied	(2) Average sq ft per bed	(3) Aver cost per sq ft	(4) Aver sq ft cost projected to Jan 1960
Hill-Burton	63	662	\$23.31	\$28.28
Privately Financed	39	714	\$24.83	\$27.88
VA GM&S	7	760	\$20.96	\$26.97
VA Neuropsychiatric	5	819	\$24.12	\$28.62

**Table 2**

	St Louis Mo	Jackson Miss	Wood Wis	Atlanta Ga <sup>1</sup>	Miami Fla <sup>2</sup>	Gainesville Fla	Temple Tex	Circular Hosp "A"	Circular Hosp "B"
gross sq ft of floor space per bed	253	288	306	352	280	278	241	280	248
linear ft of exterior wall per bed	12.8	10.4	12.0	10.5	10.8	11.3	7.5	11.0	6.4
distance from nursing station to farthest bdrm	98	118	67	109	101	117	84	26	80
average distance from nursing sta to bdrms	65	58	45	58	52.6	42.5	39.4	18	240
distance from utility to farthest bdrm	90	121	75	150	142	248	122	169	126
average distance from utility to bdrms	56	62	45	65	71.5	139	85	137	99
distance from nursing station to utility rms	22	25	9	44	27	109	37	119	57
distance from passenger elevator to nursing station	115	199	84	30	66.5	115	22	86	28
linear ft of corridor within nursing unit	201	258	212	558	233	258	229	199	223

<sup>1</sup> 64 beds per nursing unit. <sup>2</sup> 62 beds per nursing unit, (other projects, 40 beds per nursing unit)

*Wood, Wisconsin*



better care to more sick and disabled veterans than at any time in its history.

In his statement to the Congressional Committee for Manpower Utilization in the Federal government, John S. Gleason Jr, the Administrator of Veterans Affairs, said, "Our modern facilities and equipment, our increased and more effective staff, our ability to provide pre- and post-bed care and our gains through research have enabled us to provide for more sick and disabled veterans with no appreciable increase in beds."

The Veterans Administration makes maximum use of the services of private architects and engineers in the design of VA facilities. In addition to providing the best possible care for the veterans, the Veterans Administration is dedicated and committed to keeping the cost of these installations to the very minimum. The size, complexity and intricacies of the Veterans Administration hospital activities present an unusual problem to the hospital designer. This is further complicated by the necessity of designing to extremely close space tolerances; for example, after the net areas are determined, the total net area is then multiplied by a pre-determined conversion factor which establishes the gross area of the hospital. The final design may *not* exceed this pre-determined figure. In addition, the time limit for design is held to an acceptable but minimum time. The Veterans Administration, therefore, in order to meet the established time schedules, prepares and gives to the architect a set of preliminary plans which will satisfy its needs as to proper contiguity of space but does not get involved in what the building will look like or how it will be constructed. This is left to the discretion of the architect and his engineer commissioned to execute the final design. These preliminary drawings represent an "acceptable solution"—one which we know will function properly. The architect and his engineer have the freedom, in fact, they are *encouraged* to exercise their ingenuity and creative ability to find a better solution. Naturally, any major changes must be coordinated with the VA to be sure that the over-all functional picture has not been altered. This association with private architects and engineers has been very rewarding.

One extremely important and interesting fact about the Veterans Administration Construction program is that it has *not* kept pace with the rise in construction costs throughout the nation. Despite the ever-increasing cost of construction, the Veterans Administration hospital, on a national average, has increased in cost at a slower rate than the cost of construction throughout the nation. For example, the building costs as indicated by the *Engineering News-Record* Building Cost Index have increased 76.34% from January 1948 to May 1963; the Boeckh Building Cost Index for the same period indicates an increase of 77.16%. The Veterans Administration hospital construction costs, over the same period of time, have increased 66.33% or 10.83% less than that recorded by Boeckh and 10.01% less than *Engineering News-Record*.

The cost of Veterans Administration hospitals compares very favorably with the cost of privately



financed hospitals and with those constructed from Hill-Burton funds. A survey of construction costs over a ten-year period from 1950 to 1960 was completed by the Veterans Administration in early 1960. This study encompassed data on 63 Hill-Burton hospitals having 100 beds or more, 29 privately-financed hospitals and seven Veterans Administration general medical and surgical hospitals. In order that the costs of all Veterans Administration hospitals constructed since 1950 may be compared, the Veterans Administration neuropsychiatric hospitals constructed within this period were included as a separate item, even though it is recognized that the facilities for neuropsychiatric hospitals are not directly comparable to those of general medical and surgical installations.

Table 1 is a summary comparison of these findings; column 4 of this tabulation lists the average costs shown in column 3 expressed in 1960 dollars.

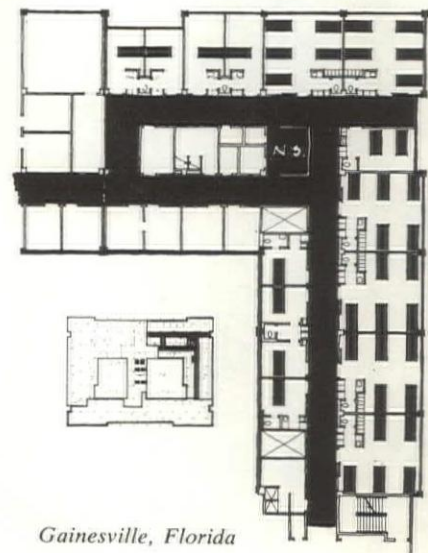
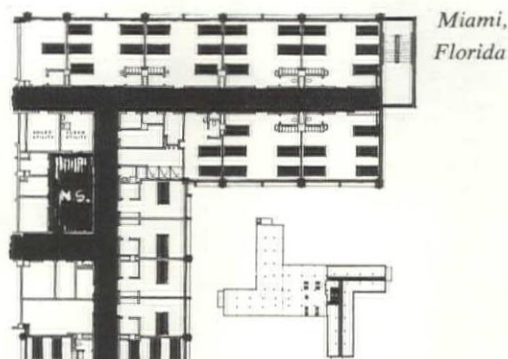
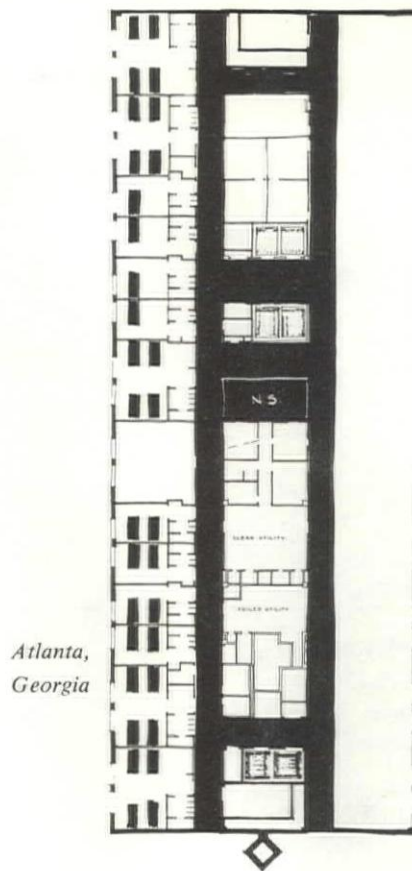
Figures include on-site utilities and fixed equipment. They do not include cost of site (land), off-site utilities or architectural and engineering costs.

In VA's unceasing efforts to reduce the cost of construction as well as improve the quality of medical care through a better relationship of functional areas, the Veterans Administration designers have done intensive research on all areas of the hospital. One of the principal areas is the nursing floor, which has been the subject of intensive research. The patient is the focal point of all activities of the hospital. In the design of the hospitals, the starting point of all planning is at the nursing floor. It has generally been the concept among Veterans Administration hospital planners that the more nursing units on one floor that could be placed about a central vertical core of mechanical facilities, the more productive that facility would be, and the more economical it would be in gross square feet of construction. However, a study of the nursing floors of 11 types of Veterans Administration hospitals revealed the fallacy of this thinking. The results of this study are shown in the accompanying charts.

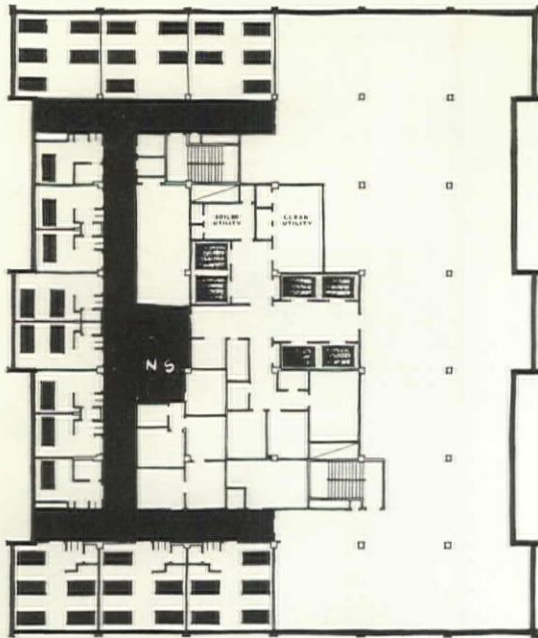
The St Louis, Missouri, hospital was one of a series of 500-bed hospitals similarly built in the early 'fifties. The typical nursing floor contained three nursing units. The characteristics of this typical nursing unit are shown in Table 2.

The Jackson, Mississippi, hospital has four nursing units per floor and was designed with what became known as "back-to-back" nursing units. This placed two nursing units in a single wing of a building. Since each nursing unit in this building is completely autonomous, the fact that the supporting facilities for these units were back-to-back concentrated the mechanical elements. It was estimated that a considerable savings in the cost of construction resulted from this design. However, from an architectural standpoint, this resulted in an increase in the linear feet of corridor within the nursing unit and thus an increase in the gross square feet of floor space per bed.

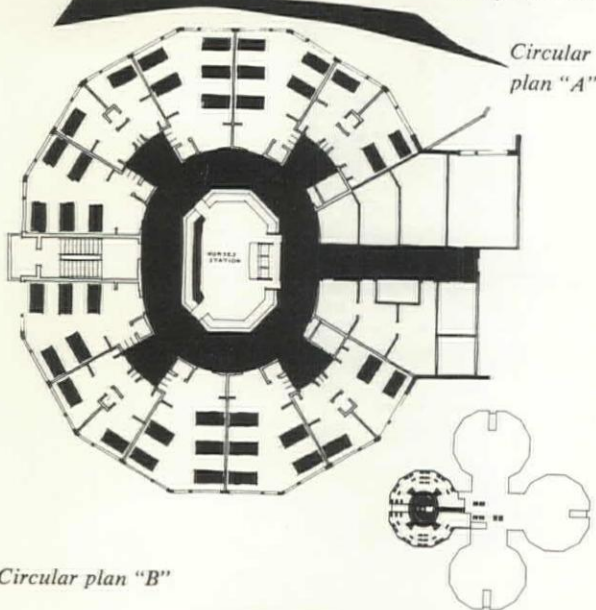
The Wood, Wisconsin, hospital, which consists of four nursing units per floor, is a more compact nursing unit which resulted in shorter distances within the unit; yet it produced an increase in the gross





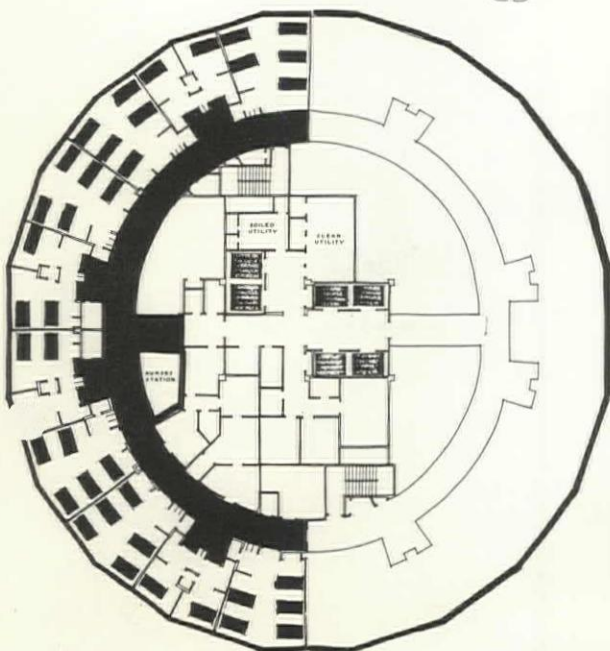


Temple, Texas



Circular plan "A"

Circular plan "B"



square feet of floor space per bed. Part of this increase was due to the automation added in the utilities areas. This was an innovation. It consists of a "tote basket" system of automation for supply items. This system, which was also installed in the Washington, DC, hospital, is probably the largest such electrically automated supply system in the world for hospitals. It consists of almost a mile of horizontal and vertical conveyors which connect every nursing unit with every principal department.

The Atlanta, Georgia, hospital, consisting of two nursing units per floor, was an attempt to reduce costs by simplifying the profile of the nursing tower. At this point the 16-bed wards were eliminated, as well as the general clinics on the nursing floors, and a revised system of servicing the nursing units was installed. Again, while the facilities for the nursing staff were improved, the anticipated reduction in construction cost was not realized, because increasing the linear feet of corridor within the nursing unit resulted in jumping the gross square feet of floor space per bed to 352 square feet.

The Miami, Florida, hospital, with two nursing units per floor, represented a return to the double-loaded corridor. The space-saving here was the result of changing from a 4-bed room to a 5-bed room. This caused a decrease both in the corridor length and the gross square feet of floor space per bed.

The square "doughnut" plan at Gainesville, Florida, with three nursing units per floor, was the result of planning the nursing units as a fluid component which could be increased or decreased in bed count for maximum use and efficiency. For example, any one of the three 40-bed nursing units can easily be increased (while the adjoining unit decreases) without disruption to the nursing floor. While this is advantageous to the nursing staff, it did not greatly help to reduce the gross areas or the cost of construction.

The Temple, Texas, plan consists of only two 40-bed nursing units per floor. This square plan appears to approach more closely the requirements of reducing both the gross square footage and the distance traveled by the staff. A proportionate reduction in cost is anticipated.

The circular hospital A (we are speaking of the "cloverleaf" nursing tower only) has the advantage of placing the nursing station at a point equidistant to the patients but it increases the distance to clean and dirty utilities, which, of necessity, are central to all four 40-bed nursing units. Such a plan requires an area of 300 feet square, thereby causing the lower floors containing the ancillary and supporting facilities to be extremely large. This plan was never used by the Veterans Administration.

