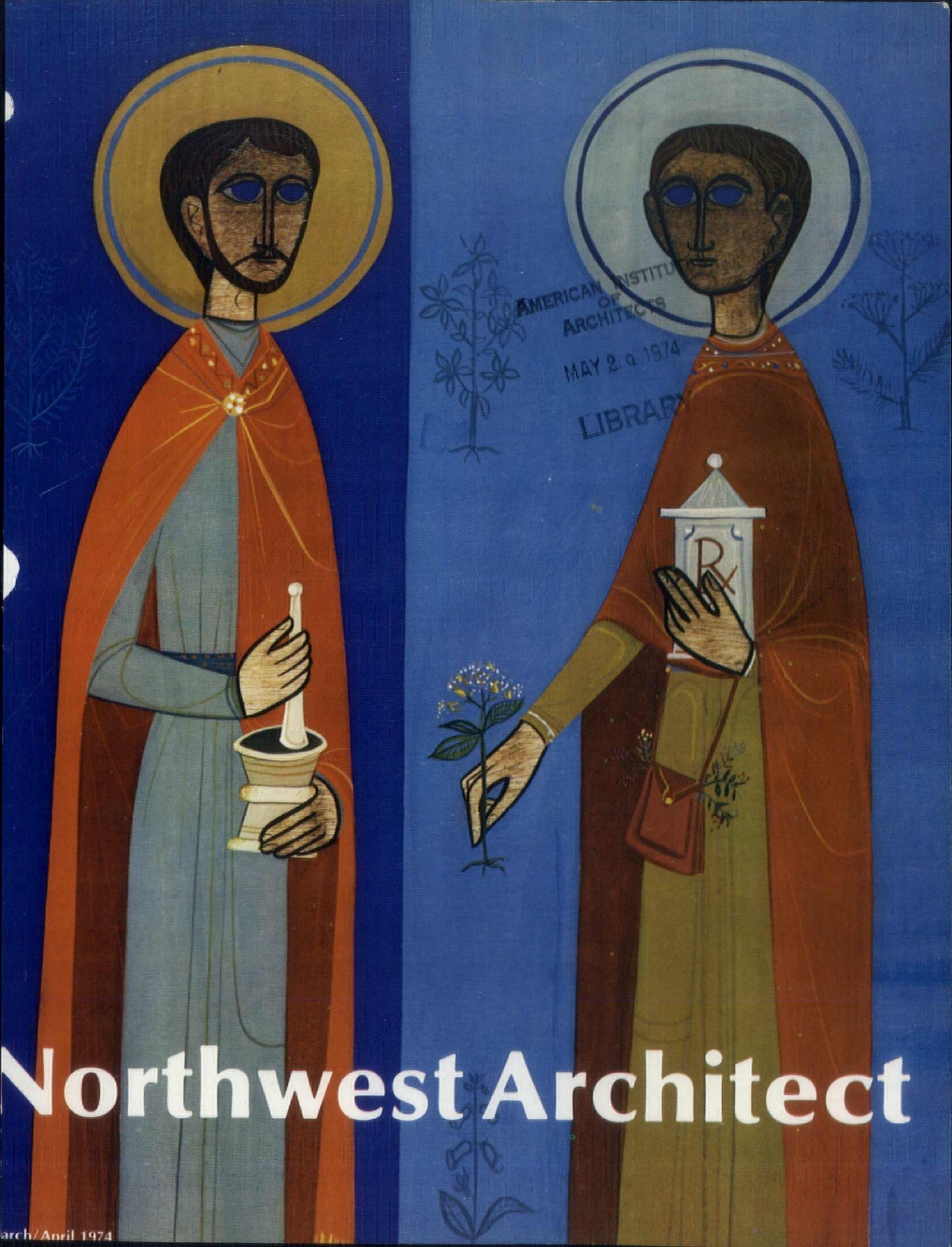

Northwest Architect

arch/April 1974

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Northwest Architect

March-April, 1974
Volume XXXVII Number 3

In this issue . . .

This issue of the Northwest Architect was planned to coincide with the Upper Midwest Hospital Conference to be held in Saint Paul, May 8-10, 1974. The significant changes taking place in the delivery of health care are described from the hospital administration's, the policy maker's and the architect's points of view. These changes are commensurate with the important advances being made in medicine. The creative imagination and concern evident in these pages will make the delivery of health care still more effective, efficient and responsive.

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Northwest Architect is an official publication of the Minnesota Society of Architects.

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Saint Paul, Minnesota 55101

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Published by Craftsman Press
2117 W. River Road, No.
Minneapolis, Minnesota 55411
Advertising Director
Gregory C. Johnson 529-9105

West Coast Representative
J. E. Publishers' Rep. Co.
8732 Sunset Blvd.,
Fourth Floor
Los Angeles, Cal. 90069

Northwest Architect is published bi-monthly. Controlled circulation postage paid at Minneapolis, Minnesota. Subscription: one year, $5.00.

Cover Photo: A contemporary icon by Robert Rambusch portraying Cosmas and Damian, the patron saints of doctors and druggists.
Courtesy Moudry Apothecary, Saint Paul.

Note: The index to the Northwest Architect for 1973 will be published in the Directory issue which will be available in early May.

Perspective on Change

By Lyle A. French

Change is the order of the day in the delivery of health care. No principal in the delivery of care is beyond scrutiny. No component part is escaping the rigorous process of criticism, study and reform. The last few years have brought a bevy of federal initiatives for production of health manpower, reorganization of health services, coordination of research efforts and reaffirmation of public accountability in the delivery of care. State and local governments are playing an increasingly important role in defining need and planning for creative response. Of the far-reaching changes that are happening today, few will be as significant for the future of health care as the redefinition that is taking place in the roles of both provider and consumer.

The delivery of health care used to be a simpler business. The solo practitioner delivered the lion's share. The extent to which the solo practitioner practiced alone is a part of history that could not be replicated today. Prior to World War II medicine was practiced largely out of the physician's black bag. By the end of the war, the locus for delivery of care had shifted to the hospital. The provider unit grew from the physician or physician-nurse team to a complex organization of man and womanpower, equipment, and facilities.

Another change that took place, parallel in time, was change in the nature of health problems. Last spring *Scientific American* carried an article tracing the shift in cause of death from infectious diseases at the turn of the century to the chronic diseases associated with aging, personal behavior such as smoking and diet, and environmental contamination today.[1] This shift has important implications for the appropriate organization of health services.

Today the delivery of care is a team effort. Physicians, nurses, nurse practitioners, pharmacists, dentists, dental hygienists and assistants, x-ray and laboratory technologists, physical therapists, occupational therapists, nutritionists, inhalation therapists, nurse anesthetists, speech therapists, audiologists, psychologists, social workers, human services generalists, nurse midwives, emergency room assistants, health educators and others provide the manpower pool we now have available for delivery of care. The shape of the team is a variable, determined by the health requirements of a given set of circumstances.

Those sets of circumstances are undergoing change as well. More recent additions include health maintenance organizations, community clinics, community mental health centers, decentralized drug treatment programs and more. Tomorrow will bring other settings designed to respond more effectively to the health needs of the community. Each setting may require a different mix of health professionals to best serve the health needs at hand.

The flexibility to respond to the changing delivery of care environment is a major challenge to health care providers. "A major deterrent to our efforts to fashion health care that is efficient, effective, comprehensive and personalized," writes Edmund Pellegrino, Vice-president for Health Services at the University of Tennessee, " is our lack of a design for the synergistic interrelationship of all who can contribute to the patient's well-being."[2] With that "design" lies the key to appropriate delivery of care.

In the acute care phase of a health problem, the traditional doctor-nurse team in the hospital context is still the core. As the nature of health problems change and the acute care episode becomes a narrower aspect of the total delivery of care, the role of the physician changes as well. While the hospital setting continues to require physician leadership, other settings have other requirements. The physician may serve as coordinator of a team, or as member of a team co-equal with co-workers, or as a referral resource for an autonomous team with defined responsibility. Health professionals, as colleagues, must learn to practice together in a variety of settings, to work, to maximize the contribution of each discipline, and to critically assess changing patterns of care to build still better, more responsive alternatives.

The role of the consumer is also changing and demanding new awareness and responsibilities. An important bridge between the changing roles of provider and consumer is the extent to which the patient has become a member of the health care team. This is a responsibility shared between provider and consumer. The health professional must recognize the potential contribution of the patient in facilitating the course of therapy and provide the necessary understanding of health problems and therapy process so that full cooperation is possible. In turn, the patient has responsibility for his end of the bargain: educated participation in the course of therapy and, subsequently, adherence to those actions necessary to maintain health. Patient education is an increasingly important component of the delivery of care in this regard. Its purpose is to enable the patient to exercise his responsibilities as a member of the team.

Finally, the consumer today has a very significant role in the conduct of policy-making for health care. As members of hospital governing boards and the boards and study committees of local planning bodies, consumers have the difficult job of identifying unmet need and working together with provider groups to bring prompt and effective action. This is an aspect of public accountability that has not received the attention it merits.

Consumers involved in policy making functions have important responsibilities to the constituencies they represent and to the system they are helping to shape. They have an obligation to reach informed decisions with rigorous rational and adequate documentation. These consumers have the opportunity to hasten important changes in the delivery of care if they are willing to exercise actively and judiciously the authority they hold.

The changes that are taking place in the roles of provider and consumer have the potential to significantly shape the future of the delivery of care. With mutual respect, hard work and a little luck, provider and consumer working together will find that our common goal of better, more responsive health care is within reach. ■

Dr. Lyle A. French is former head of the Department of Neurosurgery at the University of Minnesota and chief of staff at the University Hospitals and is now vice-president of Health Sciences Affairs at the University of Minnesota.

References

1. William Glazier, "The Task of Medicine," *Scientific Action*, vol. 228, no. 4, April, 1973, pages 13 to 17.

2. Edmund Pellegrino, "Interdisciplinary Education in the Health Sciences," *Educating for the Health Team*, National Academy of Sciences, (Washington, D.C., 1972), pages 4 to 17.

The Architect's Changing Role In Health-Care Architecture

By Thomas Horty

Writings and discussions in architecture have traditionally dealt with the study of monuments — those physical expressions of government, commerce and religion which dominate the man-built landscape. From Athens, to Moscow, to Peking, to Washington, the similarity of forms between the halls of justice, seats of learning, and the courts of kings makes it difficult to perceive the ideological differences for which they were designed. The functions or uses for these kinds of buildings have for the most part been limited to clearly regulated rituals based on long standing and accepted patterns of society. Architectural form and mass, to the extent that they are critically accepted, continue to be an expression of these rituals. This brief essay will examine the shift from this traditional architecture of expression to an architecture of function.

For the architect **function** was first defined in terms of formal relationships and the related use of materials. In a society of relatively unchanging values and simplistic procedures there was little need to move beyond this first tentative step in examining architecture's potential. Ever increasing technological and sociological advances have caused design professionals to give primary importance to functional needs.

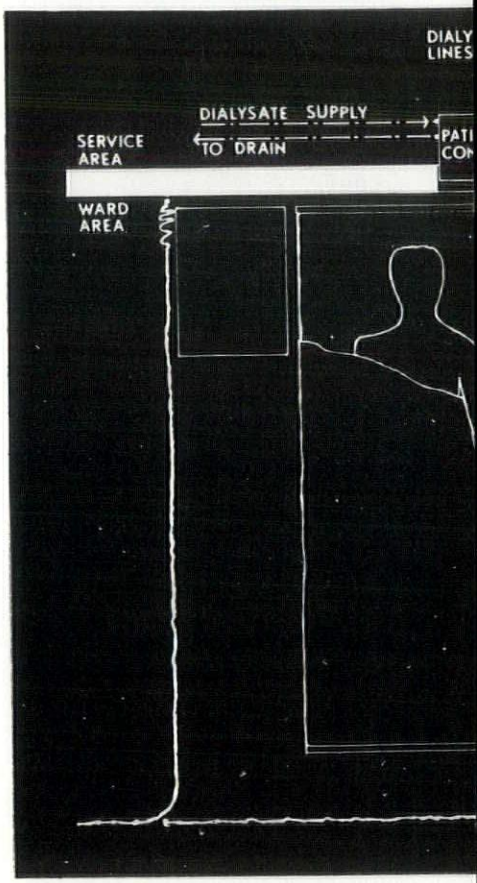
The earliest forms of hospitals were extensions of housing or lodging. Since these early days of health care we have moved through a period of change caused by two separate forces. First, there has been an incredible technological development which has had an impact on all aspects of the health care delivery system, from the delivery of services to the kinds of services and to the spaces in which these services will be performed. Secondly, an increased involvement of patient and staff in the decision-making process has fundamentally altered the design process. Architects respond to the changes in technology which redefine parameters, criteria, and goals. Thus we respond increasingly to the needs and desires of both staff and patient. Function achieves new meaning as old rituals are abandoned in favor of new human interactions.

The architect, by virtue of his "generalist" world view or, as Buckminster Fuller has described it, "comprehensivist"; will play a key role in achieving these linkages. Our position is somewhere between the tools represented by our massive technological support system, and people, who are the resources of the human support system. A successfully responsive environment is one in which a bridge is built between these two systems. The health-care environment provides a unique setting for this bridge because work, learning, and life are its ingredients, and the interaction of these is the architect's task.

Patients, public and staff, but particularly the patients, are making an impact on the design process. Their involvement can be credited with creating a new interactive method of services and increased communications in the health-care field. Important design considerations such as the patient's right to privacy, self-determination and equal access to all services have become primary architectural form generators. Function is user-defined and architects thus respond to the user in their design determinations.

Single occupancy patient rooms, radiation therapy, and high-dilution laminar air flow surgeries are some examples of how the demands of technology and user-function have resulted in altered building form. A system as complex as a hospital is filled with these user-functional form generators. Health-care systems are changing and so must architecture.

As architecture becomes more responsive to need (i.e. more functional) the therapeutic benefits of various kinds of physical environments become more obvious. To exploit these benefits to the best advantage requires that the architectural forms be responsive and the architect be genuinely concerned for the personal dignity of each patient. Loss of privacy, excessive traffic and noise, poorly organized or crowded conditions can cause undue emotional stress, which can actually reduce the effectiveness of the patient environment. Hard surfaced, colorless, dimly lighted, joyless spaces — all the worst connotations of the institutional environment — can and do cause anxiety for patients and staff. In a very real sense they inhibit the return to health. The design of spaces and the selection of materials, colors and textures all require an increased awareness of their impact on human well-being and demand an increased involvement of the user. Active



Dialysis Center — Minneapolis Medical Research Foundation.
Roger Johnson Associates/Architects, Minn

Thomas Horty, a graduate of the University of Minnesota and Cranbrook Academy, is president of Horty, Elving & Associates, Inc., Architects, in Minneapolis.

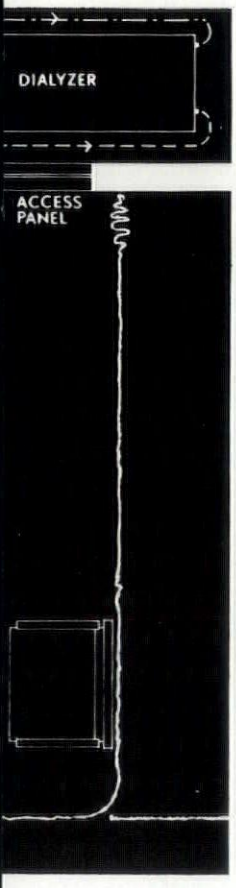
participation in the design process by staff and patient is a fundamental step toward reducing stress and improving the therapeutic environment.

The growing interest in the fields of environmental psychology and behavioral design will, in time, provide the architect with a fertile source of new knowledge. These fields will be a valuable resource in design and decision-making for responsive architecture. We need these new tools of understanding to create an environment which enhances the patient's own ability to deal with his physical experiences while it reinforces the skills of the medical team as it deals with life-critical situations. Each individual brings a set of past experiences, physical capabilities and social-cultural orientations to his environment, and the success of that environment will be measured by how it responds to individual and group needs.

We see the patient as the center of this model. He must be given every chance to move toward health as an active participant in his own healing and recuperative process.

The architect, as part of the health-care delivery team, takes the lead and assumes total responsibility for developing this responsive environment based on a new meaning of function. This is an environment which can reinforce the highest goals of the health-care community, an environment which can accommodate the latest developments in medical technology while responding to the economic constraints of our society, and, above all, an environment which responds to human needs.

This indeed is an architecture of response. As health-care architects we seek to accomplish this response by: sharpening our skills in environmental psychology and medical technology, concepts, and operational procedures in use or plannned for use; and involving ourselves totally in an interactional dialog with the health-care users-patient, staff and public — in a concentrated effort to raise our collective consciousness and awareness. Through commitment to these tasks, we will make health-care architecture truly responsive to human needs. ■



A Look at the Metropolitan Health Board

By Sally de Lancey

The Metropolitan Health Board was formed in July 1970 with 8 consumers and 7 providers appointed by members of the Metropolitan Council, planning agency for the seven-county area around, and including, Minneapolis and St. Paul. The Health Board does the work and has the rights, privileges and responsibilities of a "B" agency. (Technically, the Metropolitan Council is the "B" agency, but remains so only as long as it has a Health Board because the composition of the Council does not meet Federal standards for "B" agency councils.) When Minnesota passed a Certificate of Need Law in 1971, four more members were added to conform to the regulations. In the summer of 1973 six more members were added which strengthened the consumer representation. The Board now has 25 members, not less than 15 of whom are to be consumers.

The first year was used basically to organize and to educate board members and members of four advisory committees: Hospitals, Mental Health-Mental Retardation-Inebriety, Long Term Care, Community Health, and to continue the work of the local hospital volunteer planning association, which had agreed to dissolve and let us take over its functions. (Not many organizations vote to self-destruct and I have always thought we should publicly commend the group at least annually for its cooperation!) There is a continuous flow of information among the 25-member committees and the board because they were designed to give the board the expertise it needs in those areas of health care delivery. We use the members for special projects, study committees, for innovation as well as trend and trouble spotters, and as our liaisons with consumers, public and private health care services and providers. We also have a 25-member Developmental Disabilities Task Force which is a Federally funded committee of MH-MR-I. At this writing, an organization committee of the Health Board itself is working to streamline the structure of the board and its advisory committees to better fit the functions and responsibilities of "B" agency work and the yearly work program.

Since the Certificate of Need Law was adopted the board has been especially busy. The Minnesota law is designed to avoid unnecessary duplication and services among health-care facilities. Planning and the public hearings are carried out by the area-wide agency (or the State Planning Agency if no area-wide agency exists), and its recommendations are sent to the State Department of Health for issuance or denial of the Certificate of Need by its board. One of the first applications and still the largest in total cost was for the public Hennepin County General Hospital and the private Metropolitan Medical Center Hospital which we said should build and share services together. We also called for a combined reduction in number of beds. The application was granted after a great deal of study, thought, deliberation, negotiation and head-knocking among the myriad groups: public, professional, private, quasi-official and official, regulatory and administrative. Thus, the sharing of private and public hospital health care began. It was an exhilarating, stimulating, frustrating experience for everyone involved, and it set several trends for our area. Besides the sharing of construction and services and a reduction of beds, another trend which developed as an attachment to the Certificate of Need was for more primary care services to be given, or provided for, by Hennepin County to its residents. This is now being developed with guidance from the Health Board.

As we progressed with CON and other planning developments it was obvious that a guide was needed for our decision-making processes. We had developed guidelines for certain types of projects, i.e. nursing homes, but an overall guide was necessary so that not only we, but the community would know the ground rules for deliberation, thrust and change.

The entire year of 1973 was spent by a 14-member joint committee of the Board and Council writing what is now known as the Health Chapter of the Metropolitan Development Guide, more commonly called "The Guide". It was truly a community effort and those who were interested participated in a series of public hearings and advisory committee deliberations in order to receive maximum input into the development of the Guide. On February 28, 1974, the Metropolitan Council approved the document and hopefully it will withstand the tests of decision-making.

The most important aspect of the document for hospitals in the Metro area is that no new hospitals will be approved while a total seven-county surplus of hospital beds exists unless an equivalent number of beds are closed in an area of documented surplus or unless consolidation, coupled with a reduction of beds, takes place. A surplus of beds is projected to 1980 by the Metro Health Board, so hospitals will have to be extremely innovative if they desire to add beds before then.

The Health Board realizes the health care dollar is reaching its peak and a redistribution of that dollar is necessary to provide health care to all the residents of the Metro area. Studies show that accessible, acceptable and available primary care is a concern of the consumer, and although overall we have excellent health care in the Metro region there are many areas of health care scarcity. This is true not only geographically but demographically.

In considering the problems of primary care delivery, Health Maintenance Organizations are being given Health Board and Guide support as an alternative to the present fee-for-service system. Of course no one knows if they will be successful or accomplish their high goals, and without development monies the guess does not have to be too educated to assume they will be unable to be a viable alternative for the vast majority. The Minnesota Legislature has not been particularly enthusiastic in regard to funds for development: $250,000 for the entire State, only one-half of which can

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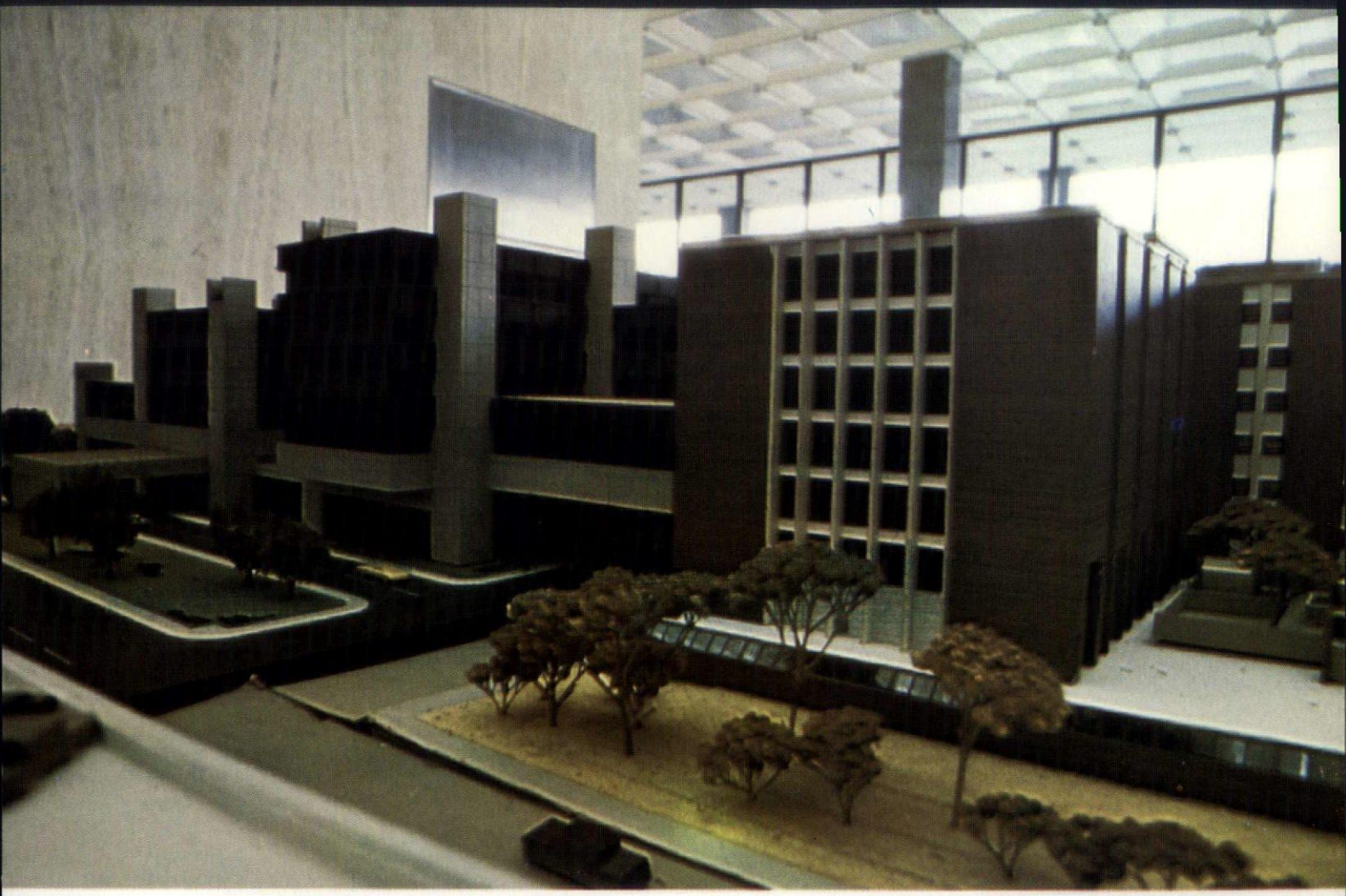
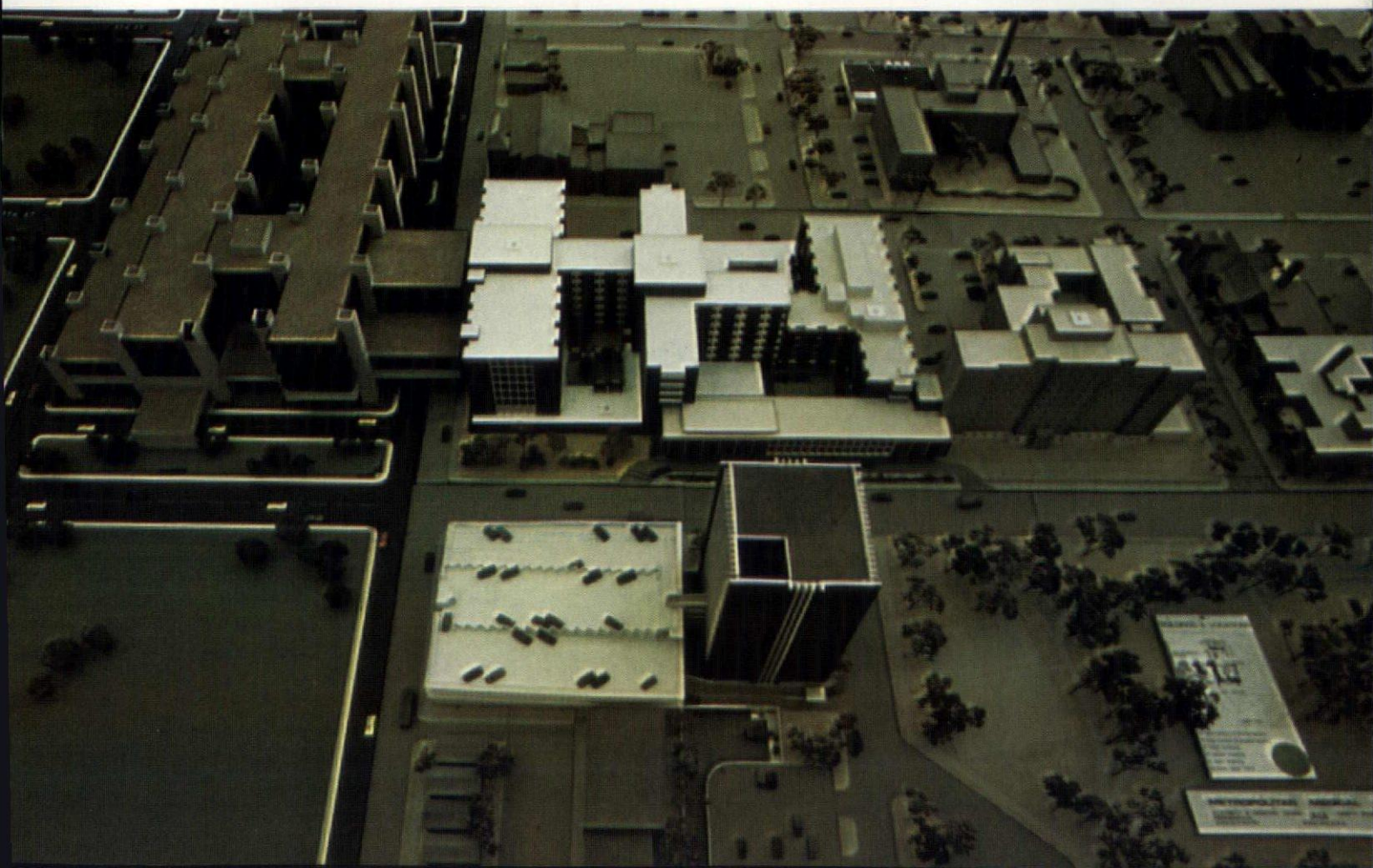
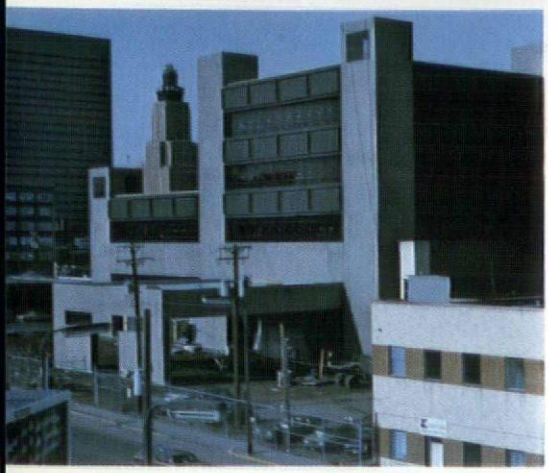
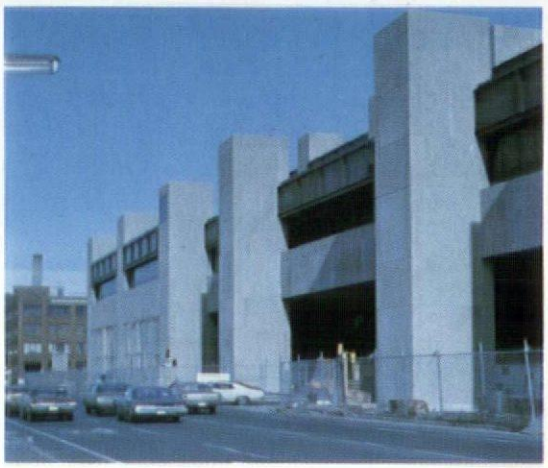
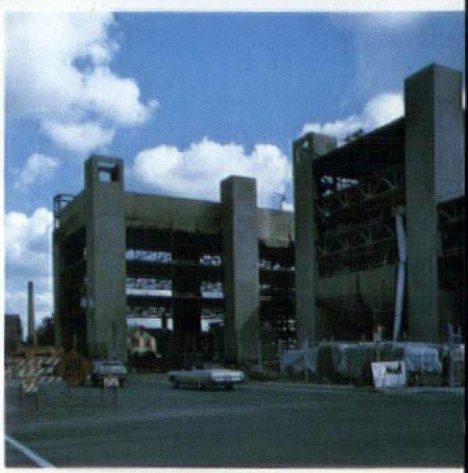
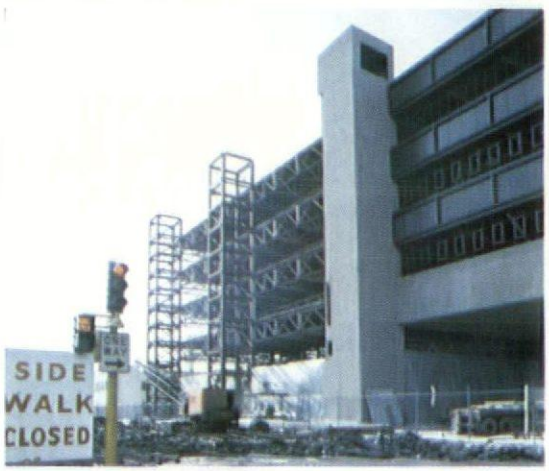
Sally de Lancey is chairwoman for the Metropolitan Health Board.

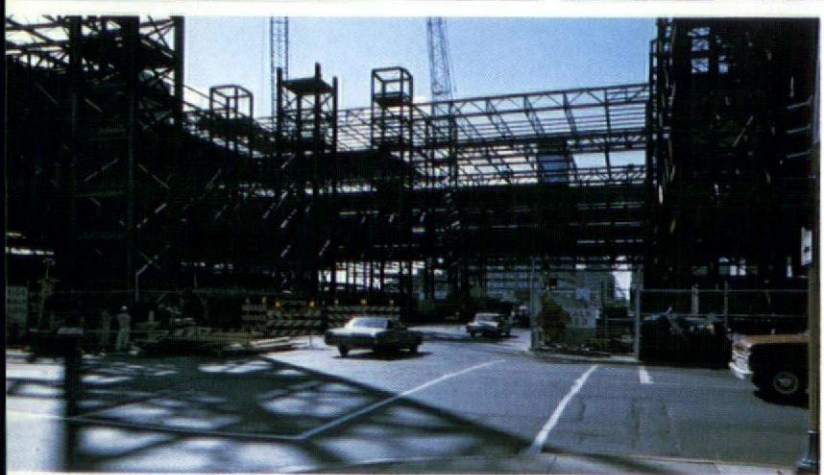









The Hennepin County General Hospital under construction.
Medical Facilities Associates—General, Architects, Engineers, Planners, Minneapolis, are composed of the following firms: Liebenberg, Kaplan & Glotter Associates, Smiley and Associates and Thorsen & Thorshov Associates.

The General Hospital/MMC Project: A Study in Responsiveness

By L. G. Johnson and Thomas R. Mattison

A new medical complex is now rising on the eastern end of the Minneapolis loop. The $70 million, 1,221 bed complex is unique in many ways: it's the largest number of hospital beds under one roof in the state, it is the only public-private hospital combination in the nation, it's programs are receiving national recognition for furtherance of the concepts of hospital sharing, and finally it is, in our opinion, an unparalleled example of institutional responsiveness to community demands and needs.

How did the complex happen? How did Metropolitan Medical Center, the largest private hospital in the Twin Cities, and the publicly-owned Hennepin County General Hospital agree to build cooperatively an architecturally integrated, two-institution medical complex? And why is it that the project itself and the many outreach programs growing out of the project demonstrate responsiveness to the community?

In 1969 there was no question about the citizen support for a new General Hospital. By a vote of 10 to 1, citizens approved $25 million to put up a new structure. It soon became apparent, however, that $25 million would not be enough for the challenges and programs demanded of Hennepin County General Hospital. In 1971 a second referendum was held, but public credibility was strained by the requested increases and a lack of understanding led to the defeat of the additional funding required. The need for an expansive program did not go away, however. General had a problem.

Four blocks from General Hospital, Metropolitan Medical Center was well into the planning of its own building program. MMC was a 1970 consolidation of two independent units, Saint Barnabas Hospital and The Swedish Hospital. Although the two had been physically linked by a shared building, legal consolidation did not provide a unitary structure. Physical changes were required to consolidate the major services into proximal locations. Otherwise the economies gained through consolidation would be diminished.

Enter the Citizens League, a unique Twin Cities organization whose volunteer members study intensively various public policies questions. The Citizens League record for innovative and progressive recommendations and implementation in the Twin City area is justifiably famous on a national basis. A Citizens League committee, studying General Hospital, learned of MMC's building plans and eventually recommended the two institutions build together, thereby facilitating the sharing of various services. As might be expected, the administrations and staffs of the two hospitals did not react with great favor initially to this suggestion for a fundamental change in their way of providing health care. Law required, however, that the regional and state health planning agencies approve of construction and both of these groups became convinced of the rationality of the Citizens League position. MMC and General would build together.