Circular plan B, which will be used at Los Angeles, California, is in every respect comparable to the square plant at Temple, Texas, and, from a planning point of view, is in some instances superior to the square plan; however, this circular nursing tower superimposed upon a rectangular base containing ancillary and supporting facilities represents a structural framing problem. VA is as yet uncertain as to the resulting cost but it is believed that it will be comparable to the square plan. ■





URBAN DESIGN:

THE ARCHITECTURE OF TOWNS AND CITIES

EIGHTH IN A SERIES OF ARTICLES

THE PRACTICE OF URBAN DESIGN

## Urban Design for Urban Living

In the extensive literature of city development the preponderance of information is directed towards residence, the consideration of the dwelling place and the residential community. This concern accurately reflects the importance of the dwelling place in our lives, of the family as our basic social institution, of our country's productive system and the fact that the majority of our buildings are dwelling places.

Thus, a discussion of homes and residential communities is confronted at the outset with a profusion of ideas already offered. Although this vast source material can be acknowledged, it would be difficult to enumerate it even briefly. However, this dilemma suggests its own solution. We can consider the whole of our knowledge of the dwelling house and the residential community in the most basic terms and, in so doing, refresh our perspective.

We can approach the problem of residential communities from the point of view of the people who live in them, applying the method of Eliel Saarinen who, during his design process, created in his own mind every sensation which would be experienced by the people who would use his buildings. We can further humanize our approach by remembering Frank Lloyd Wright's disdain for the word "housing" as being too suggestive of "stabling." We can concentrate on the essence of the design problem by recalling Louis Sullivan's advice to "think in simples."

In this, the eighth of our twelve-article series, we offer fundamental considerations for the design of the residential community as part of the general urban fabric in which we all live and grow. Our advisor for this article was Francis D. Lethbridge AIA, whose practice includes a considerable amount of distinguished residential design. Joseph Watterson FAIA edits these papers, which are made possible by the Supplementary Dues of the Institute. The papers are written and illustrated by the Head of the Urban Design Project, Paul D. Spreiregen.

CHARLES A. BLESSING FAIA, AIP, *Chairman, Urban Design Committee*

Committee: Charles A. Blessing FAIA, Chairman, Robert L. Geddes, George N. Hall, Donald H. Lutes, Matthew L. Rockwell, Arch R. Winter, Gordon G. Wittenberg; Corresponding Members—Edmund N. Bacon, Kenneth W. Brooks, Albert Mayer FAIA, Daniel Perry, Archibald C. Rogers, Harry M. Weese FAIA

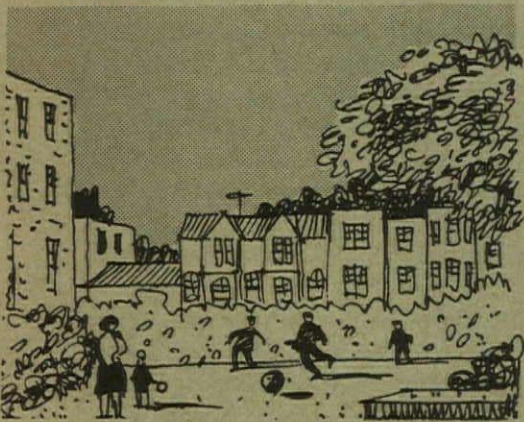


# Urban Design for Urban Living

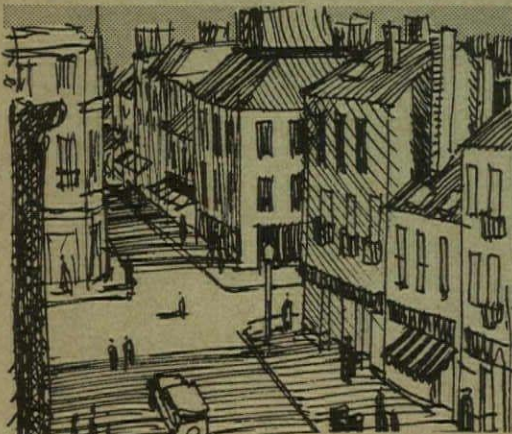
The kinds and variety of residential communities . . .



. . . range from low density to high density



. . . from urban to rural



. . . from new to old

## Formulating Objectives

The basis of judgment of an urban design proposal is how well it accommodates the lives of its inhabitants. In the design of residential communities *accommodation* amounts to *livability*. Where urban design is the design of a community and its facilities, urban design for the residential portions of a community is architecture for every one of us who goes home at night to the center of his family life, the focus of his life in society. How well do we understand the lives of different people in their various neighborhoods and how well do our existing neighborhoods answer our requirements? Indeed, just how varied are our neighborhoods? We can answer this question adequately in rather general terms.

Margaret Mead has written a penetrating sentence concerning the needs of children in their communities, and it is here that we can begin to formulate design objectives for residential communities. Dr Mead wrote: "The infant and the growing child must be surrounded by a community of persons of both sexes and all ages, of sufficient homogeneity so that the child acquires his primary cultural characteristics and depth, through all five senses, and with trust in the reliability of the culture he has learned, and with sufficient experience of the strange and the stranger, the not-known and the later-to-be-known, so that he can move with assurance, transforming his primary learning . . . into other, wider, cultural forms."

As we ponder Dr Mead's statement we see, first of all, that a residential community must be far more than a dormitory for assuring health and safety. Stimulating exposure, exposure that makes children grow into balanced and well-adjusted adults, is a main objective of residential community design. If we examine typical residential communities we see that this objective is not always achieved, let alone recognized. We are too much prey to the attitude that a residential community is a place of insulation from the realities of life rather than a place for their presentation. We feel, too often, that children should be "protected" rather than stimulated. Of course, the confrontation of new and often perplexing experiences requires a base of operations for its absorption—the hustle of the day with one's fellows requires the repose of the evening in one's home. But hustle seems often to be too much regarded as a danger rather than a normal part of the day's events.

The community in which a child grows and develops is very simply a miniature of the world he lives in. To the extent that a child's community reflects the scope of life in the world at large, to that extent will the child grow soundly, as Dr Mead has learned through her research. The scale of this community must be in scale with the child. He must be able to traverse a broad range of its parts on foot or on a bicycle. His daily experiences should include



firsthand contact with the many people, places and activities which constitute a cross-section of modern life.

In this attitude, starting with children, lies the beginning of the formulation of rather clear and basic objectives for the design of a residential community. If, upon the commencement of the design process, we would take the time to imagine the daily life of a child we could draw up a fair list of the facilities we should be designing or, in some cases, relating to our design. That list would be a basic check-list for evaluating the merits of our design concepts as they develop. We could proceed, as Eliel Saarinen demonstrated in his work, to insure that final results of our designs would have overlooked little and that they would be appropriate to their inhabitants.

The formulation of a check-list based on children's lives alone would be, of course, incomplete. Yet it would tell us much. An oft-heard criticism of many of our new suburbs is precisely that they are too much of a child-centered world. A somewhat more accurate statement of that shortcoming is that it is too narrow a world of experience, for both children and adults, alike. The obvious next step is reflection on the lives of all the many types of people in our society who constitute neighborhoods and communities.

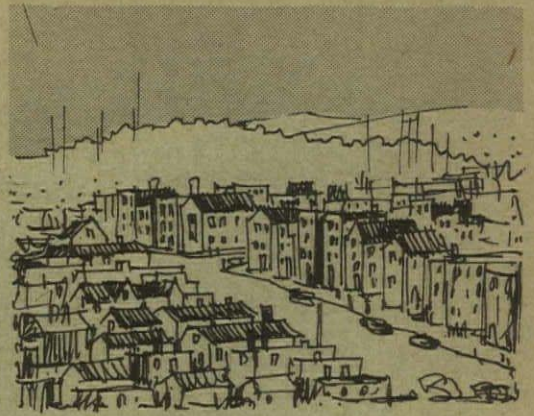
What are the needs of teenagers who live between an extended world of childhood and the world of adults? What check-list would we draw up for college students, or for young adults, on their own in the city? What check-list could we draft for young married couples, for young couples with children, for families in middle life, for grandparents, and for elderly people who find themselves alone? What check-list could we draft for the unattached people who wander from place to place, or for those families who migrate in search of work and better opportunity?

These questions have long been chief concerns of many of our colleagues and answers have been forthcoming according to the urgency of the problems represented. In large-scale undertakings the need to present these answers in more workable form has led to the formulation of standards, usually mathematical ratios which quantify the facilities of a neighborhood. These large-scale undertakings include private development of large tracts, the programs of local and Federal government in community development, the interests of mortgage banks in assuring that developments are sound, and the interests of communities concerned with them.

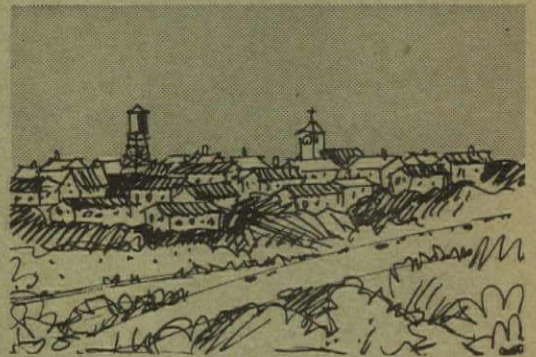
We shall be referring to such standards as we proceed with our discussion. We hesitate to offer all of them. Out of context or digested they can be misleading. But here again the profusion of standards and the complexities of their application suggests a course for us. That is "to think in simples," as Louis Sullivan long ago advised, to think of problems in their very basic terms. In that way standards fall readily into their proper places, as aids to design, and as part of the check system in the concept-development process.

Standards are generally expressed quantitatively, that is, in mathematical terms as, for example, so many square feet of area for a particular purpose per dwelling unit or per family. But standards can also be expressed in quantitative terms, as objectives of design in a community—as for example, the preservation of mature trees or the maintenance of a fine open vista.

We can demonstrate the use of quantitative and qualitative standards together by now embarking on an examination of the residential community, keeping uppermost in our minds the point of view of the inhabitants of the places we examine. We shall first consider residential community *size and density*.



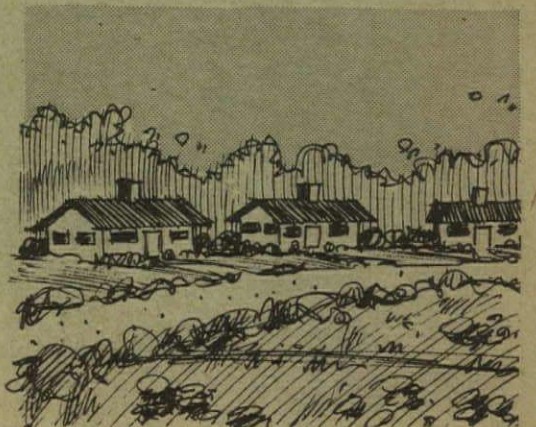
... from elegant to plain



All can be satisfactory and enduring ...

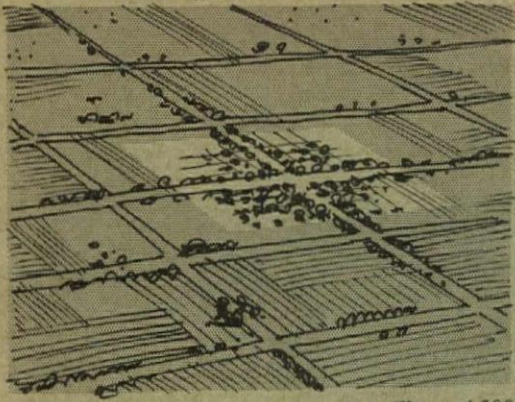


... places to live and grow

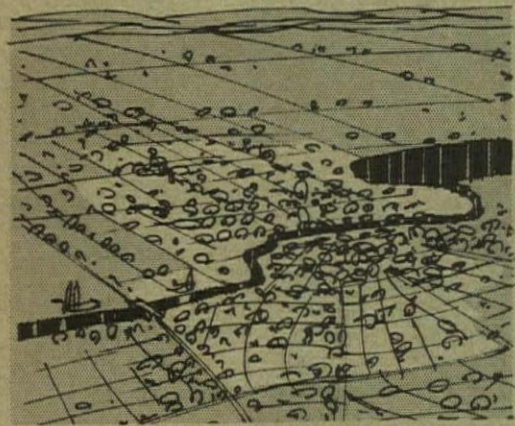


... if well designed in the urban fabric





*A village of 500*



*A town of 5,000*



*A city of 250,000*



*A metropolis of 2,000,000*

## Size and Density

Aristotle noted that ten people are too few to form a city, while 100,000 are too many. So, in ancient times, without radio, telephone and speedy transportation, the upper limit was small (by our standards) yet the range of possible sizes was great. The size of an ancient colonial city, about five thousand, is thought to be about correct for a modern neighborhood. Cities or communities of seventy thousand people can be self-sufficient but the optimum size for a modern city with the desirable cultural facilities and social institutions is held to be about 350,000—the size of Renaissance Florence.

The upper limit of a city's size seems now to be without bounds. The term "megalopolis" is part of our vocabulary. In using it we recognize that even our giant cities are part of a larger city still—the interdependent chain of large cities and small towns, all enveloped in a vast physical development. Only recently have architects begun to grasp this vast agglomeration as the field for design speculation. Architect Kenzo Tange, for example, has analyzed the major cities of the world's industrialized countries and found that characteristically they comprise fifteen per cent of a country's population. Tange's recognition of this phenomenon was the beginning of his creative designs for a rebuilt Tokyo of fifteen million people.

If we seem to be going astray from our consideration of the size of residential communities it is only because the sizes of cities themselves are becoming so vast that their residential components reflect this growth, and thus speculation on optimum sizes is very difficult. In the planning profession it was once thought that residential communities did have an optimum size. This was called the "neighborhood unit," a concept given clear statement by Clarence A. Perry in 1939. Perry described the neighborhood unit in this way: "It should cover both dwellings and their environment, the extent of the latter being—for city planning purposes—that area which embraces all the public facilities and conditions required by the average family for its comfort and proper development within the vicinity of its dwellings . . . the facilities it should contain are apparent after a moment's reflection. They include at least, 1) an elementary school, 2) retail stores and 3) public recreation facilities."\*

Perry's statement was the basis of much residential community planning, real and theoretical, some of it, alas, somewhat too literal. One outcome of his concept was, for example, the determination of how far elementary school children travel to school, followed by calculation of how many families within that radius were needed to supply that number of children. Concurrently an ideal size for the elementary school and appropriate density were calculated. Thus the size of "communities" was determined, based on this number of families, neatly circumscribed by greenery or something other than the continuation of the neighborhood. It was

\* Clarence A. Perry, "Housing for the Machine Age." Russell Sage Foundation, 1939



thought that residential communities could be a series of physical islands. Thus the concept of a neighborhood became a physical limitation rather than a social fact. This was an unfortunate error, for people, no matter how satisfying a residential environment they enjoy, all have their own personal worlds—an individual network of personal places and paths in their cities which extends far beyond their physical “neighborhood.”