Then a unique architect-sponsored event helped to bring the two hospitals to a more positive psychology toward the collocation and sharing of services. For seven days in June of 1971, a continuous intensive planning session called a "charette" was held in a building near the two hospitals. Architects, administrative and medical staffs and nurses from both hospitals met daily to establish criteria for the construction of the two institutions. Predictably, the first criteria related to high quality patient care and operating efficiency. Soon, however, sharing criteria began to be added. The staffs agreed that architectural emphasis must be placed on eliminating physical barriers between the two hospitals and providing intra-hospital accessibility. Naturally, there were individual institutional constraints and a desire on the part of both hospitals to maintain their identities. Nonetheless, in one week the rough outline for more than one million square feet of space had been sketched.

The charette served as the vehicle by which the major program and architectural statements of the complex were solidified. In addition, the informal, participative, open feeling of the

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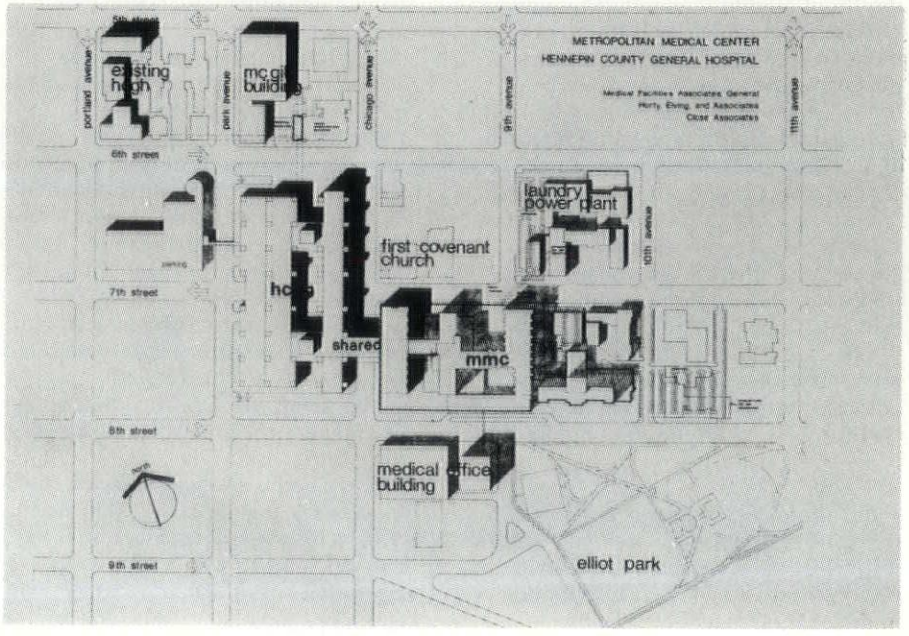
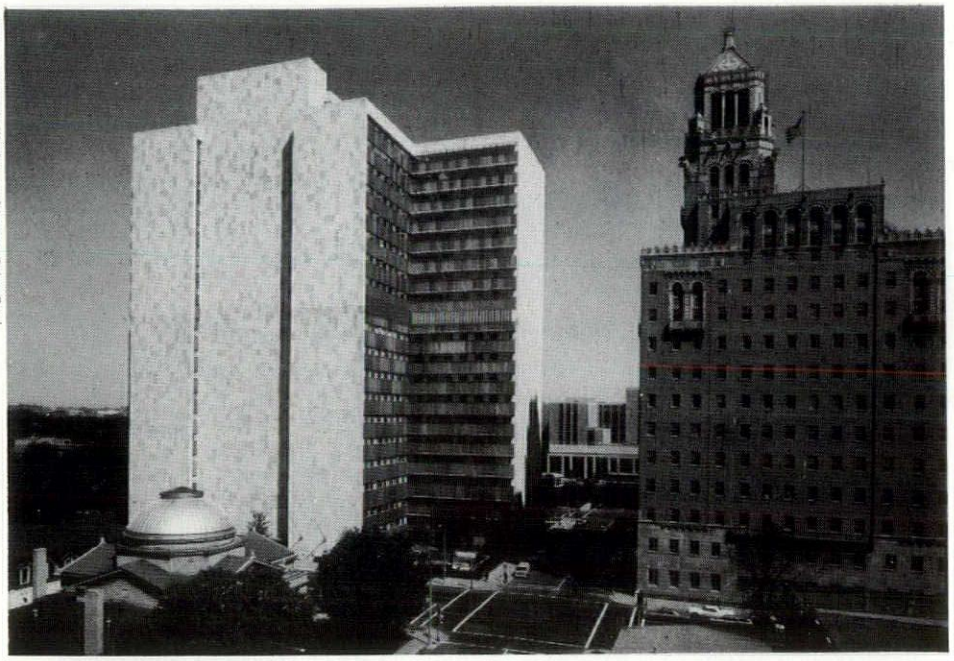


L. G. Johnson is the Executive Vice-president, Metropolitan Medical Center, and Thomas R. Mattison is Associate Administrator, Hennepin County General Hospital.

Folklore of the Mayo Clinic



Photos courtesy Ellerbe Architects, Saint Paul

By James Eckman

The indulgent Greeks of antiquity gave their deities a surprising tincture of human frailties, such as anger, vengefulness, cupidity, lust and vanity. Some gods were masters of irony; nearly all of them, in varying degree, knew the pleasures of laughter—but not Aesculapius, god of healing. No representation of him contorted in the cosmic rictus of an Olympian guffaw has ever been found and his earthling disciple, Hippocrates, similarly is never pictured with even the covert concession of a fugitive smile.

Happily for the gaiety of nations, successive generations of both healers and the healed since the days of the gods have strayed far from the cheerless glades of austerity and chill serenity. Nowhere is this blithe metamorphosis more evident than among the physicians and their patients at a large contemporary medical center where, in the quiet sanctuary of an examining room, at a chance encounter in a corridor or during the oppressive tension of an operating room, a sudden sally born of Homeric exasperation or an unconscious gaffe will annihilate sobriety and unleash taut nerves and constricted muscles.

The late Charles Horace Mayo, well known for his homely precept, "An ounce of taffy is better than a pound of epitaphy," was an intuitive humorist who exercised his gift with a sure perception. Once, called into consultation with a cardiologist about the condition of an old gaffer who had an extensive inguinal hernia, he told the anxious patient: "We'll stitch that up like an old torn gunny sack in your granary; no trouble at all."

The cardiologist, agitated because he suspected the old man's heart would not sustain the stress of a surgical operation and ether anesthesia, took Dr. Charlie outside the room and explained his fears to him. Charlie sauntered back into the examining room, smiled broadly at the old farmer and said in his slow, slightly nasal drawl: "Well now, you know, you stitch up an old gunny sack in one place, you don't know when it might bust out in another place. Why don't you go home and buy some groceries with the money you'd spend to have this thing basted up?"

On another occasion he was called to see a patient known to be an indomitable hypochondriac devoid of organic disease. Glancing at the patient's history, he noted that the man had said he loved watermelon but also irrationally feared it.

"What you have," Charlie told him gravely, "is something that watermelon is good for. Eat lots of it."

The delighted hypochondriac thought Charlie was the greatest practitioner in the world.

Old Charlie also was known to be an incorrigible pack rat. Any object which caught his eye—a discarded iron rod, a cast-off spike or two, a pile of old bricks, an out-of-square window sash—was more than likely to be whisked off to one of the vast barns on his estate at Mayowood. Once, during one of the interminable rebuildings of St. Mary's Hospital, a pair of handsome marble slabs disappeared overnight. The contractor was desolated but not a shrewd Sister of St. Francis who knew Charlie well. She called him at Mayowood.

"Now, Dr. Charlie," she said in sorrowful reproof, "you know you have got to bring that marble back."

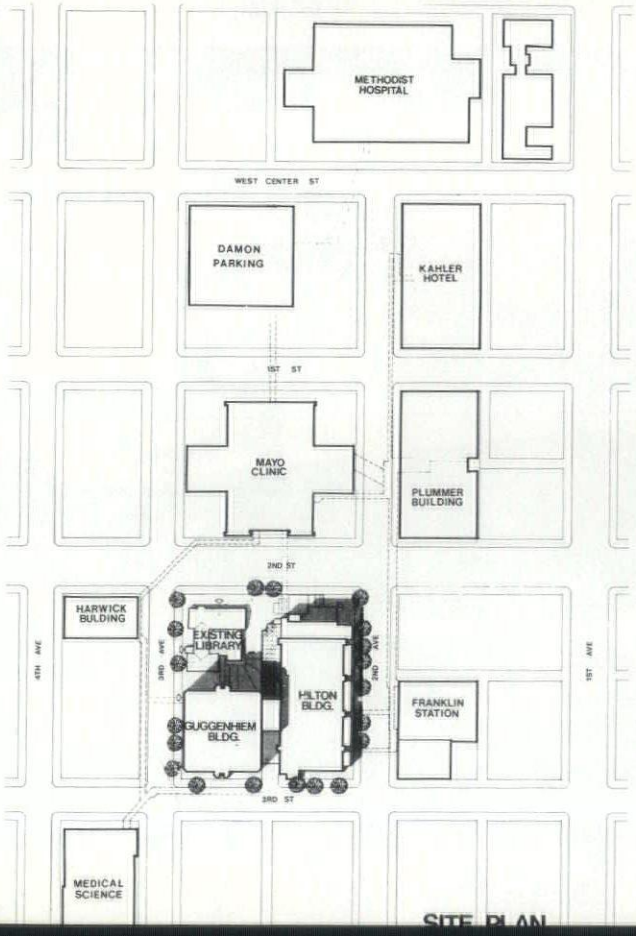
Which he did.

The late Dr. Charles W. Mayo, Old Charlie's son, universally known as "Chuck," was the felicitous heir of much of his father's gift of humor. Once, at a county fair, fiddling with a miniature, glass-enclosed crane actuated by the insertion of a coin in a slot and suspended above a variety of cheapjack gimcracks, the best he could do was to ensnare a tiny lead octopus. He found a use for it. He took it to his office, laid it at a plausible point over an x-ray film of a stomach, had the film rephotographed and exhibited it to his suspicious but reluctantly credulous colleagues with the observation that he planned to operate to expel the octopus from the stomach in which it had become an unwitting lodger.

The incident is reminiscent of another, in which a commendably solicitous school girl wrote to the Mayo Clinic to say that she had learned that a little girl, swimming in the Mississippi River, had swallowed a floating rattlesnake egg which had descended to the stomach and, like Topsy, grew and grew and grew until the feckless little

(Continued on page 82)

Dr. James Eckman was appointed to the staff of the Mayo Clinic in 1938. He retired in 1973. During part of that period he was press and information officer for the Mayo Institutions.



SITE PLAN

Mayo Life Sciences Facility and Laboratory and Research Center
Rochester, Minnesota

Ellerbe Architects/Engineers/Planners
Bloomington, Minnesota

Patients, diagnosticians, teachers, clinicians and researchers will have a new setting for their activities in the heart of the Mayo Clinic Campus. Two major laboratories under construction will comprise the nucleus for a major campus expansion.

The Guggenheim Life Sciences Facility will provide space for basic research and house demonstration theaters, demonstration laboratories and seminar rooms for a new medical school program. The Conrad N. Hilton Laboratory and Research Center will consolidate specimen-taking activities, process high-volume diagnostic tests and conduct research in human behavior. The functional arrangement and massing concept reinforce the existing campus patterns.

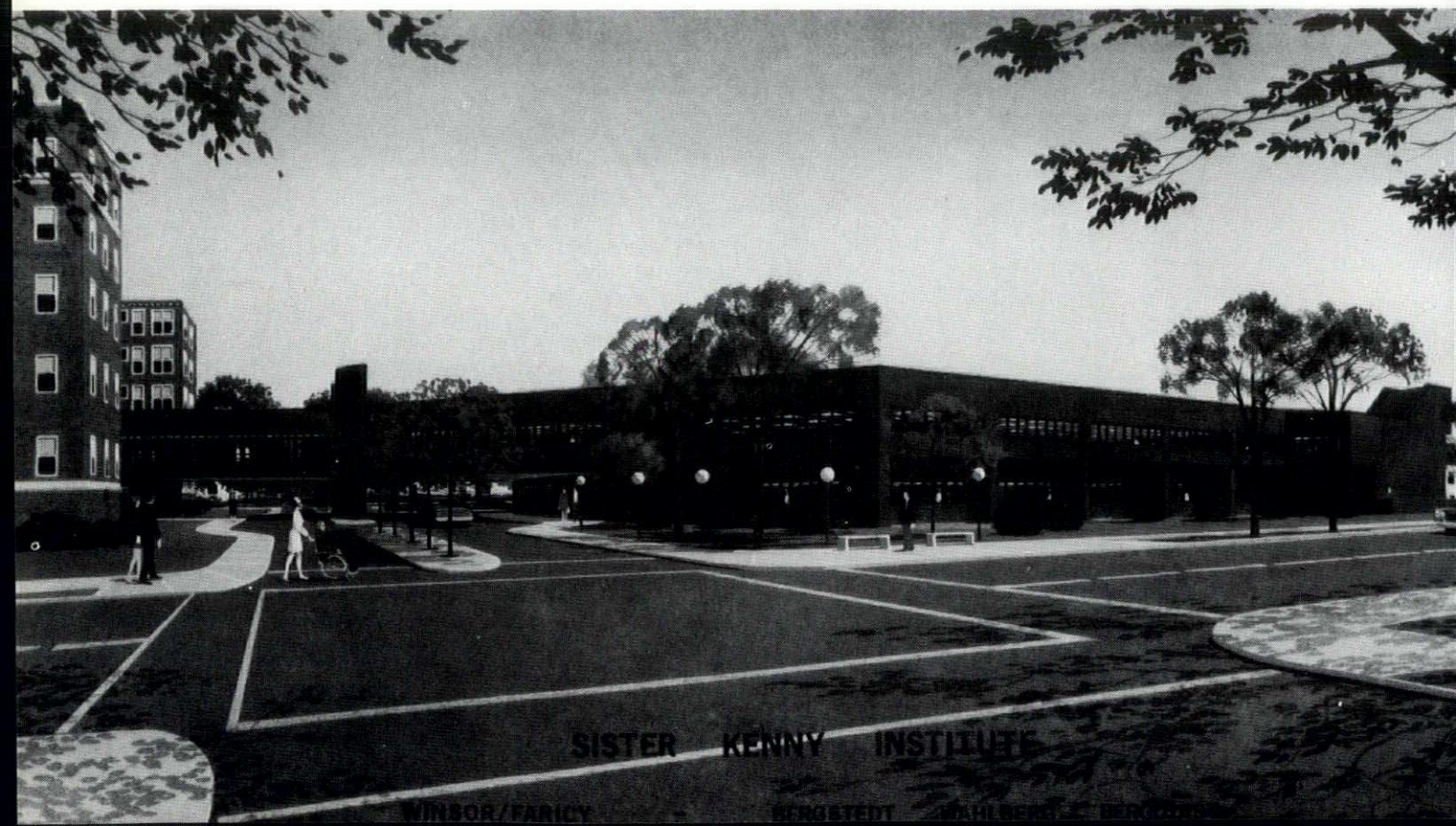
An extensive concourse system below grade not only ties together the Mayo campus but also links hotels and other services in the adjacent downtown area of Rochester. The concourse is being extended to the new facilities where incoming patients, staff and visitors are greeted by a dramatic skylite court. This court orients users to the Mayo complex.

Samaritan Hospital
St. Paul, Minnesota

Bettenburg, Townsend
Stolte and Comb-Architects
St. Paul, Minnesota

Sister Kenny Institute

Winsor/Faricy Architects—
Bergstedt, Wahlberg, Bergquist,
Rohkohl-Assoc. Architects
St. Paul, Minnesota



The Emergence of the Health Industry

by Carl Platou

In a nation which has been characterized by aggressive and dynamic growth it is unique that one of the major industries — health care — has been accused of remaining static in organizational growth and development. Hospitals, as a major component of the health system, have developed as a cottage industry, i.e., individual, isolated operations. This development has provided a duplication of services and raised expenses to the community. A glimpse at the nature and history of hospitals will provide an insight into why they developed in this fashion. In addition to the manner of development, there are other factors which have also contributed to the rising cost of hospitalization. However, many hospitals have risen to the challenge of providing quality health care as economically as possible through improved organizational efficiencies. We shall examine the history and development, factors contributing to the cost of hospitalization and how one hospital has met these challenges through the "holding company" concept.

The first centers of healing were in early Egyptian and Greek temples. In the Western World the development of hospitals was slower and mainly evolved around religious institutions. When the Pope built a hospital in the name of the Holy Ghost in 1198, nearly every European city followed suit.[1] This early tradition of Christian and Jewish involvement in hospitals was brought to the New World. As the American pioneer moved westward he established three institutions in his community — his churches, schools and hospitals. The hospital was frequently affiliated with a religious sect and always based on a religious ethic of concern. This tradition, combined with American devotion to the preservation of life and health, led hospitals to develop individually, primarily serving the community which organized and built them. This explains why a Catholic and a Lutheran or an Episcopal and a Swedish hospital were founded right next to each other — They were built by and for specific communities.

The great pride these private hospitals generated in their communities contributed to the growth of hospitals as a cottage industry. In addition to being a point of pride in the community, another concern which prevented hospitals from seeking more efficient forms of organization and administration was the fear that they would not be able to serve their communities in the manner and spirit in which they were founded.

The historical development of hospitals fragmented and duplicated medical services but this is only a partial cause of the high cost of hospitalization. There are three other major factors which have caused the sharp increase in the cost of hospitalization — personnel, medical technology and government involvement.

Compared to industry hospitals have a reverse ratio of personnel and supply cost — personnel cost averages between 65% and 70%, while supplies are only 30% to 35% of the total budget. This initially made expenses higher than in other industries but hospital personnel, i.e., nurses, cleaning and maintenance personnel, etc., were paid far below the wages of their counterparts in industry. In the 1950's and '60's the combination of hospitals beginning to be run more like businesses and therefore requiring reliable and good personnel, and the advent of unions in strength in the health field, caused sharp wage increases. The fast rise in wages in an area that accounts for 70% of total expenses has been probably the major cause of the sharp increase in hospital charges.[2]

The advance of medical technology has been so rapid that a disease can be cured today which could not be diagnosed just a few years ago. The new equipment and techniques save lives but they are expensive. Many pieces of laboratory and X-ray equipment cost $75,000 to $100,000 and have a life expectancy of only five to ten years because of new and more sophisticated equipment developed to outdate the current ones. The new equipment and procedures take up a great deal of space. A hospital costs $55 to $75 per square foot to build. These factors certainly fulfill the demand of Americans to have the "best" medical care but it is expensive.

In conjunction with this rapid advance in technology is the need for education, not only the initial process but continuing education. Many hospitals sponsor both the residency and clinical experiences for doctors and other health professionals. All hospitals must spend a great deal of time, effort and money on continuing education for all their personnel from the housekeeping to the nursing staff.

Experts projected that after the large scale entry of government as a reimburser for health care, health care costs would increase sharply.[3] This projection is partially based on the means of financing, i.e., there are no incentives to hold down cost by either the physician or the patient. In addition the reimbursement formula for government sponsored patients, including Medicare and Medicaid, is called the RCCAC method — Ratio of Charges as Charges Apply to Cost, i.e., payment will be made for cost or charges, whichever is *lower*. This causes very definite problems in meeting inflation and maintaining an adequate cash flow. There are several other factors connected with government involvement which are a treatise in themselves.

The pressures of these cost factors, always in the perspective of the hospitals' ethical and social comittments to the community, have stimulated significant improvements in the management of hospitals. In initial attempts to bring forth greater economies, hospitals have begun in the past several years to share services such as laundry, warehousing of supplies, print shops, etc. Mergers have also taken place between hospitals which discovered they had the same interests and objectives.

These early steps in an organizational

(Continued on page 87)

Carl Platou, is a well known innovator and leader in hospital administration. He is president of Fairview Community Hospitals which consist of Fairview Hospital in Minneapolis, Fairview-Southdale Hospital in Edina, Lutheran Deaconess Hospital in Minneapolis and an affiliation of eight additional hospitals throughout Minnesota.

The Matrix System and Module Concept: Dynamic Approach to Medical Planning

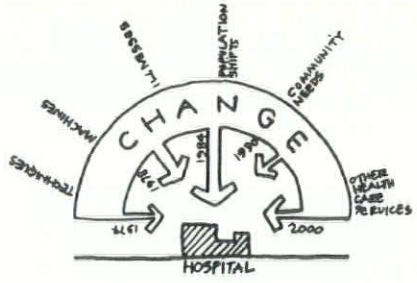
By Donald C. G. Nelson

A flexible, dynamic change in the construction of medical facilities has been noted since the post World War II era when such construction maintained a very predictable pattern. In the period immediately following the war everyone was in a hurry to catch up on construction. Planning was done quickly and with little consideration for long term needs. The impact of the automobile and the dynamic changes in the philosophy of the practice of medicine had not yet emerged.

The traditional hospital floor plan tended to group all of its services on two or three levels around an elevator core and then provided the required number of beds in a variety of multi-floor plans stacked vertically around that same elevator core. This is still an appropriate solution in an urban setting where population growth is extremely predictable, where land is at a premium and where no future need to expand the facility is anticipated beyond strictly predictable limits.

Expansion of this type of facility was always locked-in to existing configurations and new beds had to be added in such a way that they duplicated existing beds. Frequently several departments had to be expanded at the same time and much renovation work was often required so that extension could function logically. This kind of approach often necessitated an original commitment to structural requirements and mechanical and electrical services. This meant that two undesirable things happened: (1) capital outlay was required initially to provide for some future requirements and (2) future flexibility was always limited when these services were included in initial project outlays.

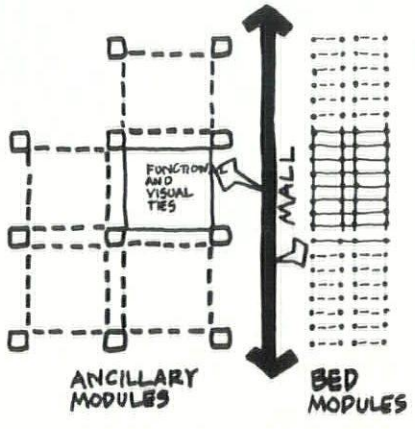
When this same traditional planning approach was exported to the suburbs, however, a major problem developed and need for a new solution arose. Hospitals were often built on limited sites with little regard for future growth needs. Until the mid-60's the need to reserve space for future development of a variety of para-medical facilities and to provide complete flexibility for growth and change of virtually every hospital department was given low priority. The difficulty of expanding these hospitals 5 to 10 years later clearly indicated that a more dynamic, open-ended planning approach must be taken.



Growth and change are, and will continue to be, an ever present fact of life for health care delivery systems for the reasons shown.

With this background a new generation of hospitals has been developed by the medical facilities development team at Ellerbe. Some examples of the new philosophy that have emerged include Meridian Park, a new 100-bed hospital in Tualatin, Ore., a new 258-bed hospital for Southern Baptist in New Orleans, La., and a major expansion program for Sutter Community Hospitals in Sacramento, Cal.

What we began to search for and discover were answers to a long list of major planning problems including, but not limited to, the problem of letting each department grow independently and at a currently unpredictable rate. How can we let bed facilities grow without spending a lot of money now, provide for future structural and mechanical requirements and at the same time limit planning configurations? How can we eliminate the institutional look to both the exterior and interior spaces of the hospital? How can we provide a plan that functions more efficiently and allows for flexibility in staffing patterns? How can we eliminate the need to duplicate facilities, creating an atmosphere in which services can be shared between departments? How can we do all of this in the face of escalating construction costs and more demanding building codes and zoning ordinances? Moreover, in the face of federal cutbacks on capital funding aid, restrictions imposed upon growth by agency review and simple scarcity of capital funding dollars, how can construction projects be structured to meet the needs of highly phased programs? How can this be done without undue compromise to functional efficiency and minimal disruption of the physical plant at each construction interval?

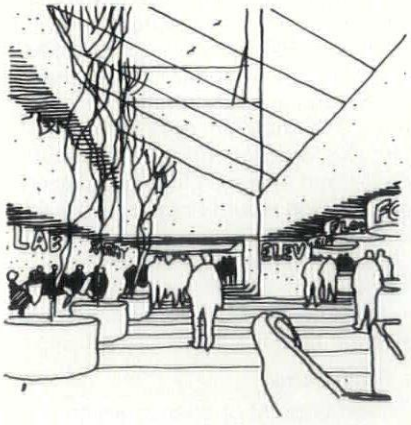


For economy and engineering logic, similar modules should be grouped rather than scattered. The two modules should be horizontally independent to simplify expansion and adaptation. A pedestrian mall functionally and visually ties the two modules together. An analysis of desirable proximities reinforces the horizontal relationship between the two modules.

Donald C. G. Nelson is a senior vice-president and executive medical facilities consultant with Ellerbe Architects/Engineers/Planners in Saint Paul. His material was prepared in collaboration with Valentine A. Satko, director of medical facilities architecture, and George T. Riches, associate director of medical facilities of the same firm.

The response to these questions evolved as a planning concept utilizing modules and systems inserted into a planning matrix. Simply put, the modules represent one or more geometric configurations to satisfy the functional requirements of a medical facility activity. This may be a nursing unit, ancillary department or a support service. Basically, the module assumes a configuration which will permit internal flexibility, assure easy expansion and be compatible to adjacent services. Nursing units take on a configuration to satisfy patient and staff requirements.

A second component constitutes the systems used to link the modules. They may include automated materials handling methods, environmental components as well as the elements of materials, finish and treatment to integrate the whole. The planning matrix is the envelope which encompasses the whole or the structure which accommodates the modules and supports the interconnecting systems. It may be a structural grid, a linear spine as in Southern Baptist or a unifying mall concept.



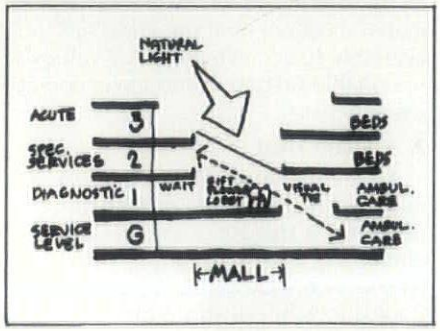
The mall is the first level circulation route to all major departments. As such it provides opportunities for a variety of functions to take on an informal character within and along the mall. (e.g., information kiosks, "sidewalk" coffee shop, gift shop, waiting areas, flower shop, etc.). Penetration of space will allow natural light from above. Light courts at some locations would allow natural light into the lower level. Visual courts at some locations would allow natural light into the lower level. Visual links to levels above and below reinforce the orientation of the user.

In principle the planning concept is not unique but borrows heavily from concepts derived in speculative office building projects and shopping malls throughout the country. The application to medical facilities sparks a new range of approaches to dealing with the complex, changing medical environment.

It would be incorrect to infer that this approach to the planning of health facilities is the answer to every problem. However, we are excited about the flexibility and adaptability offered by this approach. We feel confident because this planning approach tends to lower initial construction costs and at the same time retain a maximum amount of flexibility for future growth. It provides us with an important new concept to planning. This approach will be able to grow and be modified to suit changing needs. For these reasons we are sure that the matrix, system and module technique for flexible medical planning is not just another passing fad but will be one of the really positive forces in the planning of health care facilities for a long time.

An early response to the technique is the development of the Meridian Park Hospital in Tualatin, Ore. There the conventional base structure contains ancillary and support facilities with detached nursing units. The intimacy and small scale of the facility permits fairly unsophisticated mechanical systems and an absence of the need for automated materials handling. The matrix is likewise reduced to the interconnecting corridor elements and basic vertical transportation. Notable is the ease of both lateral and vertical expansion.

Another example is when the Southern Baptist Hospital board decided to upgrade the services at the downtown site of its existing 600-bed hospital in New Orleans. At the same time the board saw the need to provide health care services to the rapidly expanding West Bank area. At this point we were asked to help them with the utilization study of a site in the West Bank area and to develop a viable hospital program to respond to the future needs of the area.



Planning concepts paralleled the development of a program of flexible space requirements for a 150-bed hospital which could be adaptable and grow ultimately to a 450-bed hospital as well as provide an expanding doctors' office building and some on-site staff apartments. The long term objective was to locate a parking garage which would satisfy the need of a suburban medical center with limited public transportation.

Program requirements identified the need for an initial 250-bed hospital with opportunity for future growth to betwen 450 and 600 beds. It was recommended that initially a doctors' office building be constructed with 20 suites. Future growth of this unit was expected to be four-fold and provision was made to grow eventually to a building containing 120 suites. Although initial apartment requirements were identified as 20 units, it was expected that as many as 120 units would eventually be required. After much study it was concluded that a parking structure for 450 cars should be built as part of Phase I. It is expected that the parking structure will be self-amortizing both now and in the future when it must grow to accomodate 1,500 cars.

The master planning concept for the rectangular site recommended that a horizontal spine be developed on the long axis of the site so various elements could be "plugged in" in such a manner that they could all relate to each other appropriately in the first phase and at the same time allow for growth of all departments and elements independently. The buildings were located on the site so that most of the natural vegetation could be retained. The main

(Continued on page 80)

Hospitals and Energy

By Robert W. Gish

With the world's energy sources in short supply it becomes imperative in the design of new buildings that energy conservation in all forms be given due consideration. The salient points of any "ESP" (Energy Saving Program) are (1) The "U" and You, (2) Radiant Heat, (3) Form and Function, (4) Fenestration, (5) Ventilation and Energy Recovery, (6) Water Conservation and (7) Electrical Energy.

All projects requiring large volumes of energy will soon be required to have their energy uses approved by state and national "energy use" boards. An energy design standard has already been drafted by the National Bureau of Standards and will be released by summer, 1974. The standard will involve such items as the building shell, illumination, heating, cooling and ventilation systems.

Hospital institutions require more energy per square and cubic foot than most other buildings. Let us compare, in the table here, the average energy requirements of a typical hospital institution to those of an average large office complex.

Obviously the energy conservation items below must be given positions of high priority in hospital design.

Robert W. Gish is director of engineering for Liebenberg, Smiley, Glotter & Associates, Inc., who were first place winners of the 1973 Energy Conservation Contest for the Design of Mercy Hospital, Coon Rapids, Minnesota, sponsored by Owens Corning Fiberglas Company.

1. The "U" and You

The human comfort index is directly related to the temperature of the air and the surfaces that surround an individual. The "U," or the heat transfer co-efficient of any structure, is far more important than most designers will acknowledge. Let us compare two "U" factor design situations.

With a "U" of .20 the temperature of the inside surface will be *58 degrees F.* on a -20°F. outside design condition and a space air temperature of 72°F. Change this "U" to .10 and the inside surface temperature increases to 66°F.

The human comfort level is dependent on the amount and rate of heat given off by the body to the air and surrounding *wall, ceiling* and *floor surfaces.* As the inside surface temperatures rise above 65°F., it is possible to maintain space air temperatures at lower levels and not affect the comfort index of the individual.

With this in mind it is obvious that good design must include a decent "U" value, which in turn will require less energy consumption. Insulation materials of nominal thickness are available to achieve good "U" values at reasonable first costs and lower operating expense.

2. Radiant Heat

An additional design concept to maintain higher inside surface temperatures is the use of infra red rays emanating from a radiant heat source. At the Mercy Hospital project in Coon Rapids to warm nearby surfaces, with a "U" value of .14 and a strip of radiant ceiling along the outside perimeter, we have been able to reduce the normal hospital room temperature from 75 degrees to 72-70 degrees and still provide patient comfort. A design benefit of the use of radiant heating is the space gained by the elimination of radiation, convectors and cabinet units, plus the esthetic gain from a cleaner, smoother appearance and lower maintenance costs.

3. Form and Function

The "form and function" concept of design will always control the direction that most projects must take but it is becoming important to place proper emphasis on "form" as it relates to the enclosed area, the building compass solar orientation and its placement on the site. The smaller the ratio of outside wall area to functional space enclosed, the less heat loss, less heat gain and less energy consumption within. An example would be a required area of 90,000 square feet. The purist's means of enclosing this would be a 300 ft. square area and 1200 lineal feet of exposed wall. This enclosed space has 75 square feet of useable area per lineal feet of wall. The same area shaped 150' x 600' has 1500 feet of lineal exposed wall with only 60 square feet of useable area per lineal feet of wall. This requires 25% more energy consumption. With the long dimension facing south or west and average glass areas, energy consumption would double for an air conditioned building.

Balanced considerations of these facts will still leave latitude to achieve the designer's concepts of providing interesting and provocative structures.

4. Fenestration

Another point of energy design is consideration of fenestration, window construction and type of glass selected. Each project should be considered by a new *"Golden Energy Rule"*: not how much glass one can use but what will be the acceptable *"mean,"* still achieving a relationship of outside to inside along with the functional requirements of the space.

PEAK HEATING ENERGY HOURLY FACTORS

Hospitals Office Complex		
Hours per day required	24	10
BTU's per cubic foot	12	7
Electrical Watts input per square foot	7	4-5
Design Temperature	75 degree F.	70 degree F.
Ventilation requirements	maximum	minimum

PEAK COOLING ENERGY HOURLY FACTORS

Hours per day required	24	10
BTU's per cubic foot	6.8	3.8
Design Temperature	75 degree F.	75 degree F.
Ventilation requirements	maximum	minimum