Perry's concept is valid insofar as it gives insight into how a community operates within itself. Its proper application lies in planning elementary schools, shopping facilities, churches or social halls within reasonable distance of a large number of people and with some sense of physical cohesion.

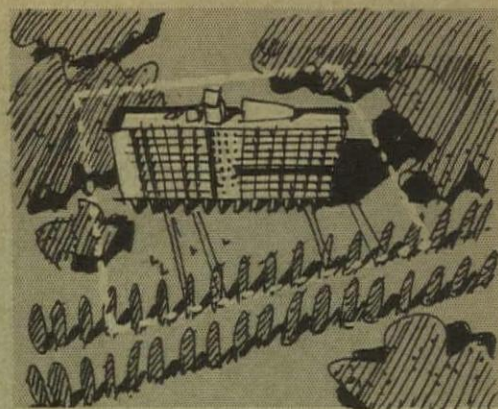
The most sophisticated design interpretation of the concept of the neighborhood unit is Le Corbusier's “Unite d'Habitation” where residence is consolidated in one building with basic neighborhood facilities: stores, relaxation and sport. Unfortunately, far less-known is the small town of Mariemont, Ohio, a satellite suburb of Cincinnati whose plan dates from 1922, the work of John Nolen. This design exhibits the points under discussion perhaps better than any other example.

It is nearly impossible to prescribe an ideal size for a residential community for several reasons. Most neighborhoods are built as large or small development tracts at one time or another. They are completed in whole or in part over a period of time. They come to enjoy the feeling of a “neighborhood” when they possess everyday facilities at convenient locations, when the larger community facilities are accessible to them and when they possess a somewhat elusive quality called identity. The degree of identity is often well indicated by the name of the neighborhood and the degree of registration of this name in the minds of a city's whole population. Identity should never mean isolation, but it should mean clarification. It is a matter of developing identifiable character in neighborhoods and making the whole comprehensible.

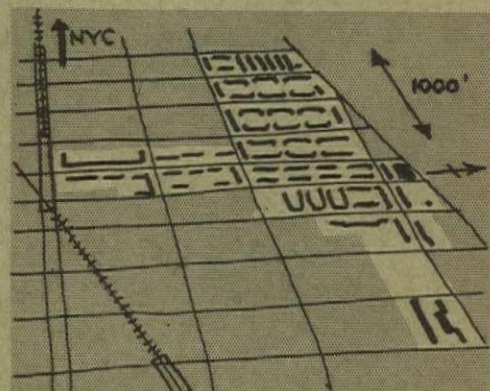
Albert Mayer once remarked that housing developments should blend in with the neighboring city so as to produce an apparent change of character but not a shock. He proposed, in effect, differentiation without division. Other architects, in commenting on public housing design have gone so far as to suggest that “projects” should be abolished as such, that individual buildings should be deployed carefully within the city's fabric.

Studies of a community's size are important because they can tell us the amount and kinds of common facilities which are required for such communities. But size alone does little to tell us how to arrange these facilities. More helpful than considerations of a community's size are considerations of its *density*. Here, too, range is broad.

In rural areas small single houses on acre lots or larger have densities of about two persons per acre. The typical American suburbs, with houses on generous lots, contain about six persons per acre. (Incidentally, sixty per cent of our population prefers this mode of life.) Group housing—two-family houses, row houses, the earlier English New Towns—have densities of sixteen persons to the acre. Crowded city walk-ups of three to four stories have densities of fifty-five persons to the acre. Proper design at this density requires six- or nine-story elevator apartments in order to have sufficient open ground space. This density is the threshold of congestion. Slum densities average 160 persons to the acre, but can vary considerably.



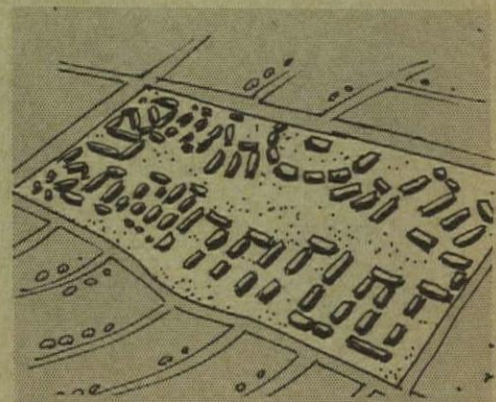
*Unite d'Habitation, Marseilles*  
337 dwelling units (du) on 10 acres



*Sunnyside Gardens, Queens,*  
Long Island, 1,202 du on 56 acres

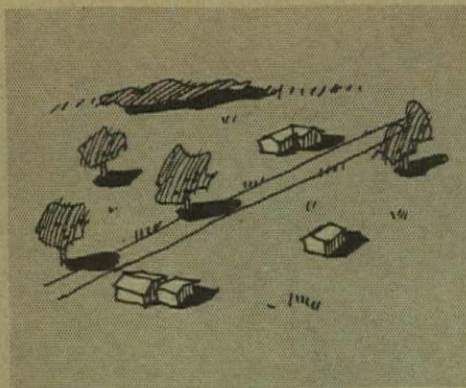


*Chatham Village, Pittsburgh*  
197 du on 45 acres

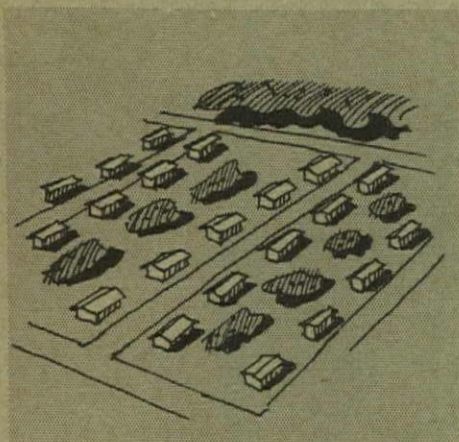


*Baldwin Hills Village, Los Angeles*  
627 du on 80 acres

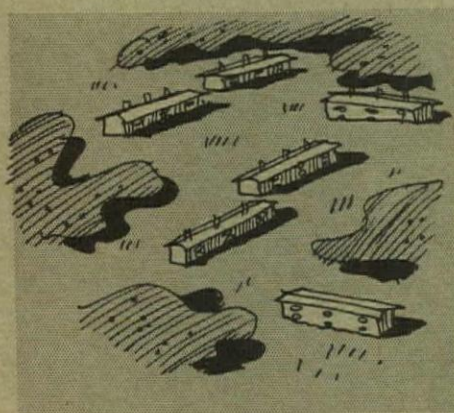




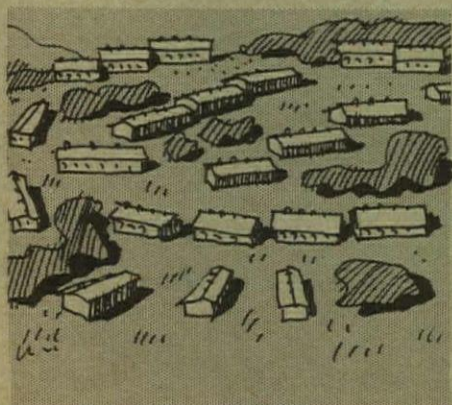
2 persons per acre (ppa)



6 ppa



16 ppa



40 ppa

By way of illustrating density in relation to architectural concepts, Frank Lloyd Wright's "Broadacres" proposed one acre or more of land per family, or about four persons to the acre. American suburbs average densities of about twenty-five people to the acre. Chandigarh was planned for fifty-six people per acre. The Golden Gateway redevelopment of San Francisco will have about ninety people to the acre. The proposed town of Hook, England, a landmark in design, would have had one hundred people to the acre in the center, a bordering area with seventy persons to the acre and another area with forty persons to the acre. Recent developments in high-density residential design would make these densities possible. Ping Yuen, in San Francisco's Chinatown, has 365 persons per acre. At the far end of the scale Le Corbusier proposed, in his vision of future cities as he foresaw them in the 'twenties, densities ranging from 120 to 1,200 persons to the acre!

Closer to local everyday practice the Federal Housing Administration has undertaken studies of density and has emphasized the importance of considering basic amenity in relation to density. This is called "land-use intensity" and is indicated by mathematical ratios between right-of-way area for cars, car parking space, recreation and play space and planting space, these being the components of open space in a residential area. Land-use intensity thus means, in FHA language, the over-all structural mass and open space relationship in a developed property. This interpretation covers a broader field of planning factors than a concept of density used without qualification. FHA prefers to speak of density not as persons per acre but rather as dwelling units per acre,

Assuming that a dwelling unit comprises a family of four, FHA standards operate within a range of from twelve persons per acre in small single houses to 850 persons to the acre in twenty-four story high-rise apartments (the maximum density for prime land in large cities, tolerable to a very few people and ill-suited to children.) The FHA has recently developed a formula for aiding in the determination of proper densities for various parts of different size cities. This formula tries to adjust density proposals (or rather the intensity of a development proposal—building bulk to open space) to the most suitable character of an urban area.\* This proposal should be carefully reviewed by all architects concerned with residential design.

If considerations of residential community size, density and intensity are confusing to us mortals, there is a man who, a few years ago, clarified the whole picture. Hans Blumenfeld, one of our most illuminating colleagues, now a resident of Toronto, Canada, delivered a brief address at the 1957 meeting of the American Society of Planning Officials (ASPO), called "Residential Densities." Basing his remarks on observed density phenomena he described the *implications* of various densities. He prefaced his remarks by posing the question: "Does anybody know what the 'right' density is?" He answered his own question immediately by replying: "I do—it is 1,200 to 60,000 persons per square mile of residential area." (Twenty to one hundred persons per acre.)

In other words, the range is broad, broad enough to accommodate a great variety of consumer preferences. Yet in giving this range Blumenfeld established that there is *both* a lower and an upper limit of acceptable density.

\* See "Land Use Intensity Rating—A New Approach to Residential Development," FHA



The lower density is a matter of practicality and prevailing community form. Very low-intensity suburban development, four and-one-half houses to the acre (say sixteen persons to the acre) means large investment for roads and utilities, long travel distances to commercial and civic centers and to work, the latter almost entirely by car. Since people are willing to walk a maximum of a quarter of a mile (an eight- or ten-minute walk), a circular area with that radius would contain, at the low four-and-one-half family per acre density, no more than five hundred to six hundred families. If these families are of typical composition—some young, some old, some with children, some without—we find that this grouping can support only a below-optimum-size elementary school, that bus service is minimal, that a local shopping center is uneconomical and that church and community facilities are insupportable in any commendable architectural fashion. The accents and community focal points which would give identity to the grouping are missing. Social contact is frustrated and the sense of contact with nature that some would prefer in its place is marginal, if not illusory.

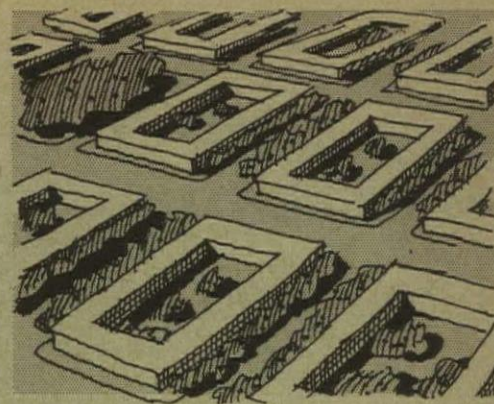
A further consequence of low density is the low availability of industrial workers. Very low density means long travel distances for workers, hence limited availability of staff, hence an undermining of local industries and so the possible undermining of a community's economic base.

The upper limit of density is set by the problems of congestion resulting in central city areas where transportation means are limited. Zoning regulations often set this upper limit. The lower limit (of the suburbs) is set by municipalities which sometimes desire to attract the wealthy and exclude the poor. The dilemma is obvious.

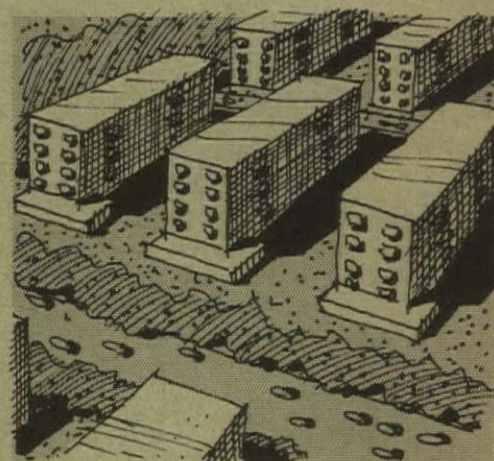
Very high densities in cities increase congestion, and favor high-rise construction. This, too, tends to exclude the poor unless, of course, their housing is subsidized. A barrier thus exists at some line around the city beyond which the poor are excluded and within which their areas of possible dwelling continually diminish.

Blumenfeld advised two things: policies which would encourage the building, in suitable suburban locations, of row, apartment and other modest types of houses less wasteful of land than the detached house on a sixty- to eighty-foot lot; and the removal of subdivision restrictions which now prevent such development. In this way we would both enrich our residential communities by combining a greater diversity of people in them and broaden opportunities for development. The essence of the proposal is a liberalization of a practice which has heretofore been restrictive.