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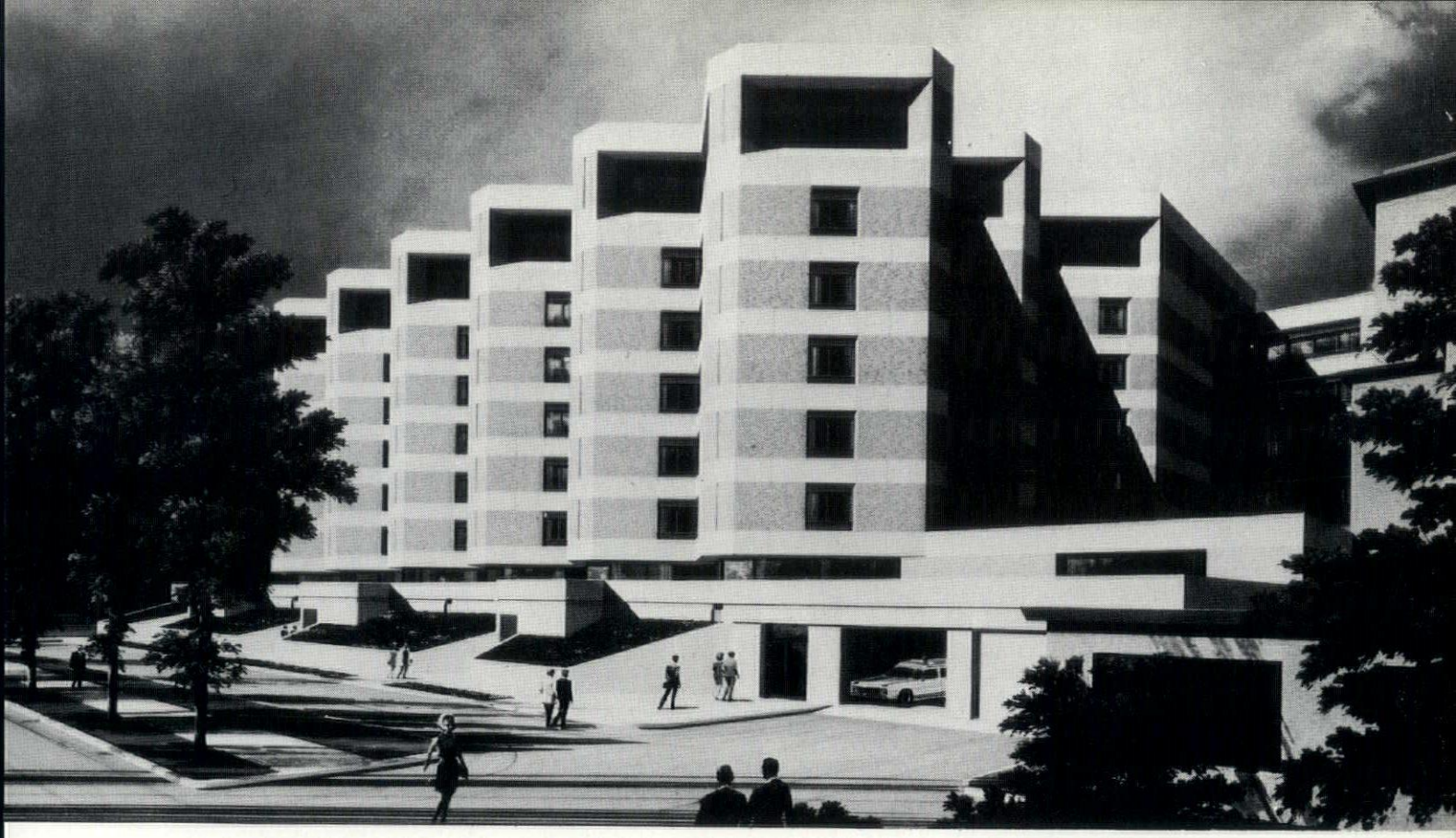
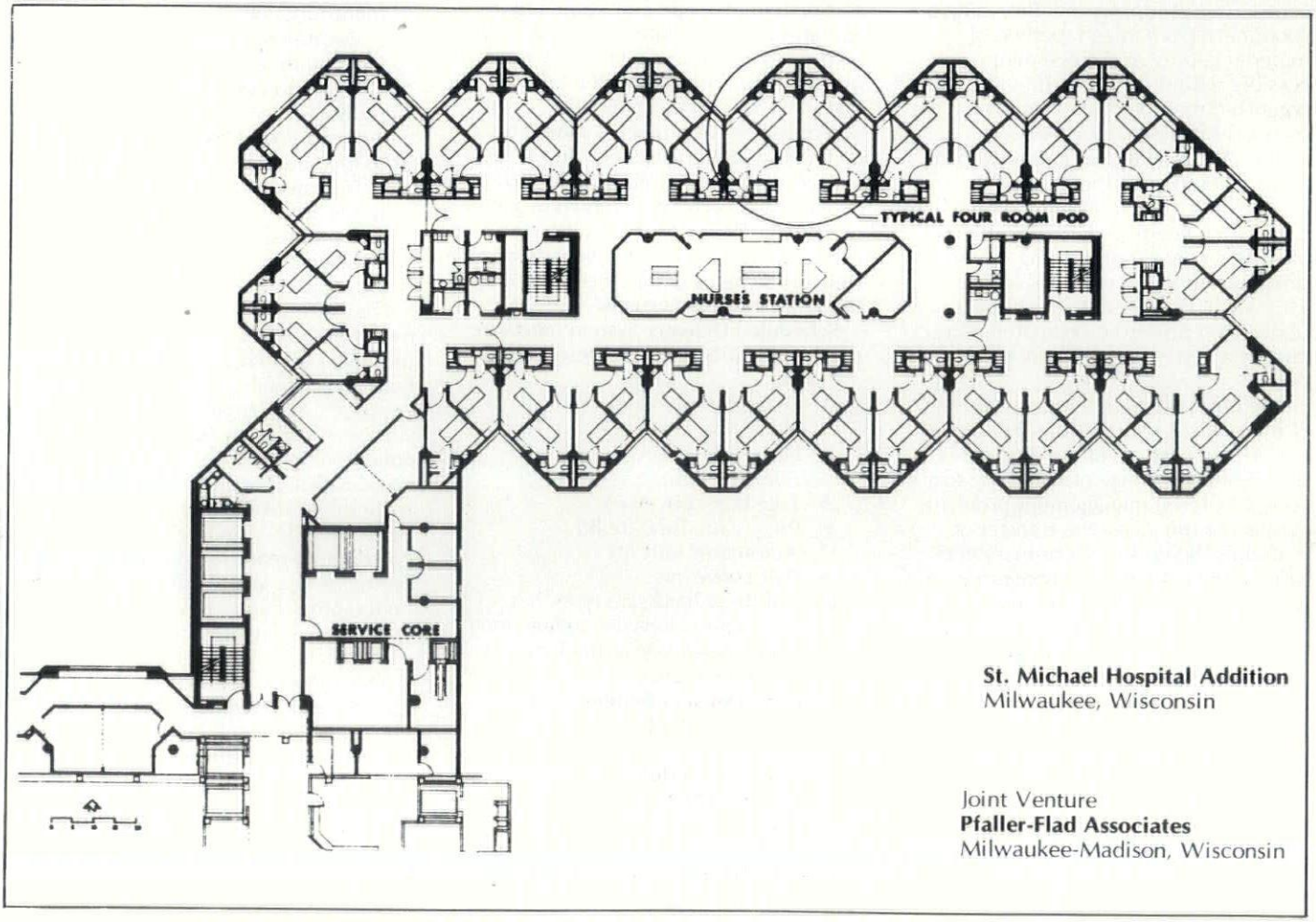




St. Michael Hospital Addition
Milwaukee, Wisconsin

Joint Venture
Pfaller-Flad Associates
Milwaukee-Madison, Wisconsin

Advances in Material Handling

By Leslie Formell

The material management department of any medical facility is a complicated and vital physical link between the various departments and suppliers of goods required for continuous operation of the facility. To accomplish this link large quantities of differing types of materials must be moved on a continuing basis. This movement requires people—people involved in planning, management, scheduling, and traditionally, many people pushing carts or carrying bags, boxes, vials, bedpans, linen, food, and all the other items necessary to support health-care facilities.

The basic problem that must be realized is that most facilities are traditionally organized with separate departments for purchasing, stores, laundry, central sterile supply, etc. Providing a coordinated, organized method of material control and movement is impossible within an uncoordinated, disorganized method of accomplishing the material management process.

The "Material Management Department" should have the sole responsibility of the supply process-forecasting needs, ordering, receiving, inventory control, processing, physical distribution, and disposal of wastes. This is a basic concept which must be understood prior to coordinated planning of a system for material distribution.

The physical system for distribution of materials is the visual aspect of the material management department which has the image of satisfying everyone's material management problems. This is not the case. The transfer of materials, however, is a primary consideration of the physical operation of a well organized material management department. This transfer may be best defined somewhere in a range of automation from a full manual system, all the way to a computerized automated material handling system that requires very few staff members. The amount of human labor utilized should be limited to the "control facilities" and "decision-making" areas that cannot economically be justified for automation or computerization.

Investigation of the delivery of material types indicates that all types of material have certain aspects of the delivery process which can be scheduled. Some material delivery, such as linen, can be totally scheduled. Other items such as lab samples and emergency packs require delivery as soon as possible. It is convenient to separate these types of deliveries by defining their scheduleability.

Scheduleable deliveries can be more organized in the quantity of goods and therefore may be included on a larger cart system. A larger cart system that operates on a schedule of delivery will be most efficient in operation by reducing unwanted trips of small items. All material that can be included in a scheduled delivery process **should** be included within this system. Items that cannot be easily fit into a schedule of delivery will better be handled in some other way. Therefore, types of systems can be discussed as either **Scheduled Delivery Systems** or Unscheduled or **Demand Delivery Systems.**

Scheduled Delivery System hardware can be classified by basic descriptions as follows:

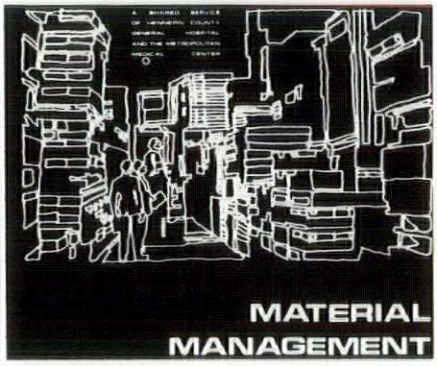
1. Overhead monorail
2. Underfloor tow chain
3. Powered module
4. Powered train
5. Tote box/conveyor
6. Pneumatic tube (bulk)
7. Automated cart lift
8. Belt conveyors

Each of these hardware types has particular applications depending upon the detailed definition of the facility's delivery requirements.

Demand Delivery System hardware can be classified by basic descriptions as follows:

1. Powered module
2. Powered belt
3. Pneumatic tube

These hardware types are more specific in the kinds of materials that can be delivered and analysis of the appropriate type is extremely critical.



Application of specific systems requires a series of steps to assure an appropriate choice of system or systems. These steps are:

1. Definition of material management functions
2. Definition of materials to be handled in facility
3. Definition of quantity of material transfer
4. Definition of hardware applicable to material transfer requirements
5. Bid, award, and installation of hardware
6. Continual definition of material management delivery schedules and inventory control software

The definition of a material management department is certainly as important in a small hospital as it is in a large health-care facility, maybe even more important. In a small facility one or two staff members may be in charge of this operation, but their actions if uncoordinated may prove to be very wasteful relative to the number of patients served. A well balanced, coordinated material management department in a large health-care facility, on the other hand, may be able to easily save large amounts of staff member time by proper organization.

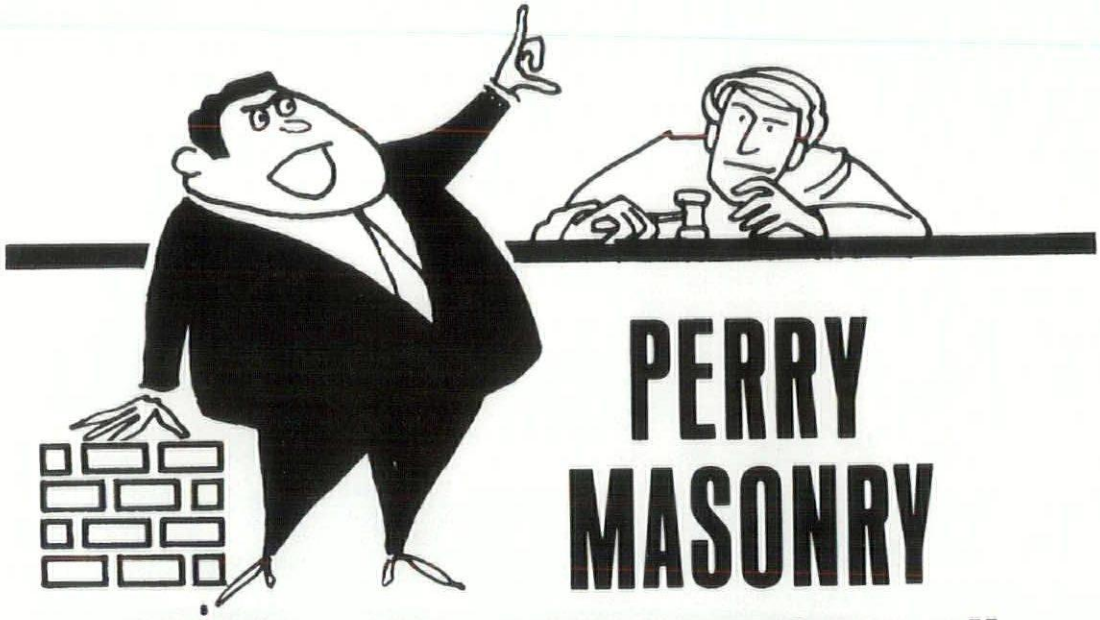
This same comparison is true with regard to automated material handling equipment. A small facility may find that **Scheduled Delivery** systems are too costly and show little operational savings, but that a low cost **Demand Delivery** system will provide for accurate, safe, and speedy delivery of all

(Continued on page 81)

Les Formell, a graduate of the University of Minnesota, is an associate with Horty, Elving & Associates, Inc., Architects, in Minneapolis.

▲ **Long-term Care Unit, Northwestern Hospital**
Thief River Falls, Minnesota
Bettenberg, Townsend, Stolte & Comb, Architects
Saint Paul, Minnesota

▼ **Watertown Hospital**
LSG & Associates, Architects
Minneapolis, Minnesota



PERRY MASONRY

and the case of the resisting wall

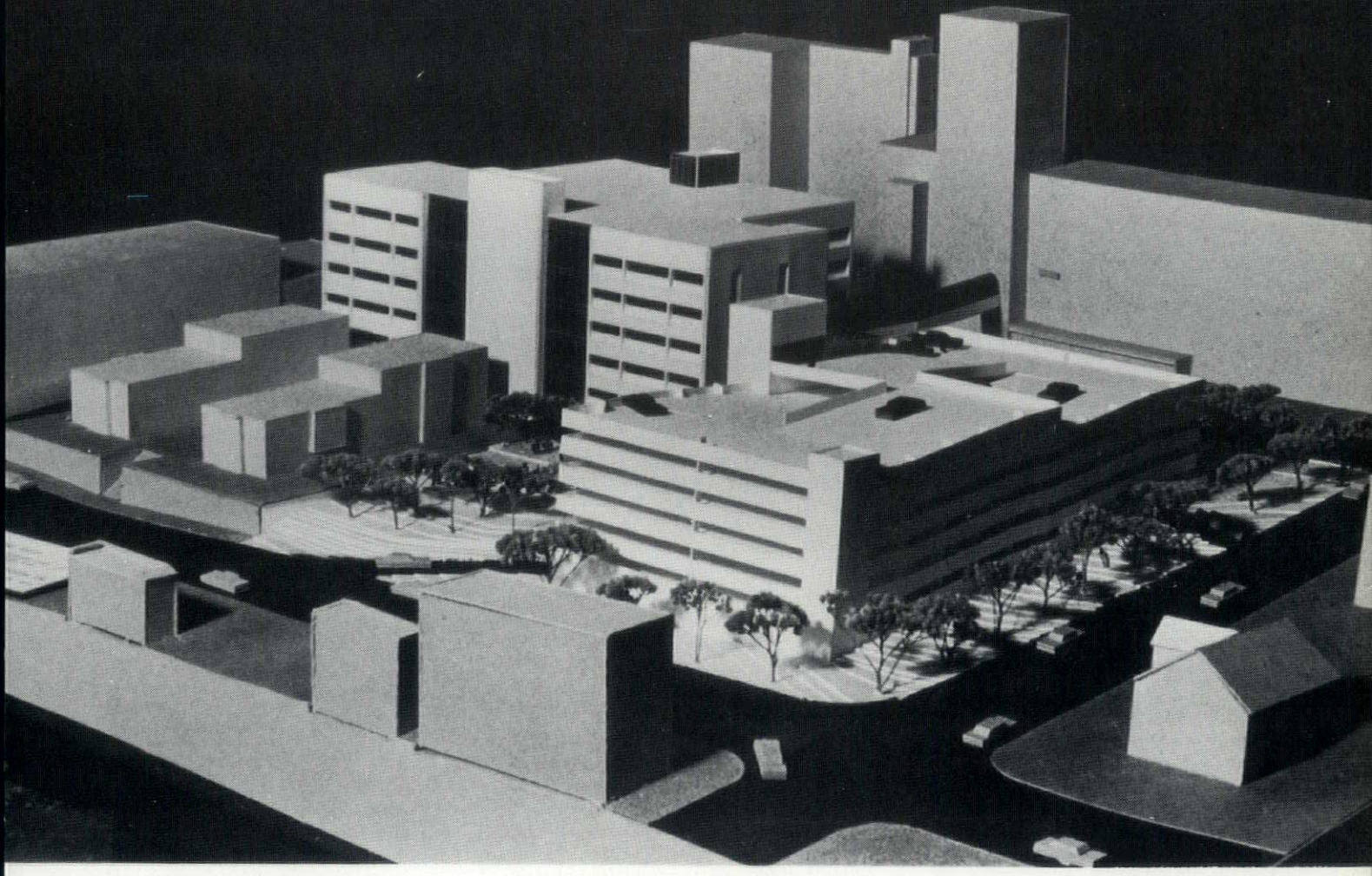
Brick and Block were accused of overvaluing their weather and temperature resistant qualities.

Perry Masonry, however, had no problem showing the jury that this, in fact, is true. Brick and Block not only resist heat loss in the winter and heat gain in the summer, but they also help to conserve fuel energy all year 'round.

The verdict: case dismissed; proving once again that when you want the best, build with masonry.

minnesota masonry institute

7851 Metro Parkway Suite 103
Minneapolis, Minnesota 55420
Phone: 612-854-0196



Setter, Leach & Lindstrom Inc.—Architects
Minneapolis, Minnesota

Duluth Clinic

The generating idea for the new Duluth Clinic is the belief that citizens can receive better medical care through a clinic facility, accommodating improved and expanded medical services located near Duluth hospitals.

Construction will start this summer with completion expected in early 1975. Presently, plans for the building are being reviewed with city authorities as part of the application for zoning variances.

Duluth Clinic Ltd. currently has a staff of 60 physicians. The new facility will immediately provide space for 63 doctors with potential for expansion to 75 doctors. This expansion can be accomplished by adding three floors on top of the initial five-story building. In addition to providing space for an expanded medical staff, the new facility will provide employment for additional support personnel. Duluth Clinic now employs 202 people. This support staff can be expected to exceed 300 in the years to come.

For the Clinic staff, the new facility offers almost 50 percent more space than the present building. The lower level and first four floors provide 100,000 sq ft of usable space. Provision is being made for finishing the fifth floor later, as expansion becomes necessary. A comfortable interior environment will be provided by a hot water heating system and complete air conditioning. Another advantage, for the medical staff and public as well, is the proximity of the new Clinic's site to St. Mary's and Miller-Dwan Hospitals.