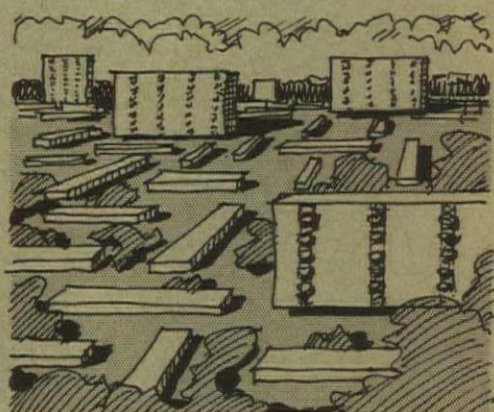
The practical features of this concept are several: public transportation could obviously be more supportable; industries located in the suburbs would have a greater availability of workers; shopping and community facilities would have a broader clientele; and certain circulation problems would be diminished, particularly the radial inflow and outflow during peak traffic hours. Most important, if we could design with a broader range of density on an intimate scale, that is, if we could have a few lots of one density with a few of another, and nearby another still, and then even other mixtures, we would have more stable residential communities. Experience has shown conclusively that the one-class communities are the most susceptible to obsolescence, largely because they are least adaptable to change. No better illustration of the wisdom of varied density in intimate mixture exists than the aforementioned town of Mariemont, Ohio. There one finds small pensioners' cottages,



60 ppa



80 ppa



100 ppa



300 ppa



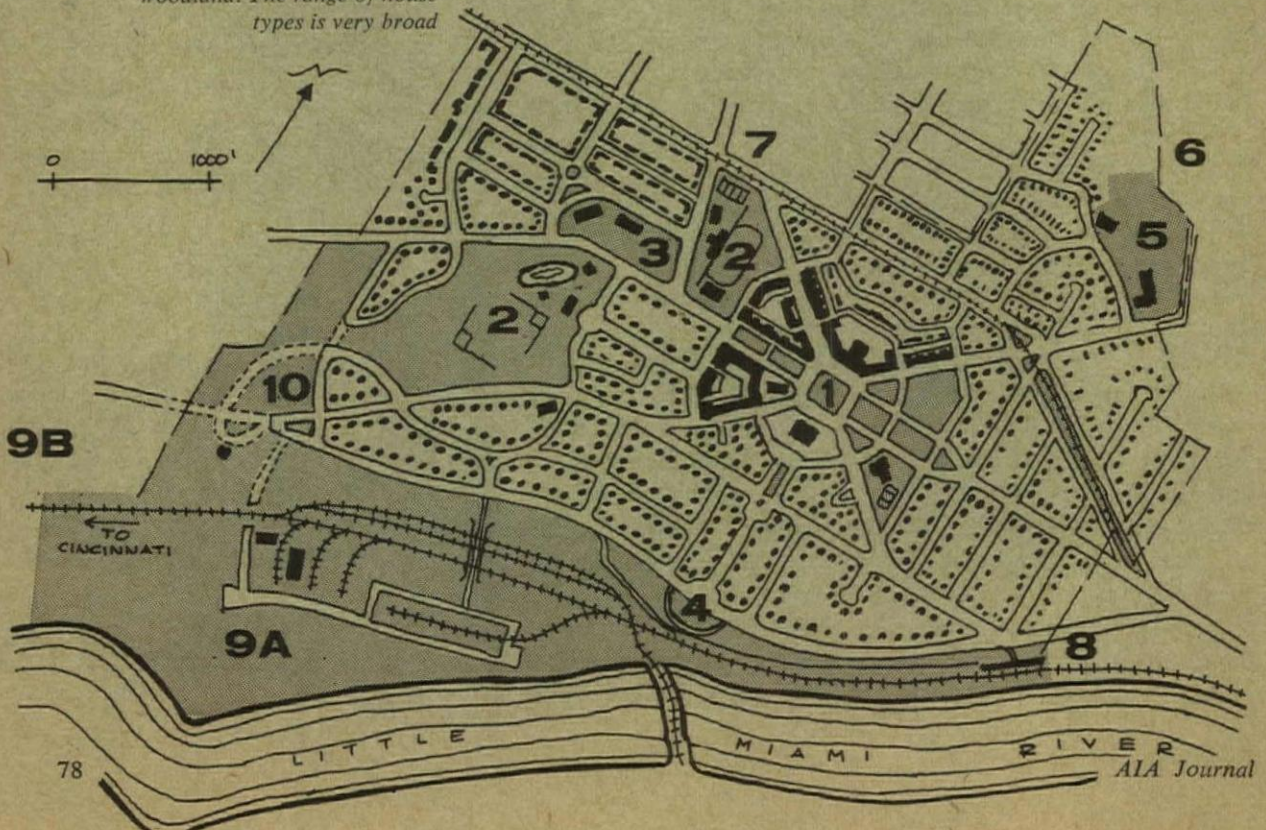


The town center in Mariemont, Ohio



A row house street in Mariemont

Plan of Mariemont, Ohio:  
 (1) center; (2) playfields; (3) schools;  
 (4) overlook; (5) hospital;  
 (6) hill with large houses; (7) original  
 trolley line; (8) planned commuter  
 RR station; (9A) planned factory  
 site, later located at (9B);  
 (10) incompleted road system.  
 The town is on a plateau high above  
 the river. Gray areas indicate  
 public open space, parkland and  
 woodland. The range of house  
 types is very broad



row houses and one-family houses of a great variety of sizes, to name but a few types. It is most significant that a hillside bordering this planned community later became the desirable locale of several-acre lots for the houses of the very wealthy. Of course, the high hillside on which those houses developed was attractive in itself, but in the case of Mariemont it is obvious that the planned community was a strong attraction.

Architect Vernon DeMars suggested a very simple test for judging the intimacy of mixture in a residential community. This amounts to imagining yourself standing in your proposed community and considering how much of the community's variety and mixture—its texture, you would want to see and how much you would actually see.

Thus the implications of density considerations in urban design are obvious: What is called for are more thorough and realistic community plans, perhaps as FHA suggests, based on intensity of land development, and, let us not forget, the artful design and poetic fulfillment of our landscape. Politically this may seem to be a matter of the degree of "government interference" in private land development matters, but this is far from the case. It may prove to be the wise community which can team up with its private interests in preparing for new developments, and such a community may well find itself with both sounder and more active development than one which abandons itself to the chances of ill-conceived speculation for its immediate rewards alone. The most obvious point of all in considerations of size and density is that no standards alone can create community architecture. That will always be the product of creative architectural talent.

But we are getting somewhat ahead of our story. We have, up to now, considered livability from the point of view of the individual. We have put ourselves in our clients' shoes. Let us hope that we have seen more of the problem through this personal perspective. But let us now consider the shoes—the parts of a neighborhood which constitute the palette of the architect engaged in urban design.



## Some Basic Neighborhood Design Elements

Let us draw up a simple list of the objects and elements we design in a neighborhood. Basically these elements are the pattern of street layout, land division and planned open spaces.

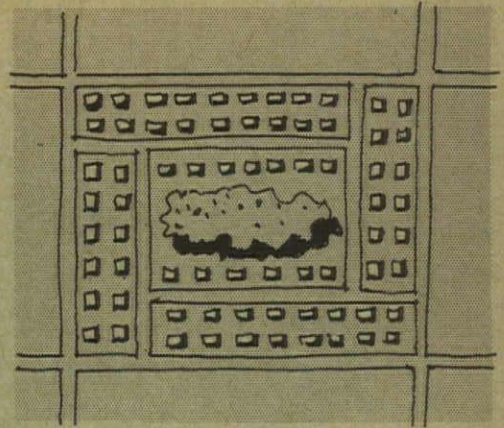
As we have stressed in our previous articles, the pattern of land-uses and division must first be thought of in relation to topography, largely a result of artistic judgment, of course deriving from its functional role in the total city. If the land-form is hilly it may suggest curvilinear streets in combination with certain straight roads, in which case the curvilinear streets would have a sense of containment and thus be suitable for intimate groupings of houses. The straight streets might then be suitable as major connectors and feeders to the more intimate curved streets. The pattern can be arranged so that the major feeder streets focus at an intersection of community buildings, or a topographical feature, or directed toward a salient natural vista or an intentionally placed steeple, tower or a high-rise building.

Site-planning handbooks generally recognize a classification of street types: arterial streets or highways; collector streets which feed the highways; minor streets which feed the collectors; marginal access streets which parallel the highways; and alleys.\* Unfortunately, handbooks usually fail to point out the social implications of these basic types—but that may best be left to the architect.

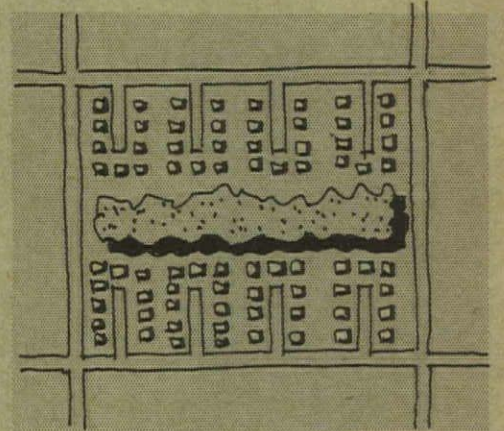
In the layout of land division patterns we may be overlooking the most basic configuration—the simple rectilinear grid. Perhaps we disdain it for its too-frequent use in the past, or to be more accurate, for its often too-artless use in the past. Both a rectilinear grid or a curvilinear pattern must be designed on the basis of appropriateness and artistry. The curvilinear pattern on flat land, without meaningful focus, accent, sequence of revelation, relief or surprise, is as trite and, in the long run, as tiring as the rectilinear grid without complementary relief in form.

Rectilinear grids are basically suited to flat land and particularly appropriate if prominent vertical features, such as ranges of mountains or hills, can be seen from them. Where nature fails, art must substitute, and so it may be wise to introduce into the geometry of the grid a completely non-geometric sweep of green space, possibly a stream bed diverted or an artificial channel created. A curvilinear pattern, it goes without saying, should be based on topographical roll or the presentation of major verticals to be supplied, such as tall building forms. Where curvilinear pattern is suggested if not demanded by topography, certain areas might appropriately be laid out with geometric regularity such as a community center in the form of a formal mall. There should be a logic to the design of these forms, arrived at through artistic effort with the mind's eye carefully tuned to experiencing the finished result.

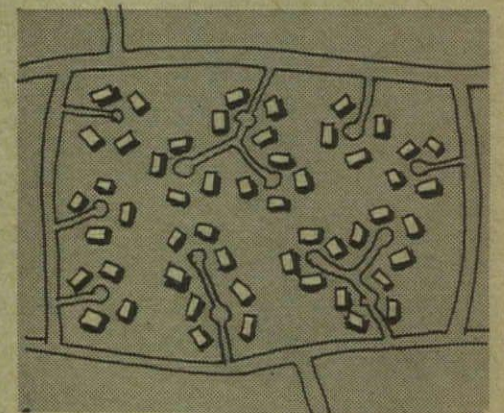
There is an imaginative array of street designs which we can draw upon in the layout of over-all street patterns. At the fore is the cul-de-sac, introduced and made popular through the example of Radburn, New Jersey. The most modest grid layout can well benefit from the introduction of this configuration in a variety of ways. Sections of grid streets can be treated as sectors, cutting off through streets to develop a pattern of major and minor streets and a series of dead-end cul-de-sac streets. Straight streets can be



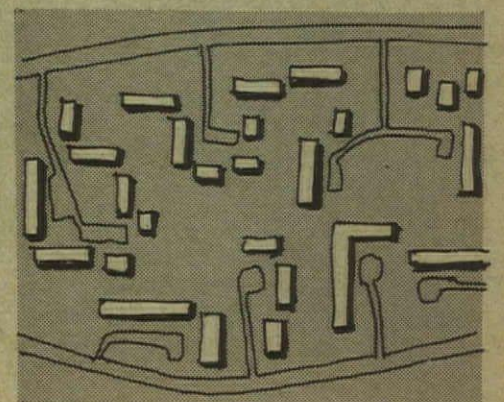
*"Swastika" variation in a block*



*Finger variation in a block*



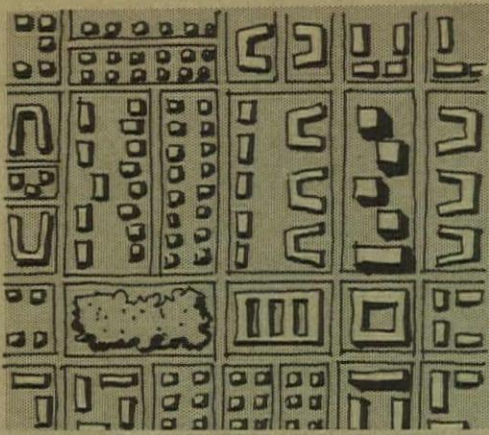
*Cluster variation in a block*



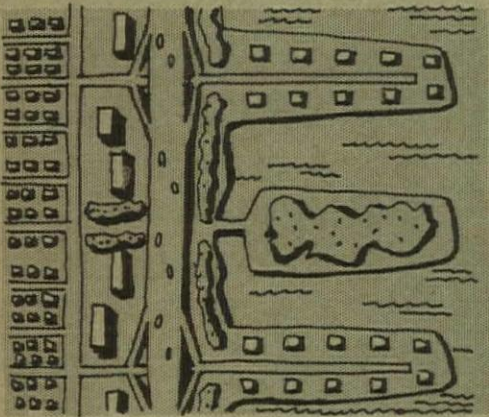
*Mixed clusters in a block*

\* "Suggested Land Subdivision Regulations," HHFA, Washington DC, 1962

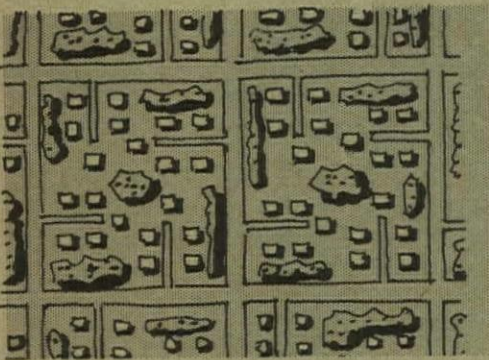




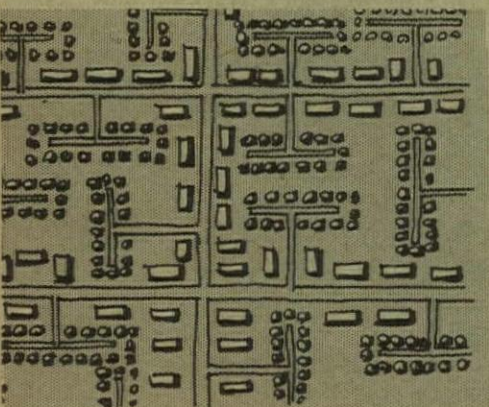
Grid variations for mixture of house types



Grid arrangement along a shoreline



Fingers and clusters in a grid



Variations with single and row houses

offset at certain intervals to create visual closure, or to put an important public building on a sight-line. Minor streets can be arranged to form "swastika" intersections, the small inner space serving as a postage-stamp-size park. If the space thus formed is larger it can serve as the site of a playfield, a school, allotment or formal gardens, or local shopping.