The architect's response to the site has been a major determinant of the building's overall form. William Scott, architect with Setter, Leach & Lindstrom, Co. of Minneapolis, the building designers, stated that, "bedrock just beneath the soil, the view of Lake Superior, and the proximity of St. Mary's Hospital are all important site characteristics which affected what the building will look like. The bedrock limited the feasibility of economically tunneling between the Clinic and the Hospital and necessitated the design of a pedestrian bridge over East Third Street. In addition, we wanted to provide the Clinic with views of Lake Superior without blocking the Hospital's view."

One key element of the building's interior planning was to make each patient's journey through the Clinic as pleasant as possible. The patient waiting and reception areas have high ceilings and are oriented to views of Lake Superior.

The exterior of the new Clinic will use precast concrete wall panels and tinted glass. Outside the northwest corner of the building will be a mini-park for public use. The estimated construction cost of the Clinic is approximately $4.5 million according to the developer, Lovering Associates, St. Paul.

The Duluth Clinic Ltd. and its adjacent parking ramp will provide the Duluth community with a compact medical center.

By Peter Kramer

Is there a more actively bubbling caldron of literature on buildings than that related to the health care field? I hardly think so. From the most prestigious journal to the least known esoteric periodical there flows a continuous stream of articles on the art of building and the parts of buildings. Creating the ideal physical environment for the highly specialized skills of medicine has become, or is becoming, a complex new science. Page after page in the most unlikely magazines are filled with the latest plans, the newest planning methodologies and mountains of prophetic analysis on how all this information relates to the future of both medicine and architecture. The best of these articles are often sandwiched between EKG tracings and gross photographs of various organs and because of these unusual juxtapositions create special problems for the research architect. Good information is simply hard to find in these enormous piles of data and once found is often difficult to translate due to its scientific nature or to a desire on the part of scientists to deal in jargon. In either case the following cryptic notes will attempt to isolate some basic sources of information—a few especially rich lodes and a couple of unique books which shouldn't be missed under any circumstances.

First of all, the kind of information we will be talking about is strictly lacking in metaphoric content so in preparation for immersion into this printed encephalography I suggest a brief side trip: *The Immense Journey* by Loren Eisley, Random House, New York, 1946. In a rare blend of scientific knowledge and imaginative vision Eisley explores the mystery of man and nature. Traveling his route from past to present will surely give a more human quality and balance to the contemporary empirical wizardry which follows.

Don Conway,
Director of Reserach Programs
American Institute of Architects
1735 New York Ave., NW
Washington, D.C. (202-785-7353)

Don can provide a literature search of 100 to 150 titles on almost any subject. Along with this service, which is free to members of the institute, he will plug you into the on-going research programs which the institute is either involved in or monitoring. Periodically you'll be notified of new research reports which can be purchased for the cost of copying. While you're at it I suggest subscribing to the new *AIA/RIBA Research Journal*. Although the subject matter is not directly related to health care, the effort of a joint British/American journal merits support.

Joseph Sprague,
Health Research Program
Architecture Research Center
Texas A & M
College Station, Texas 77843

These fellows were, are and continue to be innovators in methodology, presentation and relevant, exciting work in a variety of areas. A brief letter to Joseph will get you on the mailing list.

Health Facilities Resource Center
Health & Hospital Planning Council of Southern New York
3 E. 54th St.
New York, N.Y.

This center represents the local New York AIA Chapter's efforts to organize and disseminate health care facilities information. It works both ways, so you have the option of sharing data with them or making use of what they have. The National AIA Committee on Architecture for Health is also in the process of establishing a health facilities laboratory similar to the educational facilities laboratory and they would welcome input from practitioners in the health care field.

Smithsonian Science Information Exchange
Room 300
Madison National Bank Bldg.,
1730 M St. NW
Washington, D.C. 20036
(202) 381-5511

American Hospital Association, Inc.
840 Lakeshore Drive
Chicago, Illinois 60611

Peter Kramer is an associate with Horty, Elving & Associates, Inc., Architects, in Minneapolis and a Ph.D. candidate at Union Graduate School (the Union of Experimenting Colleges and Universities).

Building Systems Information
Clearinghouse
Educational Facilities Laboratory
477 Madison Avenue
New York, New York 10022

These sources, while rather general, shouldn't be overlooked. They all offer a good starting point in tracking down particular data or in locating source materials. In any case they are all worth an initial contact.

At this point let's make a quantum jump, from reasonable piles of books and magazines to the tons and reams and volumes and heaps of information available from:
National Technical Information Service
U.S. Department of Commerce
Springfield, Va. 22151 (703) 321-8000

This service provides access to all federal government research and development. Through a matrix of publications—WGA (Weekly Government Abstracts), GR (Government Reports), TA (Typical Announcements), GRA (Government Report Announcements), NTIS search and so on you can be kept up-to-date on an almost daily basis, if you desire. The over-riding majority of health-care research, such as the VA Study of Building Systems, 1972, or the GSA Study of Hospital Construction Costs, 1971, is federally sponsored, making NTIS an invaluable and primary source.

For those with a masochistic need to pour through endless printed pages, I suggest NASA Technical Briefs available from NTIS. Last month, hidden in a 100-page tract of disposable catalytic reactors and data-guided tracking loops, was a special shower for bathing bedridden patients and a gas chromatograph that is only 2 ^{cm} square and 5 mills thick—amazing stuff.

Suppose, however, you possess a more balanced psychology, no need to punish yourself with print or find ego satisfaction in the empirical wandering of others. Then, in fact, there are only two absolutely necessary sources:

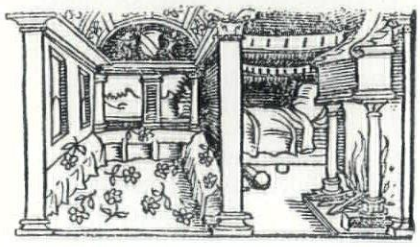
Hospital Modernization and Expansion, by E. Todd Wheeler, McGraw Hill, 1971. This book is particularly pertinent today as we shift the emphasis on the updating of existing facilities from in-patient to primary care. Mr. Wheeler takes us in a step-by-step process through the problems of modernization and fills every page with practical tools for understanding. The appendix alone, a compilation of the floor areas for 106 hospitals, is worth the price of admission ($22.50).

Systems Analysis Study Towards a New Generation of Military Hospitals . . . State of the Art (Volume 4), by the Westinghouse Corporation ($3.00), is available from National Technical Information Service.

This improbable title identifies the best one-stop shopper for health care facilities information to be found anywhere. It's a couple of years old now but as a starting point for data gathering it can't be surpassed. In this case state of the art refers to the most advanced technology, concepts and procedures presently used or available for the 1972-1980 time frame. The bibliography is the most complete available; don't miss it.

Finally, our heads reeling from this technological assault, I suggest my favorite book on bodies: *The Body Has a Head,* by Gustav Eckstein, Harper & Row, New York, 1969.

Dr. Eckstein, in a miraculous, mysterious and metaphoric way, explores the many avenues of man's attempts to resolve the secrets of his body—797 pages on the "how" of most of it and the "why" of much of it. He needs no anatomical drawings or chemical tables but creates these images with words and leaves the reader with a new awareness of his personal immensity. His intent is "to make the human body more familiar to anyone who owns one" and he succeeds in a most poetic manner. ■



Emergency Services on Wheels

By James Lammers

Firefighters in St. Paul are bringing the services of a hospital emergency room right to the side of heart attack victims. Ambulance units manned by trained paramedics can reach an emergency anywhere in St. Paul within minutes. By maintaining contact, through radio-telemetry, with the St. Paul Ramsey Hospital emergency room or cardiac care unit, the paramedics are able to relate vital signs and electrocardiogram readings to a doctor on duty. The doctor in turn monitors the paramedic as he uses a defibrillator or administers cardiovascular drugs to the patient.

More than 300,000 persons die each year of heart attacks without benefit of coronary unit treatment. Until recently a person suffering an attack was immediately rushed to the hospital for treatment. However, medical authorities now recommend that the patient be stabilized (i.e.: the non-functioning heart activated and rhythm established) before moving. This has lead to emphasis on "on-site" treatment through a paramedic program in St. Paul and other cities.

St. Paul's program is unique in that it makes dual use of Fire Department personnel. Presently over 30 firefighters have received a 15-week training course from doctors at St. Paul Ramsey Hospital. Providing trained paramedics has not increased personnel costs of the department and, moreover, the service is given free of charge to St. Paul residents.

Although the program is very effective in saving lives of heart attack victims, other personal traumas such as diabetic coma, stroke and insulin shock are also treated. The program was initiated in 1973. This year the paramedics expect to handle over 8,000 emergency calls. ■

James Lammers, a graduate of Iowa State University and Columbia University is an associate with Close Associates, Architects, in Minneapolis.

Mock-ups of Patient-Room Facilities

By David V. Damberg

On all of my recent building projects I have encouraged the client to consider seriously the construction of a mock-up patient room, during the planning process, when meaningful critique can be made by hospital staff in advance of working drawings. Most hospital projects involve the construction of repetitive units—the majority of nursing units are either a group of one-bed rooms, two-bed rooms or units in combination. The mock-up room should be representative of one of the contemplated units. When the realtionship of building units one to another is determined, attention can be paid to the appropriate design of the mock-up room. Specific space allocation and building or physical elements are determined by the functional program. The purpose of constructing the mock-up patient room is to simulate the exact environment, in order that all interested persons may have the opportunity to inspect and criticize the facility and recommend any necessary changes. Ultimately the final room reflects the consensus of the hospital staff members who must use the patient room. Activities which must be carried out in that room will have been put to the test of use before the blueprints leave the architect's desk.

Many persons involved in the planning of a hospital cannot read or clearly understand blueprints. Moreover, it is difficult for some persons who can read them to envision spacial relationships, or relationships of various elements within that physical facility, from a written narrative. Often we have had doctors, nurses or administrators express disappointment over characteristics of a completed room or department, even though there had been prior agreement as to what was needed or desired. Forgetting an outlet for an electric razor in the bathroom, for instance, may be considered minor by some but it will be regarded as a serious omission by the nursing staff. Though a wheelchair is 27 inches wide and *should* go through a 30-inch door, the angle of approach to the toilet may be the determining factor regarding the size of the door. Actually wheeling a patient into the space will leave no doubt as to its practicality.

The mock-up room must be furnished throughout with the very equipment that is anticipated in the finished facility. This includes light fixtures, color selections, materials for wall, floor and ceiling, fenestration treatment, location of all elements on the head wall, plumbing fixtures and any other anticipated furnishings. Construction of the room may take from one to three weeks and may cost from $3,000 to $5,000. The hospital may have to purchase all the major components, or it may find that equipment will be consigned by the suppliers for the duration of the experimental room's existence. In hospitals where clusters of rooms are considered, or where patient pods are being utilized, the mock-up can best be appreciated if it includes the relationship to entrance corridor and anteroom, if applicable. It is assumed that construction of the mock-up will be accomplished in some suitably convenient location to enable the staff to study the space without undue stress. Patient treatment should be simulated within the room and a good place for this seems to be within the teaching area of the hospital, if such space is available there. It must be possible to bring stretchers and wheelchairs into the mock-up, with "patients" in the bed, to hang from traction, to attempt to reach the call-system, to turn on lights and television, use the telephone. Visitors should sit in the appropriate chairs and clothing must be hung in the closet or stored in the drawers. Suitcase sizes must be considered for storage as well. Nursing staff should attempt patterns of circulation within the room that relate to nursing care—hand washing, giving baths, assisting a patient in and out of the bed and toilet room, etc. A detailed photographic record might be kept of the mock-up that would serve as aids to the planning committee after the mock-up has been disassembled.

Those who have participated in the trial use have valued the opportunity to express their ideas and contribute to the hospital's planning at the grass-roots level. The result of the multiple critiques of the mock-up room is enhanced workability of the completed rooms. This practice is receiving enthusiastic endorsement from hospitals in which it has been used. ■

David Damberg is a director of James A. Hamilton Associates, hospital consultants, in Minneapolis.

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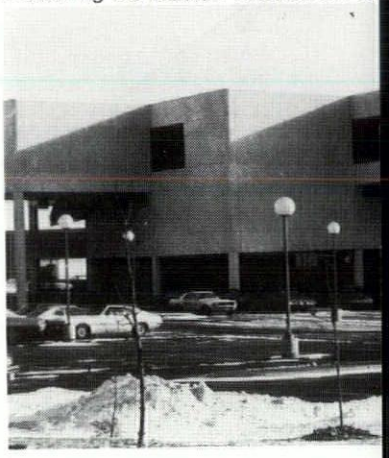

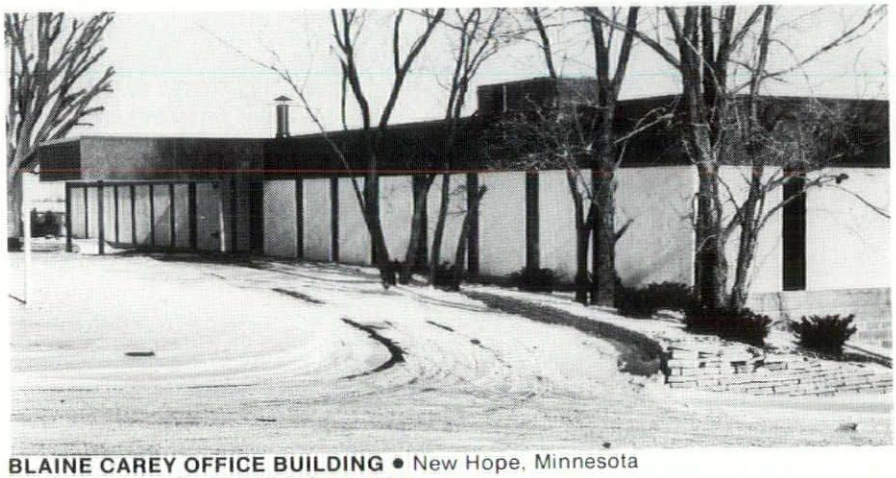

BLAINE CAREY OFFICE BUILDING • New Hope, Minnesota
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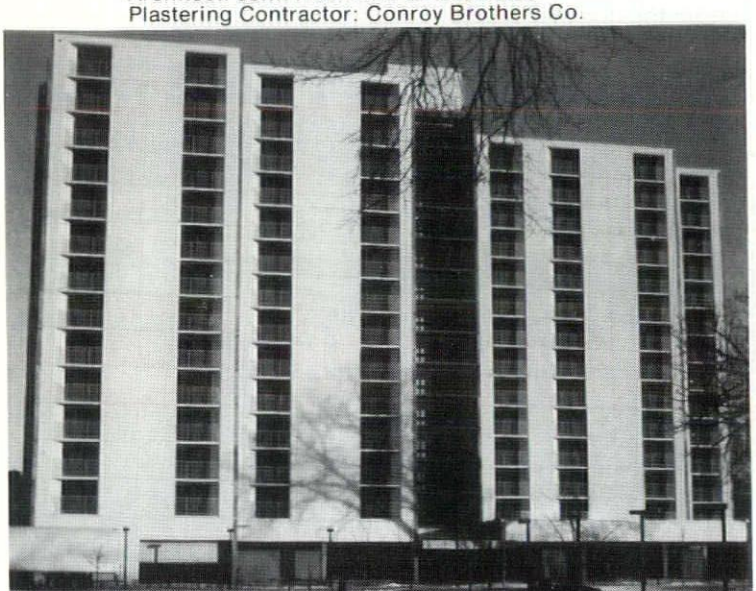

JENKS HI-RISE • St. Paul, Minnesota
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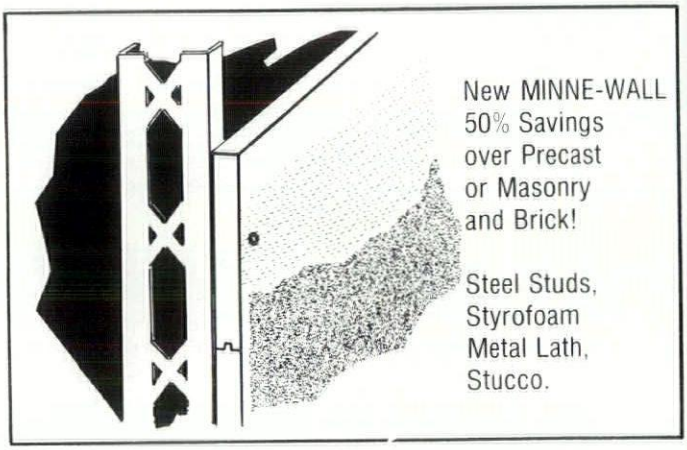

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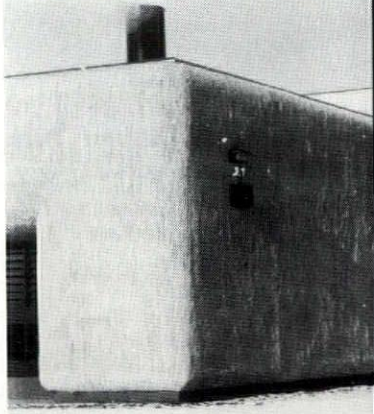

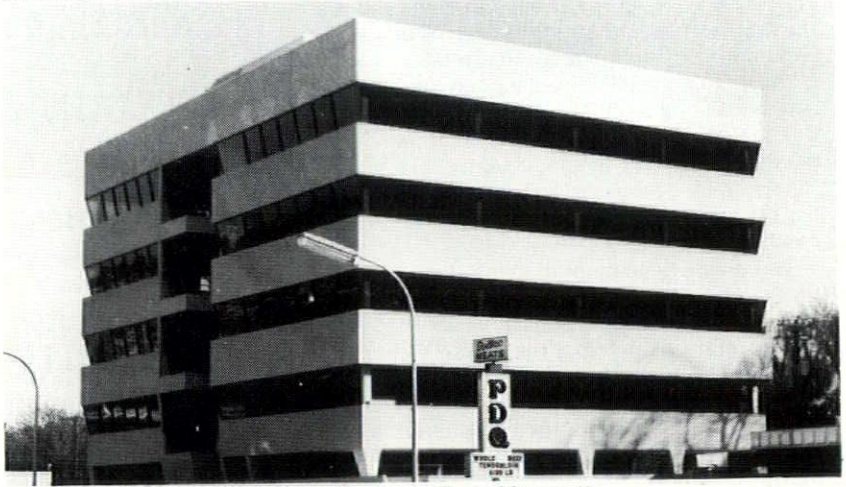

ROONEY OFFICE BUILDING • St. Louis Park, Minnesota
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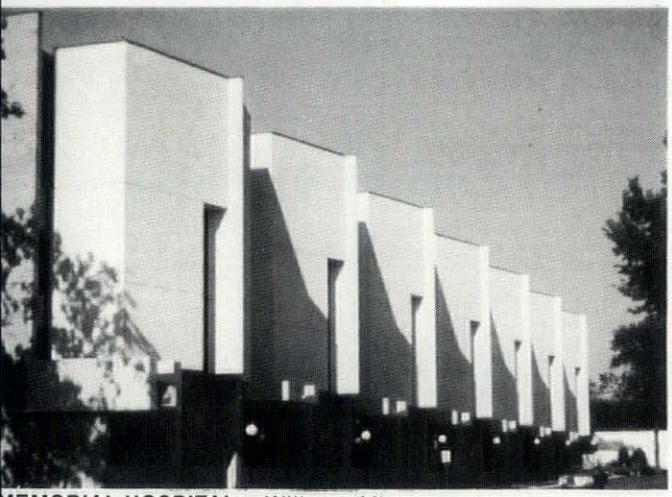

MEMORIAL HOSPITAL • Willmar, Minnesota
ect: Horty, Elving & Associates, Inc.
ring Contractor: Reuben Johnson Co.

HI RISE FOR ELDERLY • 12th & Fremont, Minneapolis, Minnesota
Architect: Williams/O'Brien Associates, Inc.
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Park, Minnesota

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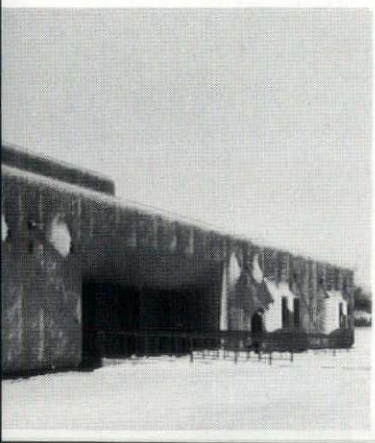
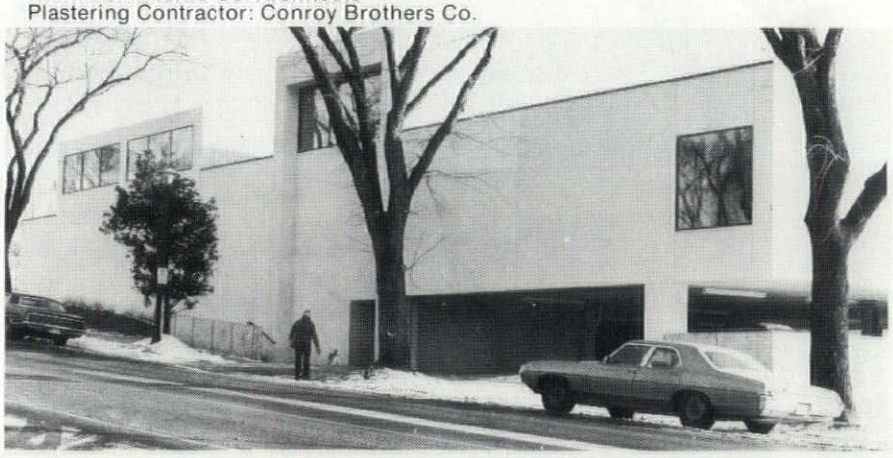
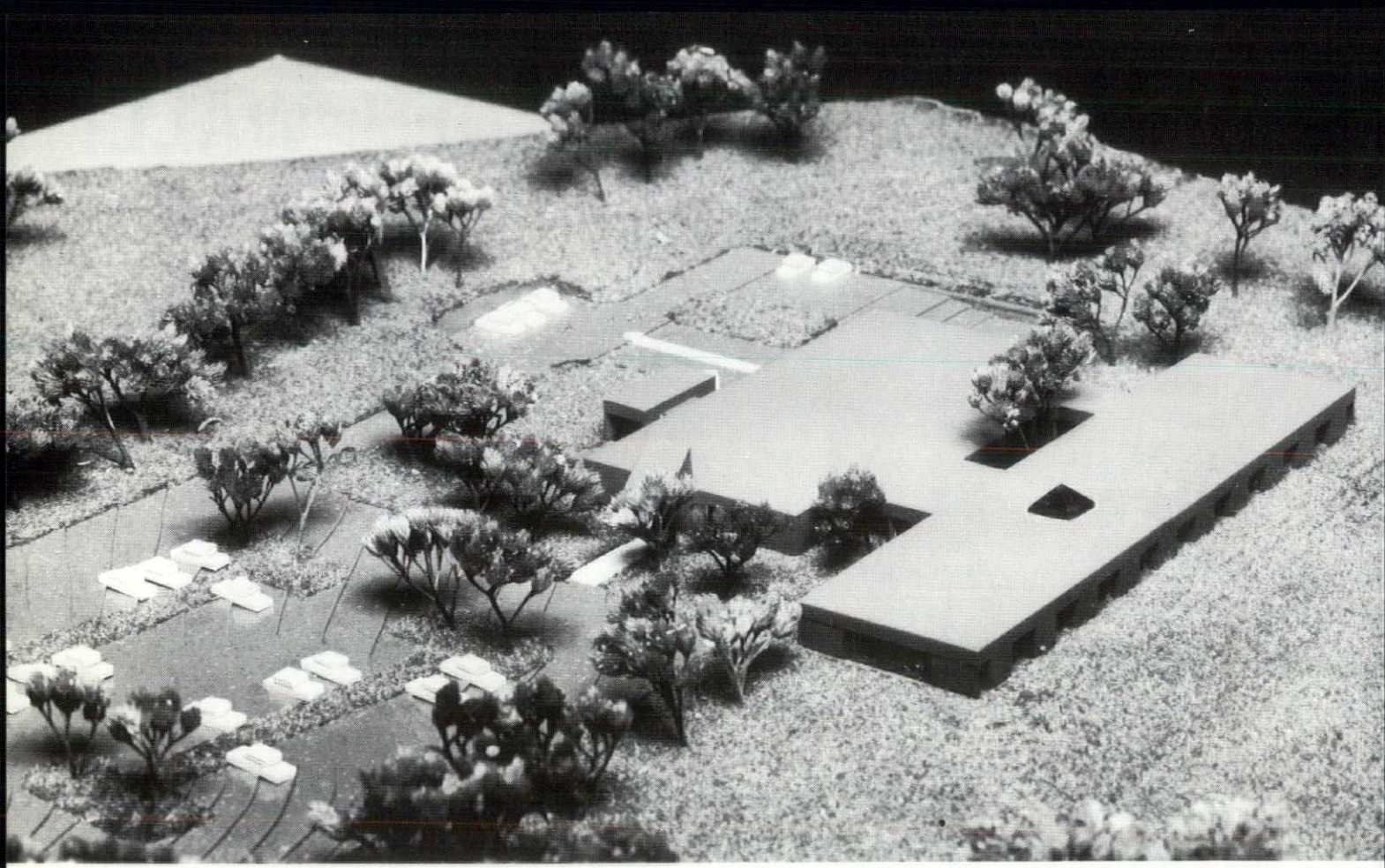




Contact

LATHING & PLASTERING BUREAU



Windom Municipal Hospital
Windom, Minnesota

Associated Hospital Architects
Minneapolis, Minnesota

Joy to the Waitee

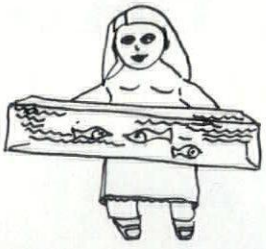
By Hortense Wartenlump

The ugliest room in any hospital is the waiting room. My own office waiting room was always dirty. If it was clean, which was rare, the magazines were always filthy. Those waiting room magazines are the fiercest carriers of desease I know.

Magazine selections make a good research paper. The rules vary between hospital, clinic and private practice waiting rooms. Hospitals, if they have a religious affiliation, have no problems. If they are not so related, they either concentrate on the local dailies or omit reading matter altogether. Clinics are very different. If they are simply group practices, they will gear their subscriptions to their clientele. I have actually seen a clinic with four identical copies (four subscriptions I must assume) of *Vogue*, but then I have also seen seven copies of the *Readers Digest* at one time. The give-away, of course, is the private practice waiting room. If I were looking for a doctor or dentist, I would first interview his magazine rack or table. If he has a plastic magazine rack with two copies of the AAA news, the Rotarian and a four month old *Readers Digest*, I'd never trust him in surgery. If he has *Field and Stream, Argosy*, and *Rod and Gun*, I would hope he was no psychiatrist. If I find *Time, Readers Digest, House and Garden* and *Popular Mechanics* and the copies are up to date, then I can assume I've got a workmanlike doctor, probably dull and routine, but warm and competent. Most doctors read *Playboy*, but they will never leave it in the waiting room. Maybe it wouldn't be tax deductible!

The paintings in waiting rooms, surprisingly often originals, frequently make any patient sicker than he was when he arrived. In a hospital I was attached to once, the husband of one of my patients was so infuriated by a sunset scene that he went to the cafeteria, came back with a plastic bag of ketchup, tore it up and squirted it all over the painting. Sometimes the colors in the painting are coordinated with the colors of the carpet and draperies and then it really looks as if someone had vomited all over.

I just came back from Dr. L. He's got new offices in the Medical Tower. Never have I seen a more hideous waiting room. Pink cove lighting, an aquarium in the middle of a small room, about 15 by 15, and two benches, one across from the other. No receptionist. Just a surveillance camera and a microphone: "good morning Dr. Wartenlump, Dr. L will be with you immediately." I gave him a piece of my mind.



Yesterday I met with the new architects working on our satellite hospital. I tried to explain to them that if form follows function, they should follow the function of the waiting room carefully, I tried to get it through their little functional mind that a waiting room is really a lot more than a waiting room. I told them: 1. The people who earnestly use the waiting room are usually in a great state of anxiety. Your job is to reassure them, comfort them, make them feel that everything possible is being done right now, and you must do this without saying a word to them; 2. Anxiety and strangers don't mix. Do not design the room so that chairs or sofas must face each other. Use individual chairs and arrange them so that everyone can avoid everyone's eyes easily; 3. Nature and anxiety do mix. Give them a large window with a good view of nature, of trees and shrubs (and wilderness and water if possible); 4. Never, never use fluorescent lighting; 5. The object is not to suggest to the waitee that he lose himself (we might as well provide an open bar) but to comfort and reassure him; 6. There should be some relationship, however tenuous, to the main desk or the control desk. The waitee must be continuously aware that his presence is known. However, the waitee should never be made to feel on stage and never in the path of circulation; 7. If a television set is to go into the room, build it in, do not make it the focal point. Speaking of television: what blind and callous stupidity permits the all too frequent spectacle of these TV sets permanently tuned by romantic hospital personnel to "The Doctors" or "General Hospital" as if the patients did not have enough to worry about without Dr. So and So's D.T.'s or Nurse Whatchmacallits nymphomania.

Everything is changing. A colleague took me by a dental clinic where all the chairs in the waiting room were television chairs, the kind they have in airports. Furthermore, they were pay chairs!

I don't know anything about architecture, but I can usually tell when an architect knows what he is doing. I heard C give an explanation the other day and it made a lot of sense. He said a waiting room in a doctor's office or in a hospital is like a greeting. The language, the inflection, the tone, they all indicate what one thinks of a person. How much that person is valued, how important you want that person to know he is to you.

The worst person in a hospital is the child. He belongs in the maternity ward or else in a soundproof children's waiting room.

The next time I'm involved in a building program, I'd like to see the main waiting room and all the other waiting rooms at the top of the building, like those rooftop restaurants. Good for the psyche. ■

Hortense Wartenlump was well known in the Upper Midwest, and indeed throughout the nation, for her work as a nurse, teacher, physician and hospital administrator. Her research papers appeared in professional journals regularly over a period of 30 years and she was admired for her sometimes mordant wit, her incisive comments and her creative, fearless imagination. These epigrams and notes have been selected by her daughter Larry from materials collected for the forthcoming book "The Follies of Hortense", to be published this fall. The illustrations were drawn especially for the Northwest Architect by Sorvel.

charette created an esprit between the two institutions which has served to help continue extensive cooperation in the implementation phase. Current plans call for General Hospital and MMC to share more than 20 services, including pediatrics, obstetrics, rehabilitation and extended care, emergency service, radiation therapy, cardiovascular laboratory, food service, materials management, communications, library and steam and chilled water generation. Sharing of several of these services has already been initiated. The others will become effective upon completion of the construction program. The administrations of both hospitals are convinced that the cooperative building and programming thrust established by the charette and the interest of the community will enable each to continue giving high quality care with marked results in cost containment.

A building was not the only outgrowth of community interest in MMC and Hennepin County General Hospital. Most community groups recognized the need for construction on the parts of both MMC and General, however, many community leaders were suggesting that the county, as the legal custodian of programs for the medically deprived, and Metropolitan Medical Center, as a representative of the private hospital industry, had a responsibility to reach out to the community in providing easily accessible health services. The two hospitals were equally responsive to these suggestions. As a result, the Hennepin County Health Coalition, a nationally unique combination of consumers and providers, was formed to continue intensive planning and implementation of responsive health care through total community involvement. In addition, both MMC and General extensively increased their individual organizational commitments to the community.

When the construction in process is complete, the integrated Metropolitan Medical Center will lie to the east, the new Hennepin County General Hospital to the west, and a jointly-managed Center Hospital will connect the two. A person will be able to walk freely indoors from one end of General Hospital to the other end of Metropolitan Medical Center. Floors in the Center Hospital will serve patients from the two institutions intermingled. Personnel from one hospital will manage one service in Center Hospital, while those of the other hospital will manage another. Agreements for management procedures are being developed at the present time. Thus, there will be no committee management inside the Center Hospital but there will be maximum sharing.

From the standpoint of these two hospitals it is fitting to discuss the responsiveness and humanization of health care in an architectural magazine. An architecturally conceived event, the charette, ignited a spirit of cooperation that helped Metropolitan Medical Center and Hennepin County General Hospital achieve a common sense of purpose and a hightened dedication to cooperate and prosper together. ■

only one-half of which can be allocated be allocated to the seven-county Metropolitan region which has two-thirds of the State population, but did pass a bill in 1973 providing for the establishment of non-profit HMO's. Maintaining health, early detection and intervention, and preventive health care are a complete educational turn-around for consumers and providers alike from the illness-orientated society we have developed. All facets of the health care industry will have to cooperate if this change is to occur, and although I have heard many arguments against HMO's by the industry and its providers, none so far are impressive enough to outweigh the potential benefits for the enrollee that this delivery system promises. We wish it well.

Our Guide will push us to the front of the controversy which has been simmering discreetly up to now. Many providers are most anxious to see the consumer input laid to rest because we are rocking the delivery system boat and changing its direction. Most hospitals are financed and operated by the public dollar and as such are subject to everyone's scrutiny and a great deal of regulation. That is the way our democratic system works and that is why the consumers have a legitimate place in the decision-making process. However, consumers as well as providers have a responsibility to be effective, fair and knowledgeable when involved.

Our board's strong consumer majority has many implications for health planning and decision-making in the Metropolitan area, particularly for improvement in the distribution and delivery of primary health care services, control of hospital expansion, and in the deliberations which affect our Certificate of Need decisions. The emphasis has now shifted from institutions to the people occupying those institutions or being affected by the delivery system. Our Board is not made up of radicals but consumers and providers who work hard and long, voluntarily, to fulfill their responsibilities, people who know it is important work and who take their assignments seriously, people who embody the spirit of the 1966 Partnership for Health Act. ■

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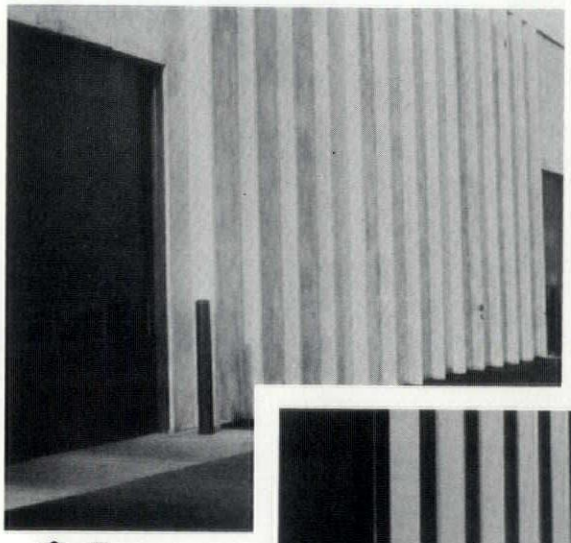
('sa-til) adj. can function in many different ways, variable, useful.