The spaces of the street alone can be varied to provide parking bays for groups of four or five cars. Certain streets could have wide grass malls down the center, with the malls culminating at a local community focal point, a church, school or group of stores. The location and form of such a mall must be judiciously chosen, to preclude the possibility of its later misuse as a traffic thoroughfare or for parking. To insure that it is not used as a thoroughfare it should not be too long or continuous and should dead-end at a point where no through traffic connections could be made. Commonwealth Avenue in Boston has resisted such pressure for just these reasons.

Another vital aspect of lot size and configuration is that lot subdivision constitutes the *module* of community design. Actual lot size is one of the keys to success in the conception of this module—in conjunction with building setback, street width, planting and open spaces. Lots which are large in relation to their building masses result in dentillated or overly-interrupted street facades, an effect which can, if too severe, cause a residential street to seem too loose as a composition. Large stately houses are suited to generous spacing, for the houses are each objects of individual attention, but more modest houses seem only awkward and pretentious in trying to ape the grander effect. Lots too small can obviously result in awkward spaces between houses. If the lot is very narrow, it may be better to eliminate side yards and build row houses with front and rear yards, or rear yards alone.

We hesitate to offer dimensions or mathematical ratios, but a useful test to apply is to consider the relationship between house shape and lot shape in accordance with their sizes. Simply, that amounts to sketching the probable development of houses along a proposed street in order to study the reasonableness of the lot shape and size. Side yards, for example, may be perfectly adequate as long as we can look from a side room and see something other than the sidewall of a neighbor's house. The spacing between houses might be checked to see if a series of houses could be seen as a group of six or eight or more simultaneously. Six or eight or more houses of different facade designs and materials seem less awkward than two or three with the same appearance—like books on a shelf. Distinguished residential communities, we must remember, depend on well-designed streets for their distinction and well-designed streets are a matter of lot size, street width, greenery and mass relation between buildings. Where these factors are present the street can even tolerate a considerable number of plain buildings. A reverse of these conditions—fine architecture without good street design—is a major if not absolute detriment to the best-designed houses and, consequently, the sense of neighborhood and environmental architectural harmony.

Equally as important as lot size and house form (our basic module) is still another module—the block, that is, the grouping of houses which constitutes a block, and the size and relationship between blocks. This design problem may be taken as part of a larger and more fundamental problem still—the occurrence of interruptions or accents in the general continuity of a neighborhood.



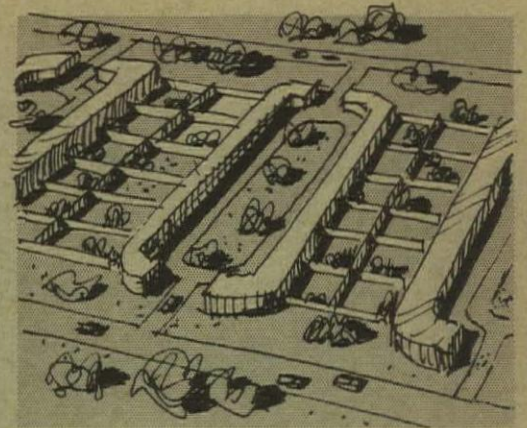
Where the sequence of houses is uniform and continuous for some distance—say as far as one can see, there is a need for interrupting accents which relieve the continuity in order to avoid oppressive monotony. This situation generally exists in our communities for reasons of building economy, technology and site development. On the other hand, where there is a lack of continuity and building forms are mixed and varied in shape, size and appearance, we need some elements of continuity or stability to tie the whole together. Accents—a focal point of stores, a church or tower or a vista—are points of visual reference as much as visual relief.

Basic to the block module is its actual size. This problem is well approached by considering how far a corner of focal intersection should be from any one house. Could that distance be based on the distance a small child on a tricycle might ride, or on maximum walking distance to a mail box or a bus stop? Could it be determined by viewing distance—that is, might street intersections be made mutually visible, one from another? It is basically a question involving scale in urban design at a neighborhood level.

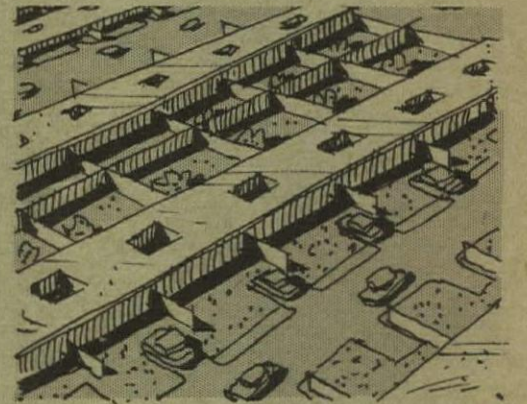
A further consideration of block design concerns orientation, grouping and the type of buildings which are set in it. Single houses with their own land can forego immediate neighborhood common space. However, the frequent arrangement for the higher density of three-story walk-ups or row houses is a rather different matter, for there the open spaces for recreation, leisure, gardening, laundry, garbage and car parking is shared and the street as a focal spine of space is paralleled in importance by the spaces behind the row houses. These spaces have received too little attention, generally speaking, from architects. They deserve much more. The private open spaces of individual houses, left to their owners, eventually find their proper arrangements of use, based on the entrances to the house, location of the car space, the sun, wind and trees. It is not essential to know exactly what the uses will be for a small-house lot although, of course, a good architect does know them and will plan them. In the block development of group houses, however, it is essential to know them and to be able to predict accurately how the various spaces will be used. As in the small house, it is a matter of entrance location, service areas, parking, sun angle, wind and trees.

Basically there are active and passive open spaces or prime and service open spaces—just as there are prime and service spaces in a building. There are a number of examples of Scandinavian row-house designs wherein the buildings are arranged as a series of U-shaped courts, alternately facing the street and an interior court. The courts facing streets are active, usually used for car parking and delivery. The courts facing away from the streets are passive, usually facing a green area. The inhabitants of these houses enjoy access to both courts.

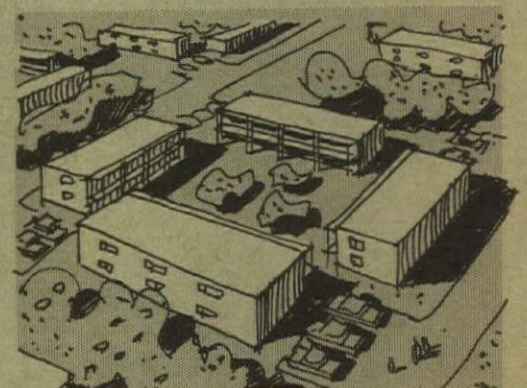
Architects are familiar with the practice of checking their building designs in the plan stage, imagining how all the spaces will be used. This same exercise must be applied to the block in residential urban design. At this scale of design there is no excuse for neglecting it, even in those frequent cases where the budget is so limited that the spaces cannot be properly furnished at the outset. A space whose purpose is well understood will, in time, become what it was intended to become, but its designers must give it that chance in the plans. This design phenomenon is best phrased by an expression of architect Morton Hoppenfeld, who speaks of the "seeds of fulfillment" in a design.



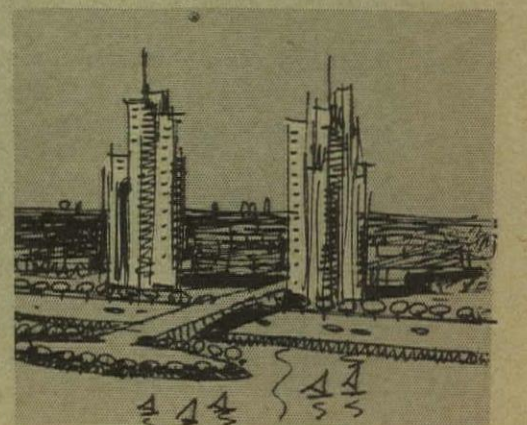
*Row houses forming a "close"*



*Atrium houses with gardens*

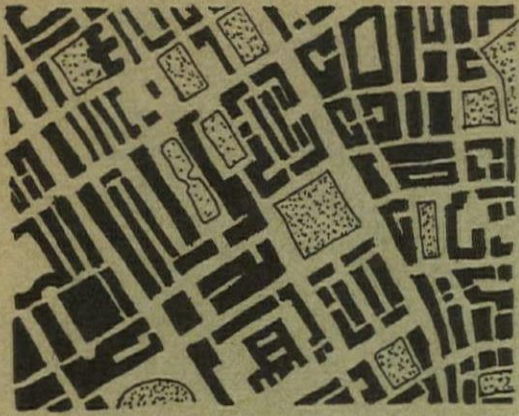


*Courtyard apartment clusters*

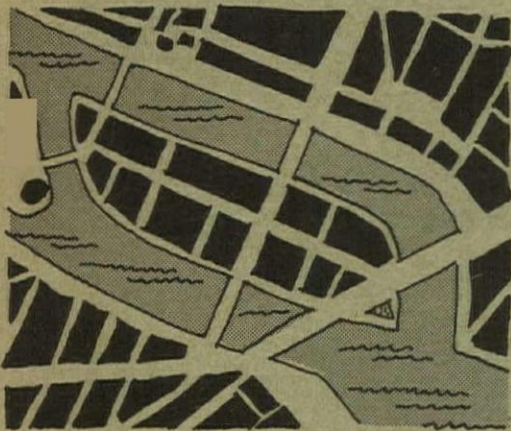


*Twin towers*





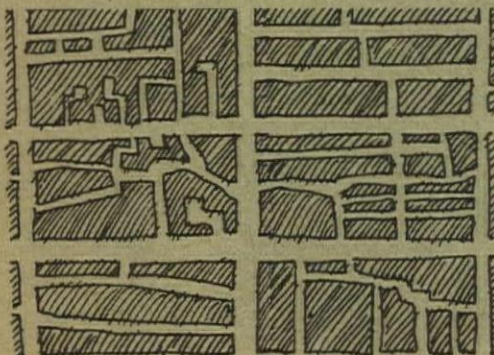
*The plan pattern of the Bloomsbury area of London—a rich urban texture*



*The plan pattern of the Ile St Louis of Paris—a residential island*



*The plan pattern of central Amsterdam—streets, buildings, canals*



*The plan pattern of Peking—broad straight streets give order to the maze*

If the case for achievement of good urban design through lot size and block size seems crude as a technique, it is only because it is so fundamental. The evidence of the validity of this approach lies within the city around you. Examine the sizes of lots and blocks in your own town. A half-day's tour should be enough to gather some valuable design data. It must be done, however, with a very open mind because many of the good examples of neighborhoods are modest and, like modest good men, they may never have stood in the spotlight of renown.

As fundamental as lot size and block size—the two modules of residential community design—is the pattern of a community's open space. Architect S. B. Zisman recently expressed the idea that effective planning can be achieved through the intelligent disposition of open space alone. His statement is supported by deep reflection, for were we to plan the major open spaces of a community and their accesses alone, we could go far towards a major improvement in our community designs. Zisman points out, further, that it would even be possible to forego land-use specifications around the edges of the major spaces. Developers would build and rebuild as the market and times allowed. Indeed, if we ponder this idea further, we see that the design of the open space itself can strongly influence if not determine the land-uses bordering it. The open spaces of which Zisman speaks include all the urban spaces we employ in a community—the street, the postage-stamp park or plaza, the large and more urbane plaza, the boulevard, the play-lot, the playground and the park, large or small.

The value of open spaces in our communities is illustrated by an interesting phenomenon in the Don Mills community of Toronto. Don Mills is a carefully planned mixture of residences, shopping and light-industrial plants. The quality of the architecture of the industrial plants is generally quite high, and they are very well landscaped. It has been found that the resale value of the houses facing the plants is higher than those houses facing each other—an interesting outcome of a well-planned community mix!

The open space approach to community design could be coupled with the planning of community utility systems to establish a nearly foolproof community layout. In essence the structure of a community would be firmly established and the pattern of open spaces would relieve whatever indiscretions might follow.

In actual fact developers and municipalities often do just this, but in a crude manner, unaware of the system being established. It has been suggested that a community should decide in advance what actual development should be like and that it can order this development by deciding on, if not actually building, the utility system before the developer arrives. "Developers will follow the sewers," notes Charles Abrams, in a terse but telling statement.

Architect David Crane, in his proposed design for the Eastwick redevelopment of Philadelphia conceived a design wherein the "basic capital bones structure" would be first established, these being the utilities, main focal points and interconnections which could be filled out by houses. We could improve the design of our residential communities considerably were we to use this method. We could design a desirable whole community, complete with a great variety of streets and lot sizes and a variety of open spaces linked and accessible. We could then extract from this design concept the structure—streets, lot sizes, utilities and open spaces—which would be most likely to bring the optimum design about, at the same time affording a variety of developer opportunities.



### Detailed Site Design

Let us apply those aspects of urban design which extend the benefits of architectural thinking from the residence to the residential community.

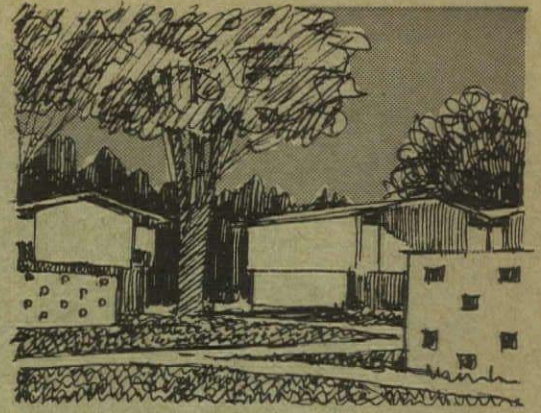
The major question is the size of building masses, which will be discussed shortly. The basic consideration of the placement and relation of building masses involves function, vista, sunlight, orientation, a degree of climatic control, topography and scale. Proper building-mass arrangement can improve these relations. Lack of consideration of these factors can do much to aggravate them.

By now the study of sun angles in relation to building massing and placement is common knowledge, but alas, still too seldom applied. The rules are simple and the application of sunlight angles to design decisions is rather basic. Briefly, it is desirable to cut off or shield direct sunlight during the later hours of the day and to assure, for cold winter days, some amount of direct sunlight, particularly for psychological uplift. This practice, like many others in architectural design, was once taken too literally, and became almost the sole basis of building-mass placement. It is bad practice to base a design on only one factor and neglect other requirements.

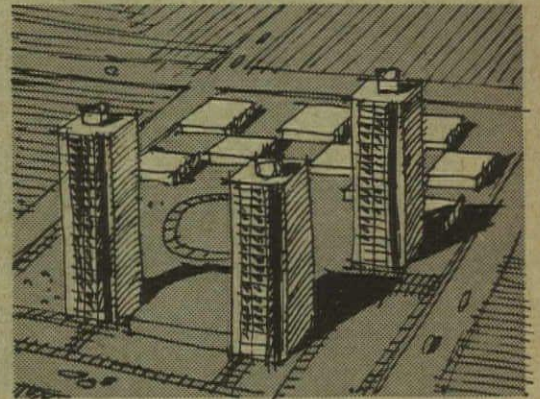
In checking a group design for winter sunlight, for example, we may find that some ground-floor rooms receive no midday sunlight. Our group design may satisfy many other objectives and so be desirable to retain even with this disadvantage. Our check, however, might reveal several things. One might be that although no direct midday winter sunlight reaches some ground-floor locations there are views of generous sunlit areas from them, adequate to render ground-floor apartments livable. We might then add a few projecting bay windows from which these views are more apparent and so more enjoyable. Reflections from light-colored walls, terracing, or nearby pools can also boost light levels in interiors. We might also have developed an apartment type with two or more stories, stacked units rather than horizontal ones, so that the upper stories receive sunlight. Thus there are several expedients which we can employ to relieve the lack of sunlight.

Sunlight can conveniently be studied with the aid of a simple block model together with a sun angle device that can be made readily from easily-obtained information. It is well to consider, while studying sun angles, those facades which receive more or less sunlight and the angles of sunlight which play on facades. In residential groups a certain richness of texture and sculptural effect is much to be desired since it gives a sense of decorative warmth to what might otherwise be an overly austere character. It is a slight additional exercise to determine the points on the horizon where the sun sets, possibly to retain open vistas of this most poetic daily event.

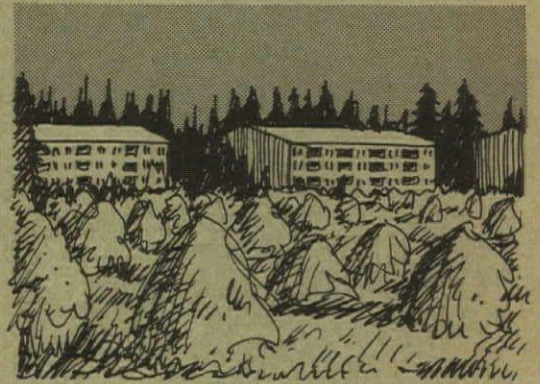
Fundamental, too, and following closely the importance of sun angle study is the consideration of prevailing breezes. This information is generally known locally and easily obtained from the US Weather Bureau summaries. It is a simple matter to determine building entrances, balcony locations, even the opening swing of ventilating windows to take advantage of cooling summer



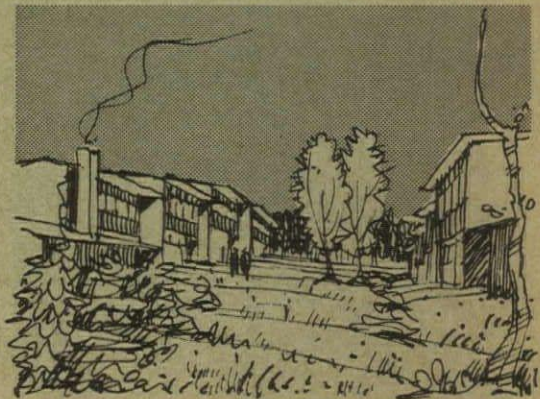
*Frenchtown, Mount Clemens, Mich;  
Meathe, Kessler & Associates, architects*



*Mill Creek apartments, Philadelphia;  
Louis Kahn, Day & McAllister, architects*

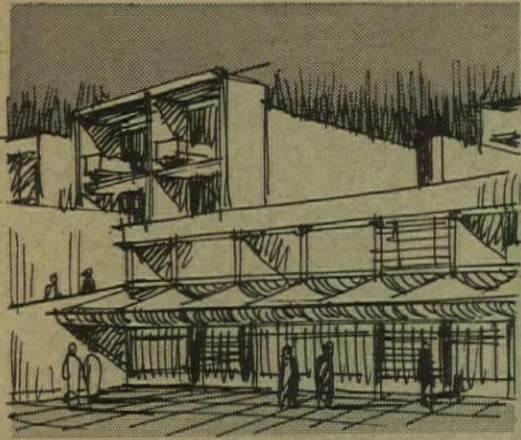


*Group houses near Helsinki, Finland;  
Viljo Rewell & Keijo Petäjä, architects*

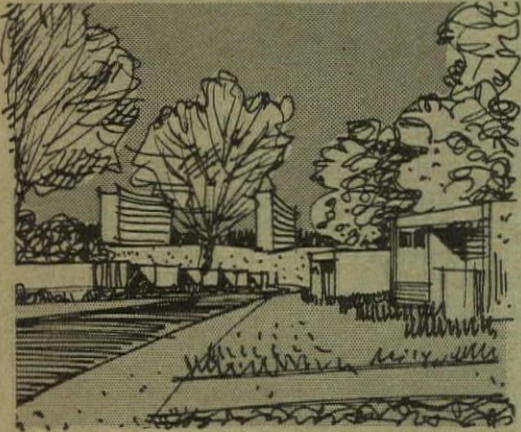


*Row houses in Rekingen, Switzerland;  
Cramer, Jaray & Paillard, architects*





*Siedlung Halen housing group near Berne, Switzerland; Atelier 5, architects*



*Roehampton Lane, London; London County Council, Sir Robert Matthew, Sir Leslie Martin, Hubert Bennett, architects*



*Easter Hill, Richmond, Calif; Vernon DeMars, architect*



*Lakeview Terrace, Cleveland; J. L. Weinberg, Conrad & Teare, architects*

breezes while blocking chilling winter blasts. It is also a help in locating incinerator and heater chimneys.

The use of simple models, supplemented by simple sketches and a few diagrams, can summarize both prevailing conditions and design intentions. It can help greatly during the normal and inevitable revisions, to insure that our fundamental objectives are retained and not, as frequently happens, discarded in a plan revision. A study model is best regarded as a three-dimensional sketch. Too often we restrict its use to presentation. Study models can be used with a fan and some fine sand to determine if entrances will block up or remain free in snowy localities.

A perpetual question is that of view and vista from a dwelling place. Ideally, we would all like to have a grand view out over a great expanse of city or landscape, but of course this is impossible for all sites and all dwelling units. Even a great vista, however fine, is in a raw state when we first confront it with the addition of an architectural foreground to frame it.

Le Corbusier once made a now-famous series of sketches of the harbor view of Rio de Janeiro as it might be seen from the window of a new building. He showed first the raw view, then its enframing within an architectural opening, then its embellishment with some carefully chosen and carefully placed architectural details. The view was rendered far more poignant with these additions than it previously had been. It was part of the architecture and its changing moods would give continuous animation to a room.

Some of the most artful enframements of a vista from a room are found in examples of Japanese architecture, and study of their practices proves very rewarding. In some instances a low window lintel obscures an exterior view until the entering inhabitant lowers his head as he takes a sitting position. In another instance still—at a corner sitting room of the Katsura Imperial Palace—one screened wall of the room looks out on to a formalistic garden while the adjacent screened wall looks out on to a naturalistic garden. By closing one side and opening the other the entire character of that small room is transformed.

In our own residential design we could incorporate this level of design thinking to do much for even our most modest developments. In some instances we have. In the very early "Lakeview Terrace" in Cleveland, a public housing project of the 'thirties, the entrance courts between groups of dwelling blocks had long views out to the lake and its foreground edge of industrial plants.

Perhaps the norm for vistas from individual dwellings in a group development should be that where buildings are close there should be some means within the apartment for obtaining a long view, as perhaps from a balcony, but that the unavoidable absence of a view from some apartments should be compensated for by site landscaping or, if possible, vistas from the site proper. It is a matter of exploiting the natural advantages of a site to their utmost.

Somewhat less common a consideration is the view into the windows of a dwelling place. In the intimately scaled village of former times low windows were the rule, and people decorated their windows with fine curtains and small objects of pride to catch and delight the eye of the passer-by. The window made a contribution to the exterior. Alvar Aalto once commented that architects should design windows as if their girl friends were sitting in them. The point is that facades and their details have architectural obligations to the street, even when those details exist for purposes basically interior to the house.



Obviously we should check the sight-lines from the exteriors to insure privacy in those parts of residences which require it, and probably provide means for blocking off exterior views altogether when desired. The design of views out of, as well as the exclusion of views into, a residence can readily be checked by an analysis of a design in plan and section.

In residential communities for multi-family housing a key consideration is the use of ground. In general it is desirable to provide each family with some amount of ground space or, as a substitute, an open balcony which need not be large if it is well designed. Even in cold climates where a balcony cannot be used actively for several winter months it serves the purpose of affording a sense of openness for an apartment and cancelling the feeling of constraint which an apartment usually has.

A final consideration in the siting and design of residential groups of medium or high density is the size of building masses themselves—a question of scale. In a previous article (the fourth in our series, "Some Basic Principles," June 1963 *AIA Journal*) we discussed the basic mechanics of the eye and its abilities to discern distance and size. These basic facts of human vision were seen to be the basis of our sense of intimacy or "bigness" in urban spaces and in building masses. The cornice height of buildings together with the sizes of the spaces between them and the detailed treatment of facades were discussed. The application of these principles is intrinsic to the proper design of residential groupings, particularly to achieving a general sense of intimacy in our environmental architecture.

In general, this means that building masses should be kept small and generally low—digestible to the eye and to our comprehension as a series of intimate pieces. In the lower ranges of density this can be accomplished rather directly. In the higher ranges of density we must turn to more artful techniques.

If, for reasons of high density, economics and other factors of site design, we find that our buildings must be very long, we can step a facade back and forth, breaking it down into smaller sections visually. We can also puncture it periodically at key points to form entrances and egress passageways from one space to another. The detailed architectural treatment of the facade can be designed to arrest the eye in a series of non-rhythmic articulations. This would avoid the appearance of a facade as an overly long continuous sweep. Thick foliage can screen an overly severe facade which may be a requirement of building economy.

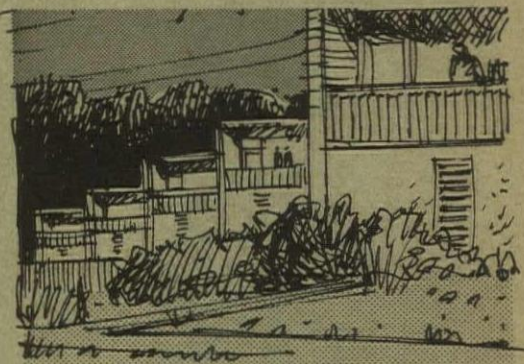
Where tall buildings are required they too can be brought into the range of intimate visual scale appropriate to residence by introducing small foreground elements to act as foil to the large-scale masses. Groups of low buildings interwoven with the high and seen in front of the high buildings establish an intimate foreground scale which does much to obscure the scale of the giants. Indeed we would do well to design the entire group from the sequence of the experiences we encounter as we enter the area, proceed through it and arrive finally in one of the apartments in a large tower or slab. It should be designed as a sequence of architectural experiences of changing scale, gradually unfolding to our comprehension—the principle of processional experiences of a cathedral transposed and adjusted as a method of design for residential groups. Architect Eliel Saarinen did this in the site design of his buildings at Cranbrook, for residential as well as school buildings. As a matter of fact he did it so well that both place of work and place of residence



*Baldwin Hills Village, Los Angeles; Reginald Johnson, Wilson, Merrill & Alexander, Clarence Stein, architects*



*A court in Sunnyside Gardens, Long Island; Clarence Stein, Henry Wright, Frederick Ackerman, planners-architects*

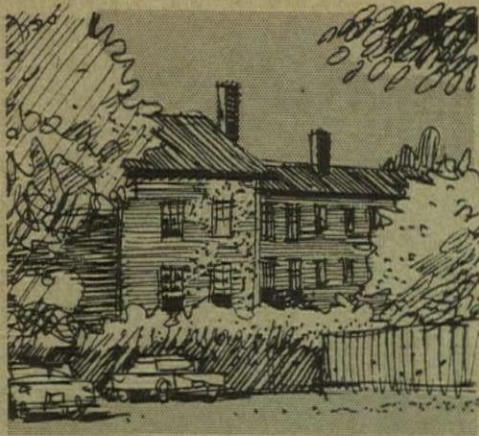


*Soholm housing near Copenhagen; Arne Jacobsen, architect*



*Houseboats along an Amsterdam canal*





*A walk through Chatham Village  
in Pittsburgh . . .*



*. . . reveals an infinite variety  
of minute views*



*. . . very suitable for a residential  
neighborhood*



*. . . with a simple pervading  
architectural character*

blend almost imperceptibly. In pursuing this method we should recognize that just as there are design relationships between low-rise and high-rise buildings, there are design relationships between high-rise and high-rise, as Charles A. Blessing pointed out. We would also recognize the importance of paths of approach and inner circulation, spaces, vistas out and views in, landscaping as a screen and as a foil, and ground surface treatment.

We have been proposing here an approach to design based on objectives and undertaken through common-sense method. We have emphasized the role of standards as secondary to basic and thoughtful reflection on the objectives we are trying to achieve. Standards can be taken too literally. They can be taken for granted and so preclude the thorough design exercise which is essential to every design success. Standards can block innovation and can lull one into a false sense of design adequacy. They can be useful as part of a check procedure and, in some cases, to obtain a minimum of amenity, but even then they should be used with caution. We must remember that even our best engineering standards or specifications do not produce good engineering design. They help only when they are creatively used.

In the face of the vast literature and store of ideas on residential community design we have been proposing a return to a basic method of design—an approach to design taken from the ground up by contemplating the real life which our designs would foster or, if poorly conceived, restrict. In this we recognize a practice of great craftsmen and artists, who in undertaking a new work, start at the beginning to repeat, step by step, a procedure which is derived from long experience and patient practice. It is almost as if every work were one's first—at least in step-by-step approach. Almost always some failure is the result of a consideration omitted—something which a too-hasty craftsman left to "skill" rather than conscious effort.

We have also been implying that too many design decisions are made on the basis of factors which are irrelevant to the objectives of the design. Building masses, placement, grouping, lot size and block size—these may be thoughtlessly drafted in the guise of expedience when it takes but a few more steps to insure feasibility and good design together—this very likely with a real economic saving in both the short and the long run.

Our endeavor in this paper has been to relate and put into proper perspective a great store of architectural experience. As such we hope that this paper serves to coordinate the thinking which is found in the following literature:

- Town Planning in Practice, Raymond Unwin, 1909
- City Planning Housing, Forster & Weinberg, 1938
- The Future of Housing, Charles Abrams, 1946
- Encyclopedie de l'Urbanism, Robert Auxelle, 1950
- The British New Towns Policy, Lloyd Rodwin, 1956
- Towards New Towns for America, Clarence Stein, 1957
- Planning and Community Appearance, Fagin & Weinberg, 1958
- Home Builder's Manual for Land Development, NAHB, 1958
- The Planning of a New Town, London County Council, 1961
- A Place to Live, Department of Agriculture Yearbook, 1963
- The Myth and Reality of Our Urban Problems, Raymond Vernon, Joint Center for Urban Studies, 1962
- The various published articles of Catherine Bauer, Vernon DeMars, Charles Abrams, Hans Blumenfeld, Henry Churchill in the professional journals.



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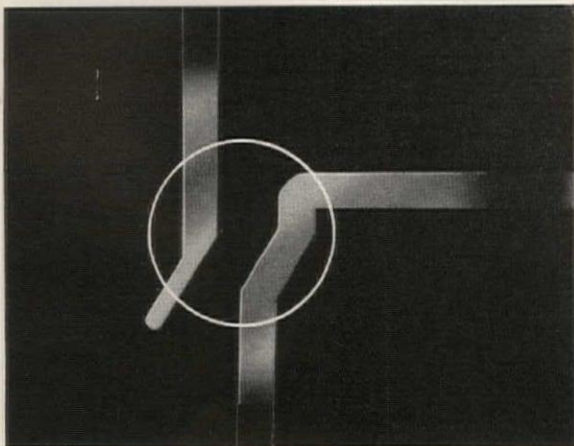
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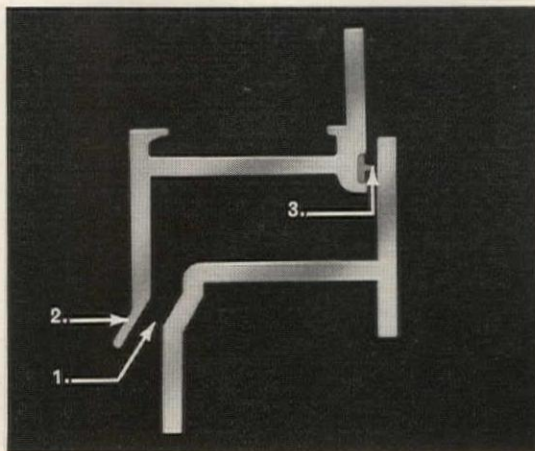
In these tests, the Sealair was installed in a weather test chamber. The window was water drenched as inside pressure was lowered to represent severe weather conditions. Sealair did not leak even when the static load reached 25 p.s.f. Many conventional windows leaked at 3 to 7 p.s.f. The superior weathering performance is the result of a Triple Weather Guard including an exclusive Pressure Equalization Slot. This Kawneer innovation is the most important metal window design change in recent years.

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Good architecture, regardless of period or type, is timeless. But the house, whether it be stately Colonial or rambling split-level, should answer the demands of modern living. Family rooms and patios, adequate kitchens and closets, better arrangement of living areas, and more bed and bath facilities have an obvious appeal to prospective buyers. However, we in the building products end of the industry must educate the buyer to recognize quality construction and design where it is less apparent. Buyer awareness and appreciation of the use of new materials and finished components must be generated. This applies to wiring, plumbing, insulation, floors, roofs, windows, appliances—all of the items which combine to reduce maintenance drudgery and increase the resale value of the house.

Concentration of design to meet desire should be a major goal of the building industry. New homes must be so filled with fine features (lacking in older houses) that first-time buyers will be attracted to them and second-time buyers will want

to trade in their present houses for these much better living quarters. We think the industry should adopt the new-model technique of the auto makers, modified as to time, and shake the public out of their complacent acceptance of inadequate living accommodations. We would then have the design for true progress and a higher living standard for all America.

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EP-26



# Announcement

**What** The AIA Building Products Register, 3rd Edition: a one-volume, 8½ x 11, cloth-bound technical reference. It lists and tabulates building projects, in 27 categories, to allow rapid analysis of their properties. Other REGISTER contents include: abstracts of technical standards and test methods; general information on product usage; Indexes of Product Types, Manufacturers, and Trade Names; Directory of Organizations.

**When** The REGISTER will be published in March, 1964.

**Who** Architects, engineers, contractors, builders, developers, public works officers, bankers, the military, building owners and managers, municipal officials, educators, planners, et al. can all save countless research hours by REGISTER use.

**Why** To assist construction industry specifiers in making maximum use of their most precious commodity-time-when they are pre-selecting building products. The REGISTER is the only aid offering such consistency of data and uniformity of presentation.

**How** Simply fill out, detach and mail coupon at bottom of page.

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# Calendar

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February 16-22: National Engineers' Week

March 2 to 5: American Concrete Institute Convention, Rice Hotel, Houston (reconvening at the Technological Institute of Monterrey, Monterrey, Mexico, for a one-day session)

April 7 to 9: Conference on Church Architecture, Sheraton Hotel, Dallas. Contact: Executive Secretary, Church Architectural Guild of America, Room 1004, 1346 Connecticut Ave NW, Washington, DC, 20036

April 18 to 25: Historic Garden Week in Virginia. Contact: Room 3, Mezzanine, Hotel Jefferson, Richmond

May 1 to 10: Maryland House and Garden Pilgrimage. Contact: Room 223, Sheraton Belvedere Hotel, Baltimore

May 25 to 31: Second International Congress of Architects and Technicians of Historical Monuments, Venice. Contact: Giorgio Cini Foundation, Isola di S. Giorgio Maggiore, Venice, Italy

May 27 to September 27: Triennale Exhibition of Modern Decoration and Industrial Arts and Modern Architecture, Milan. Contact: Triennale Exhibition, Palazzo dell-Arte al Parco, Milan, Italy

June 14 to 18: AIA National Convention, Chase-Plaza Hotel, St Louis

June 28 to July 1: ASLA Annual Meeting, Hotel Baker, Dallas

## AIA Regional and State Conventions

April 27 to 30: Wisconsin Chapter, Lake Lawn Lodge, Delavan, Wis.

June 11-13: New Jersey Chapter, Essex and Sussex Hotel, Spring Lake, NJ

November 4 to 6: Texas Society of Architects, Sheraton Hotel, Dallas. Theme: "Esthetic Responsibility"

# Necrology

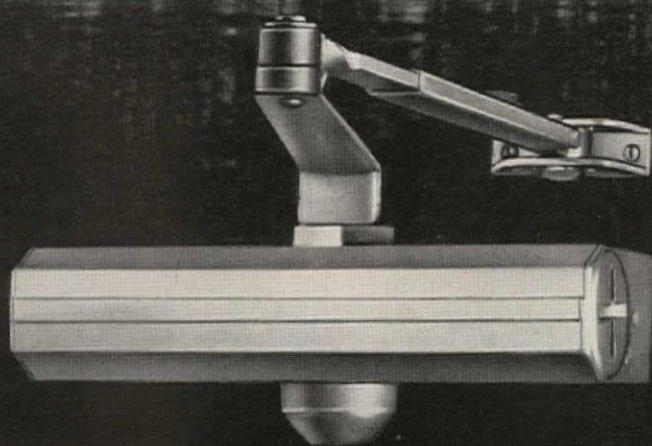
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*According to notices received at the Octagon between December 1, 1963, and December 31, 1963*

- COLETTI, JOHN LOUIS, Cranston, RI
- JENKINS, ARTHUR C., JR., Fayetteville, NC
- PERRIER, THEODORE L., New Orleans, La
- RAFTERY, J. HOWARD, Geneva, Ill
- RANDLE, N. ROBERTSON, Baltimore, Md
- WHITESIDE, G. MORRIS, FAIA, Wilmington, Del



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AIA publications are well known to the construction industry as authoritative reference and working documents on contemporary architectural business practices. The September, 1963 editions of these publications are catalogued and indexed in Chapter 1 of the "AIA Architects Handbook of Professional Practice." Chapter 1, as a circular of information on AIA publications, is available, upon request, from the AIA.

Below is a list of the A, B, and C series documents as enumerated in that Chapter.

## A-SERIES, OWNER-CONTRACTOR DOCUMENTS

—September, 1963 Edition

Complete Set	Includes: A101, A105, A201, A310, A311 and A411	1.00
A101	Owner-Contractor Agreement Form—Stipulated Sum	.20
A105	Jacket for Contract Documents—Tan	.05 <sup>4</sup>
A107	Owner-Contractor Agreement Form—Short Form for Small Construction Contracts	.25
A111	Owner-Contractor Agreement Form—Cost Plus Fee	.15
A201	General Conditions	.50
A310	Bid Bond	.15
A311	Performance Bond and Labor and Material Payment Bond	.15
A331	Guarantee for Bituminous Roofing	.15
A401	Contractor-Subcontractor Contract	.15
A411	Letter of Acceptance of Subcontractors Proposal	.15
A501	Suggested Guide to Bidding Procedures	.15 <sup>1</sup>

## B-SERIES, OWNER-ARCHITECT DOCUMENTS

—September, 1963 Edition

B131	Owner-Architect Agreement—Percentage of Construction Cost	.15
B211	Owner-Architect Agreement—Multiple of Direct Personnel Expense	.15
B311	Owner-Architect Agreement—Fee Plus Expense	.15
B352	Suggested Instructions to Full-Time Project Representatives	.1 <sup>1</sup>
B431	Questionnaire for Selection of Architects for Schools	.1 <sup>1</sup>
B451	Architectural Competitions	.1 <sup>1</sup>

## C-SERIES, ARCHITECT-CONSULTANT DOCUMENTS

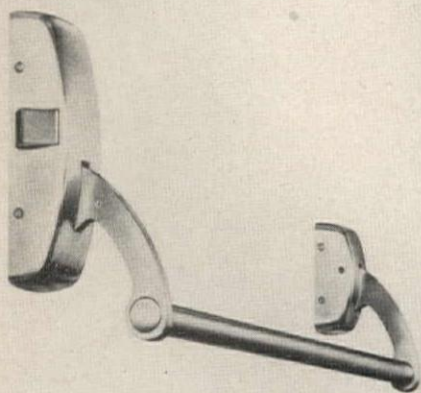
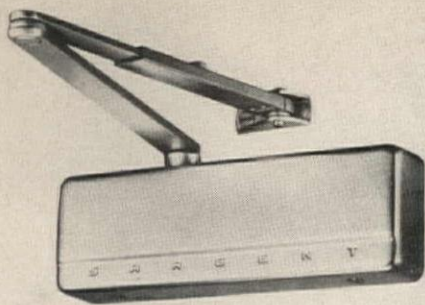
—September, 1963 Edition

C101	Architect-Engineer Agreement—Percentage Basis	.15
C111	Architect-Engineer Agreement—Multiple of Direct Personnel Expense	.15
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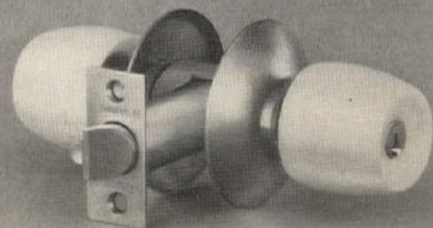
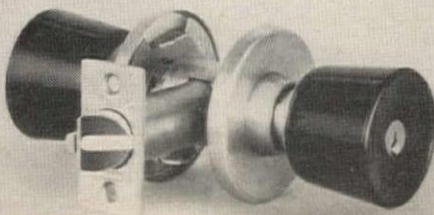
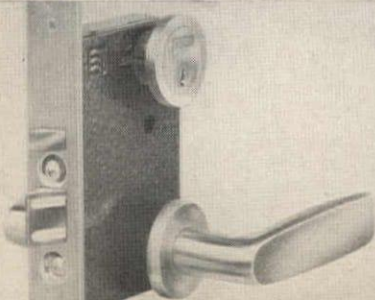
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Below is a list of the D and E document series as enumerated in the Chapter.

## D-SERIES, ARCHITECT-INDUSTRY DOCUMENTS

—September, 1963 Edition

D101	Unit Area and Volume of Buildings	1
D201	Arbitration Procedures, Standard Form	1
D301	Filing System for Architectural Plates and Articles	1.00
D401	Directory of Federal Agencies Contracting for Building Designs	3

## E-SERIES, ARCHITECT-PRODUCER DOCUMENTS

E101	Preparing Effective Technical Literature for the Architect	1
E203	Criteria for Product Exhibits at AIA Meetings	
E301	Standard Filing System and Alphabetical Index	2.00
E302	Circular on Standard Filing System and Alphabetical Index	1
E400	Building Products Register, 3rd Edition, March 1964, 8½x11, 464 pp., Clothbound.	
	To AIA members	3
	To non-AIA members, Prepaid prior to publication	15.00
	After March 1, 1964 and for all orders without payment enclosed	20.00
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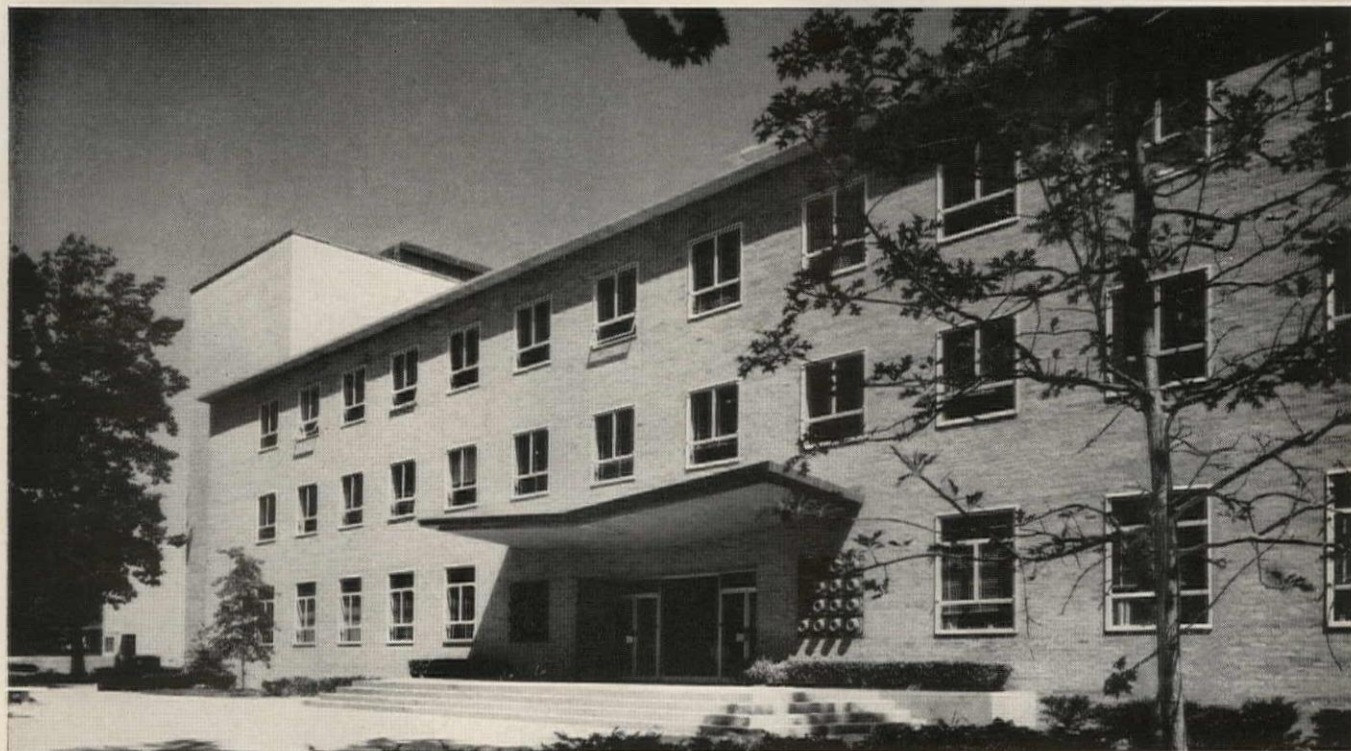


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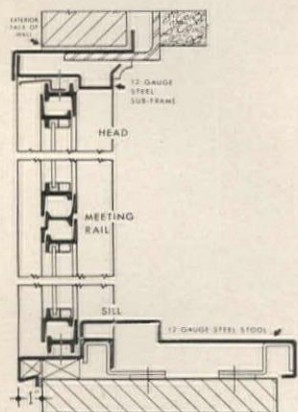
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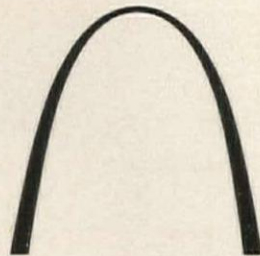
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# COME TO CONVENTION

## June 14-18, Saint Louis

"The City—Visible and Invisible"



To AIA Advance Registration  
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 Please preregister the following for 1964 AIA Convention (print or type name, city, classification, and fee for each registrant—members \$20, associates \$15, male guests \$15, ladies \$3, students \$1, guests under 18 free).

Name, City	Classification	Fee
_____	_____	\$ _____
_____	_____	\$ _____
_____	_____	\$ _____
_____	_____	\$ _____

Reserve the number of tickets indicated for AIA meal functions.  
 Awards Luncheon—Tuesday, June 16 . . . tickets @ \$5 \$ \_\_\_\_\_  
 Annual Dinner—Thursday, June 18 . . . tickets @ \$10 \$ \_\_\_\_\_  
 Enclosed is check, for preregistration and meal functions, totaling . . . . . \$ \_\_\_\_\_  
 Send receipt to (mailing address) \_\_\_\_\_

To AIA Convention Housing  
 911 Locust Street (Room 406), Saint Louis, Missouri 63101  
 Date \_\_\_\_\_ Please reserve (mark one)  
 single  double bedded  twin bedded  two-room suite   
 accommodation for (name of each occupant—two names for double bedded or twin bedded room) \_\_\_\_\_  
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 Third choice \_\_\_\_\_  
 Rate from \$ \_\_\_\_\_ to \$ \_\_\_\_\_  
 Arrival date and hour \_\_\_\_\_  
 Departure date and hour \_\_\_\_\_  
 Send confirmation to (mailing address) \_\_\_\_\_

Scientist and theologian join educators, political leaders, and architects in exploring subtle as well as apparent facets of our cities. The occasion—AIA's Ninety-sixth Convention this spring. Challenge, controversy, and illumination are bound to take place; plan now to observe and participate.

Another part of the program addresses aspects of your practice: expense accounts and IRS, promoting the job, housing, industrial and bank buildings, design concepts, lighting and acoustics, scheduling and control, legal responsibilities, budgeting and accounting, administering construction contracts.

Exhibits and ceremonies acknowledge some of the great among today's buildings and architects. Tours and social events heighten your enjoyment and appreciation of an American gateway city in the spring of its bicentenary year. Take part in the excitement and stimulation and rewards—come to convention!

**Preregistration:** You save time by preregistering for convention and ordering tickets for AIA's two meal functions. Your badge is handlettered if you register in advance. Should you be unable to attend after preregistering, your fee would be refunded.

Closing date for advance registration is May 15. Fill in the upper coupon and mail it with remittance to The Octagon. Your kit and badge will be ready to pick up when you present your receipt at preregistration desk. Desk opens at 11:00 a.m. Sunday, June 14, in Exhibit Hall of Chase-Park Plaza Hotel. Delegates' accreditation closes at 5:00 p.m. Monday, June 15.

Registration fee includes admission for two to President's Reception at City Art Museum. Your check for preregistration and two AIA meal functions should be payable to The American Institute of Architects.

**Lodging:** The Chase-Park Plaza Hotel is convention headquarters. Registration, business and professional sessions, exhibits, and functions take place there. Rooms are limited. The other hotels listed are within ten blocks of headquarters.

	Single	Double bed	Twin beds	Two-room suite (parlor, bedroom)
Ambassador	\$ 6.50- 9.00	8.50- 10.50	9.00- 12.50	17.50- 25.00
Bel Air West	10.00- 16.00	14.00- 18.00	16.00- 20.00	34.00 up
Chase-Park Plaza	10.00- 16.00	13.00- 18.00	15.00- 22.00	23.00- 30.00
Coronado	9.00- 14.00	11.00- 16.00	13.50- 18.00	20.00- 28.00
Diplomat	10.00- 14.00	12.00- 16.00	13.00- 18.00	22.00- 28.00
Forest Park	8.50- 14.00	12.00- 18.00	13.00- 20.00	22.00- 30.00
George Washington Parkway House	6.50- 10.00	8.50- 13.00	9.50- 15.00	12.50- 20.00
Saint Louis de Ville	10.00- 16.00	14.00- 20.00	14.00- 18.00	28.00

Reservations are held until 6:00 p.m. unless late arrival is specified. Notify your hotel of any change in date or time of arrival.

Send your request for lodging to AIA Convention Housing, 911 Locust Street (Room 406), Saint Louis, Missouri 63101. Requests are handled in chronological order and must be received by May 15. You will receive confirmation after April 1.

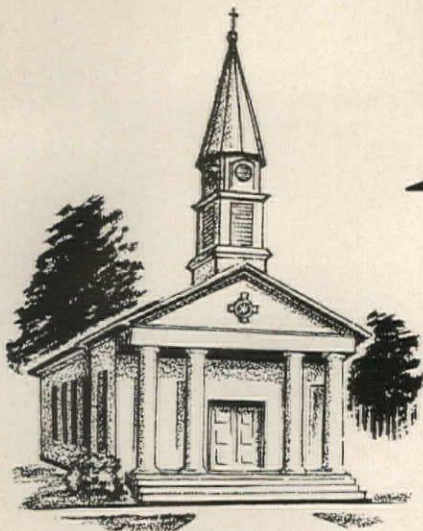
Should you wish to cancel or change your reservation, write AIA Convention Housing, not your hotel. This facilitates reassignment. Please print or type all information requested.



HEATING

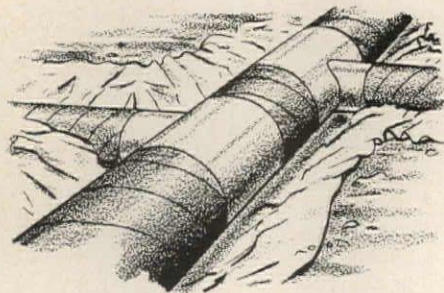
# IDEAS

by **SONOCO**



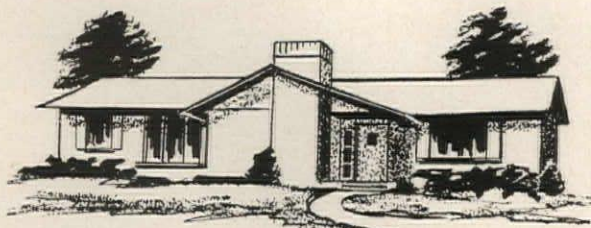
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*Economical SONOAIRDUCT Fibre Duct is highly resistant to extreme moisture conditions because asphalt-filled outer wrap and water resistant adhesive are used throughout its laminated construction.*

Saves money for contractors *and* owners. The use of low-cost SONOAIRDUCT Fibre Duct saves time and labor. It is easy to handle, can be leveled and joined quickly . . . and the longer lengths mean fewer joints. Can be cut and mitered by handsaw at job. Will not chip, break, or crack if dropped. Order SONOAIRDUCT Fibre Duct. 22 sizes, 3" to 36" I. D., in standard 18' lengths or as ordered. See our catalog in Sweet's.



*Use of SONOAIRDUCT Fibre Duct results in greater fuel economy because insulating qualities of the product assure balanced, uniform temperature in all rooms, more heated air delivered to registers.*



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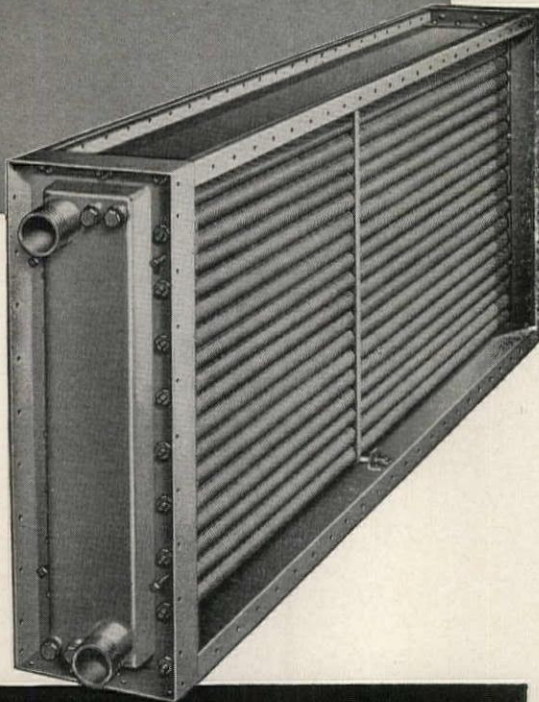
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## Yosemite Lodge windows and doors seal tightly, work silently, with their original Schlegel weatherstripping

The temperature here can vary anywhere between 106° above and 6° below zero. The annual rainfall is 35 inches and average snowfall is 93 inches. Yet the Schlegel weatherstripping in these Arislide windows and sliding doors keeps the weather outside where it belongs, here, at Yosemite Lodge, Yosemite National Park, California. The Schlegel pile weatherstripping performs as effectively—and as efficiently—as the day of installation. No wind gets through. No wind-blown snow or rain gets in. No chill drafts are felt.

**LONG-LASTING . . .** Schlegel weatherstripping is made to last as long as your windows and doors. Each pile fiber is locked in, interwoven through a strong fabric backing for performance.

For tight, waterproof sealing, the pile is dense and silicone treated ■ For ease of operation, only resilient natural fibers are used ■ For choice, a wide variety of pile heights and types is available ■ For complete information on Schlegel Woven Pile Weatherstripping, send us your specifications or ask for our catalog.



Precision-made Arislide sliding doors were specified by architects Spencer and Lee of San Francisco for Yosemite Lodge.

for protection that's *silent, smooth and sure*

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# See new Lo-Tone ventilating ceiling system at the world's fair

## It heats, cools, beautifies and sound conditions —

The Pavilion of American Interiors, a \$2,300,000 sweep of glass, steel and concrete, will demonstrate new Lo-Tone ceilings to an estimated 5 million people. Here is a preview of what the public will see at this New York World's Fair Exhibit.

About 70,000 square feet of Lo-Tone acoustical mineral tile and lay-in board will be installed. More than half of it will be Lo-Tone ventilating tile — the proven way to obtain effective room air distribution and sound control.

Lo-Tone ventilating ceilings offer the architect and engineer a combination of two important advantages in system design and control.

1. *Optimum air mixing and distribution.* Lo-Tone ceilings work according to the *jet orifice* principle. Specially engineered orifices in the ceiling tile create a balance between *air volume* and *air mass*. The air supply is discharged from the jet orifices, entrains air in the room and creates desirable room air motion.

Some ventilating ceiling systems distribute air through minute perforations in the tile. Tiny perfora-

tions can, indeed, move a *volume* of air. But they are too small to move an effective *mass* of air as Lo-Tone ventilating ceilings can. Without good air entrainment, discomfort often results.

Lo-Tone ceilings solve this problem with scientifically designed orifices . . . unobtrusive but highly effective.

2. *Quick, simple adjustment of air distribution after the ceiling is installed.* Lo-Tone ventilating products have adjustable metal control splines which are an integral part of the ceiling itself.

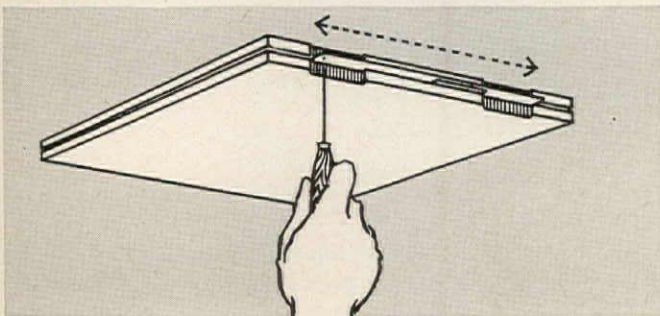
This permits the contractor to make final adjustments after the ceiling is installed, even after the tenant has moved in. Later, changes in air distribution can be made as room requirements change.

*With Lo-Tone ventilating ceilings, adjustments are made from the room. It is not necessary to remove a single unit or to alter design.*

For additional information about how you can put these exclusive benefits of Lo-Tone ventilating ceiling systems to work for your clients (either tile or ceiling board), write Wood Conversion Co., St. Paul, Minn.



Close-up of Lo-Tone adjustable orifice which controls air mass and velocity.



Arrows illustrate how Lo-Tone ventilating ceilings distribute air efficiently.