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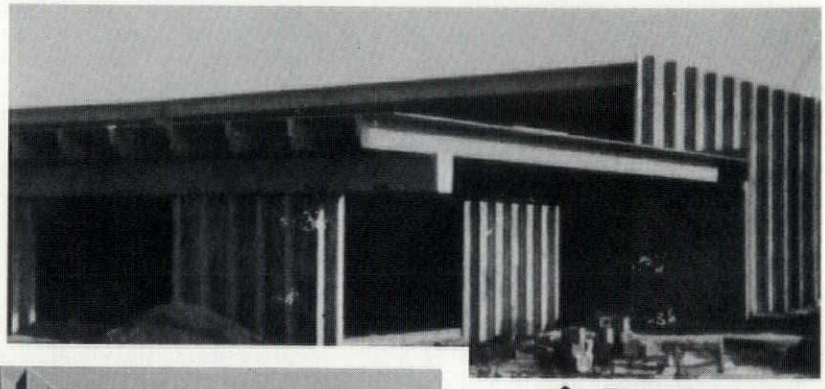

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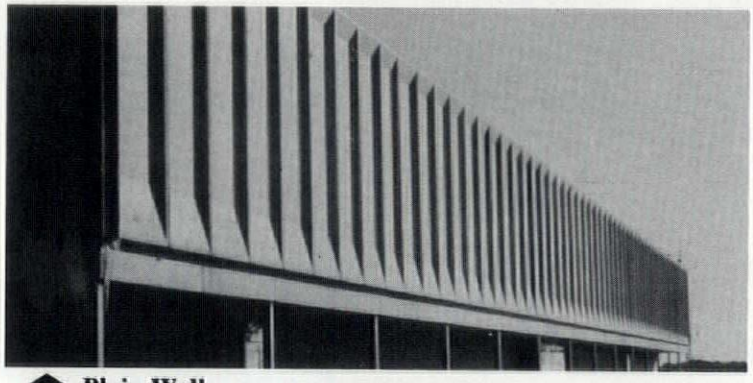
Roof
Walls



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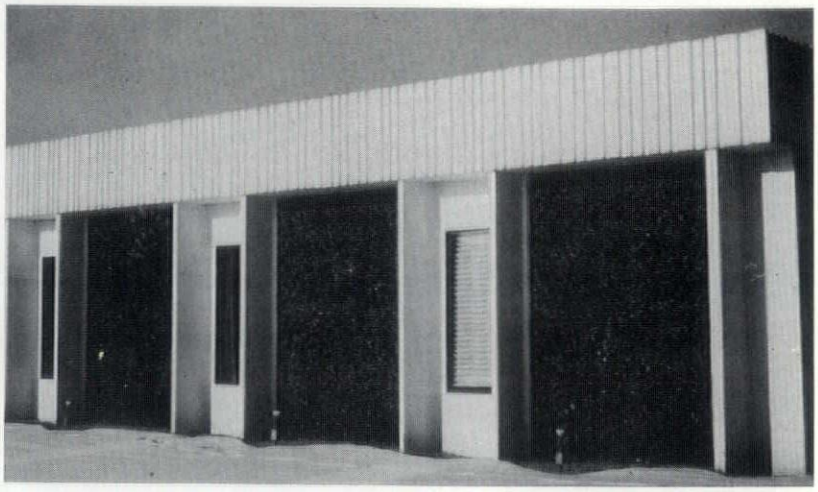
Stems 4' O.C.



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Matrix System
(Continued from page 61)

entrance on Bender Boulevard (see illustration of master plan) relates to small scale commercial structures, doctors' office buildings, a branch bank and a pharmacy across the street, etc. At the same time the patient beds and staff apartments have been sited to relate to townhouse units and apartment buildings presently under construction. It is expected that construction of the 20-million-dollar project will be underway in 1974 and the entire complex will be fully operational by 1976.

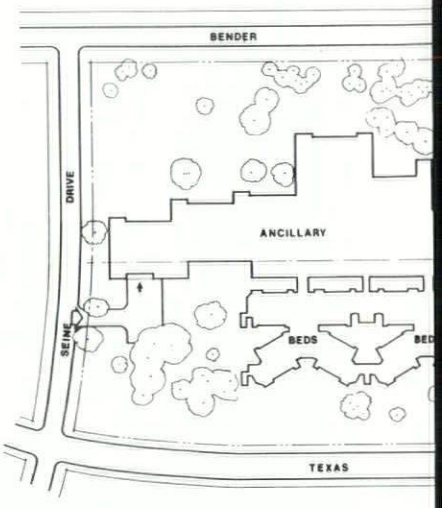
Note the strong similarity between the early master plan concept and the final schematic development, showing the basic validity of the planning concept despite a two-year planning hiatus.

The final example is by far the most sophisticated excursion to date into matrix, system and module planning. Sutter Community Hospitals of Sacramento, Cal., led the nation in being the first major institution to develop a satellite health care facility during the '20's. Community growth and shifting population have decreed a prodigious growth at its satellite site.

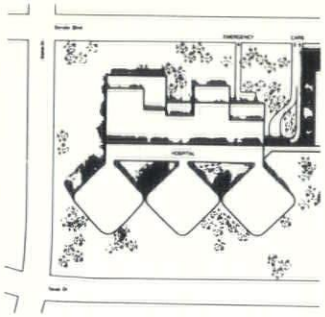
Master planning studies commissioned in 1973 generated an analysis which dictated a continuation of growth at Sutter's satellite site to absorb the main facility and integrate all existing elements into a functioning medical center. Thus a new generation of multi-direction matrices was developed to house the functions. Laterally the matrix is a movement mall for separation of traffic, cohesion of departmental relationships and distribution of services. Vertically, with the use of bridges, connectors and interstitial space the matrix permits flexibility for ancillary development, unrestricted modular additions and a framework to house changing requirements. . Automated systems are implied to service support cores throughout the campus and to assure ease of access for patients, visitors and staff to all elements of the complex as well as unify the inter-related services.

In conclusion, a threshold has been reached in planning medical facilities. Planning parameters new to medical facilities are being used to generate facilities to serve a multitude of user requirements, including the now common needs of flexibility and expansion but sensitive also to the visual environmental impact of medical facilities both internally and within the community. Further, these facilities permit phasing to meet budgetary requirements with minimal compromise and assure the development of an organic structure which will evolve as health delivery systems evolve and not become obsolete.

Concepts such as interstitial space and prefabricated rooms will come and go. However, we are confident that the matrix, system and module concept to planning for medical facilities will remain a viable, economical, flexible and dynamic approach to medical planning. ■

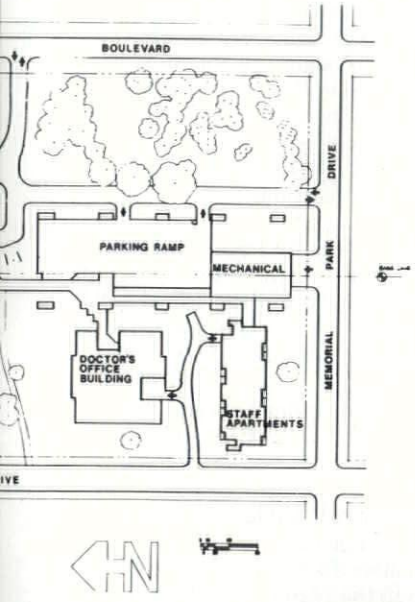


SITE P



LONG RANGE CONCEPT

SOUTHERN BAPTIST SATELLITE HOSPITAL NEW ORLEANS, LA.



Material Handling
(Continued from page 64)

the "Demand" type of deliveries, saving critical staff member time for the life-saving and health-care types of tasks.

The problem of material management is, therefore, universal. The problem, also, will continue to exist in all facilities and must at some time be dealt with in an organized manner. There are basically three reasons that this problem has received so much attention lately. First, the cost of health-care continues to rise dramatically. A well or organized material management department with an economically feasible automated materials distribution system can reduce these costs by reducing numbers of personnel, providing conditions where personnel use their time for their trained talents, and reduce inventory and storage requirements. Second obtaining dependable employees to accomplish some of the more mundane tasks is becoming increasingly difficult. Third, the provision of improved health-care services is accomplished by providing materials and personnel in the locations and doing the jobs for which they were intended.

Material distribution systems have had a short, costly, and "go for broke" type of development in the last six to 10 years and have arrived today at a point where definition of appropriate systems can be made with fairly definitive cost analysis attached to their proposal. These systems will become more refined and will probably become more limited in number of manufacturers and types of systems. All of the systems outlined previously, however, will remain in the marketplace for application of specific material distribution needs.

Administrations must look at their supply process concepts and carefully study, understand, and define the flow of goods through the health-care facility. Analysis of the material management department and the potential for incorporating a materials distribution system or systems should be discussed with an experienced materials management consultant and/or atchitect to define the feasibility of expanding funds for their installation.

Architects will look at the physical ramifications that the distribution of materials have on the layout, size, and visual design of the facility. The functional aspect of materials management as well as materials distribution affects every last department and staff member of the health-care facility and ultimately the patient which the entire facility was meant to serve. ■

Twin Cities Medical Center — Hospital Complexes

Minneapolis Medical Center
Abbott-Northwestern
Kenny Rehabilitation
Children's Health Center

West Bank Medical Center
Fairview
Fairview — Southdale
St. Mary's

Health Central, Inc.
Golden Valley Health Center
Unity
Mercy

Metropolitan Medical Center
Hennepin County General

Associated Capital Hospitals
United Hospitals
St. Joseph's
Children's
Riverview
St. Paul — Ramsey

Baptist Hospital Fund
Midway
Mounds Park

Minneapolis Suburban Ring Hospital
Fairview Southdale
Methodist
North Memorial
Golden Valley Health Center
Unity

Other Suburban Hospitals
Divine Redeemer
Mercy

Unassociated Central City Hospitals
Samaritan Hospital
Bethesda Lutheran
St. John's
Eitel
University
Veteran's Administration

Semi-Urban Hospitals
Forest Lake Memorial
Lakeview Memorial (Stillwater)
Regina Memorial (Hastings)
Sanford Memorial (Farmington)
Queen of Peace (New Prague)
St. Francis (Shakopee)
Waconia Ridgeview
Watertown Community

Courtesy The Metropolitan Health Board

(Continued from page 56)

swimmer had been brought to the Mayo Clinic by her mother. The dilemma was formidable, the school girl correspondent said, because (1) the child's mother was fearful that the incarcerated rattlesnake would bite her daughter and (2) Mayo Clinic surgeons were afraid to extricate the serpent because they thought it would bite them. The fillip to this venomous recital was a primal non sequitur: the schoolgirl informant was sure the tale was true because it had been recounted on the floor of the Minnesota Legislature.

A somewhat similar foreboding is reflected in the extreme anxiety manifested by a man who stopped a sedate Mayo Clinic gynecologist on the street years ago and begged for his ministrations.

"I am afraid you have made a mistake," said the startled gynecologist. "My practice is confined to diseases of women."

"My God, Doc!" wailed the man, "that's just what I got!"

And healers, like most of us, readily succumb to the blandishments of ribbing each other. Not long ago, at the time the celebrated Minnesota stormcoat was still a novelty, a group of Mayo surgeons went to Chicago to attend a meeting of their confreres. They were inured to the cobwebbed gibe that the Mayo Clinic is as highly institutionalized as an automobile assembly line, where work is carried on with unquestioning conformity, but as they stepped off the train caparisoned in their new stormcoats in the winter cold, they were scarcely prepared for the genial greeting of one of their Chicago hosts who met them at the sation: "Well, looka there, looka there! Now they even got them in uniforms up at Mayo's!"

A Manhattan internist with an office near Central Park West used the foil of feigned ignorance when he flew to Rochester for the meeting of a national society. The cabby who brought him into town from the airport gestured eloquently at the towering brick and marble heights of the Mayo buildings and said pridefully: "And that's the Clinic."

The New Yorker gazed at him in studied puzzlement and said: "What clinic?"

Sometimes intramural japery is whetted and honed to a fine cutting edge. The same cardiologist who had counselled Dr. Charlie Mayo about the cardiac infirmity of the old man with the hernia once examined a patient who was stone deaf. The man could not

hear a voice sound shouted next to his ear but to conceal or perhaps dissemble his affliction he would nod his head vigorously and grin from ear to ear when someone addressed him. By an onerous exchange of written questions and answers and the results of physical diagnosis, the cardiologist finally ascertained that the patient needed an abdominal operation. He called in one of the most dextrous and accomplished surgeons in the place. With a perfectly impassive face and low voice he introduced the patient to the surgeon and then elaborated: "He's not the man I would have operate on me but he's the only one we've got around here this week."

To the astounded surgeon the deaf patient grinned delightedly and nodded his head in strenuous approval.

As often as not the esoteric medical and surgical knowledge volunteered by helpful patients resolves itself into an imponderable. What to reply to the man who related how, deep in the black and stilly night in a national forest park, he had arisen for whatever reason to venture outside his cabin and had been galvanized with terror by the flaming red orbs and gutteral snarls of a foraging mountain lion athwart his path, only to discover the next morning that his intractable rheumatoid arthritis of long duration had abruptly taken leave of him?

What to tell the thoughful woman who sent in almost a quarter-pound of seed warts, neatly encased in a glassine envelope, so that, as she pointed out, every member of the staff would have at least one seed wart for study and minute investigation and then, perhaps, could contribute to a vast collective therapeutic solution of her problem?

The timorous old lady who had nurtured an infant alligator from Florida in her bathtub until it was, at the moment, four feet long—and would a sudden spastic swipe of its tail do hurt to her osteoporotic extremities? The horrendous import of the request of a small boy in Ohio for a human heart which he proposed to transplant to one of his presumably complacent companions?

Nothing. No response except, perhaps, one embodying the gentle ataraxia of sympathetic peripharasis. For the comic spirit, whether it arises from an elaborately contrived stratagem or an unconscious misadventure with reality, is, fortunately for all of us, an indispensable element of the wonderfully variegated tapestry of human pageantry and as such it defies precise analysis and needs no justification. ■

Hospitals and Energy
(Continued from page 62)

Large areas of glass mean excessive heat loss and gain and require drapes or blinds to allow comfortable use of the space during hours of sunshine penetration or extremely cold weather. Proper weatherstripping and adequate thermal barriers are a must in all low temperature climates, especially in hospital application where relative humidities are usually above normal.

In Mercy Hospital we used reasonable areas of insulated, bronze tinted glass panels. This provided good space function, decent energy demand requirements and a generally pleasingly proportioned appearance.

5. Ventilation and Energy Recovery

There are several means of recovering high percentages of the normally wasted energy used in ventilation. In Mercy Hospital we chose a new concept of recovery through the use of liquid spray-packed air handling units which recover 50% of the energy contained in the air being exhausted and transfer it to the air supply for the building. This system has additional energy savings as the system eliminates the necessity and expense of a fresh air preheating sysem, serves as a 30% to 35% dust filter and is the means for humidification, dehumidification and air purification.

We are using this same design concept for the new Hennepin County Food Preparation Facility Building, which will serve the new Hennepin County General Hospital, producing more than 4,500 pre-prepared, deep-frozen meals per day. In addition to the heating and cooling energy recovered from the ventilation air of this project we recover large percentages of the energy required to produce the building refrigeration at the central ammonia plant.

6. Water Conservation

In hospitals a large amount of energy is required to heat water. Normal practice has been to heat large volumes of water in storage tanks, from which it is drawn off as needed. In Mercy Hospital we used a pair of spiral coil type instantaneous steam-to-water heat exchangers which supply any demand, large or small, yet only use the amount of energy needed to equal the volume drawn off at any one moment. Thus it is not necessary to maintain large volumes of water ready for use 24 hours a day.

Enough cannot be said for the conservation of our vital water supply and its related energy requirements. One faucet leaking a *1/16th-inch stream*

will waste *37 gallons in one hour*. In a typical 300-bed hospital it is possible from the more than 2,000 water use points, with only 10 or 20 of these leaking, to waste up to 20,000 gallons a day. Besides correcting leaks use single handle mixing faucets wherever possible, shorten flush cycles of water closets, urinals, flushing rim sinks, eliminate all water cooled equipment and make use of electric timing devices for certain water fed equipment.

Total effort on these "water facts" can cut water consumption approximately in half.

7. Electrical Energy

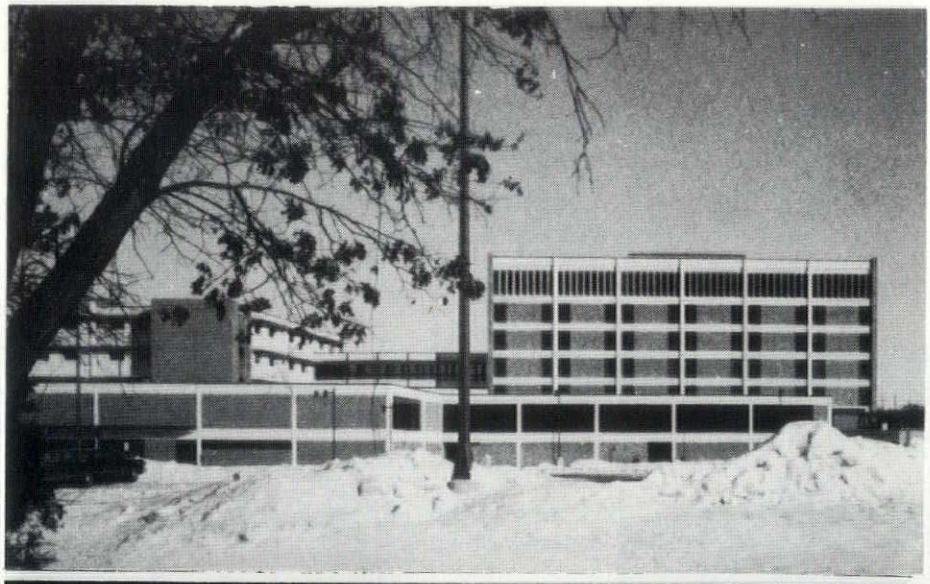
Electrical energy is produced at the source by the same fuels which are in short supply for heating and cooling purposes. For each unit of electricity delivered for use in a hospital or any project, *three* additional units are required at the source to provide and deliver it.

A hospital's electrical requirements are 25% to 35% for lighting and 65% to 75% for power and heat.

Electrical energy conservation requires a complete article by itself but basic facts to consider are lower light levels, fewer but more efficient fixtures, carefully zoned efficient power distribution systems and programmed or time sequencing, where possible, of all electrical demand loads to avoid simultaneous peaking.

A brief but dramatic example of how *material selection* affects the national energy picture is given in an article called "Spotlight on the Energy Crisis" by Richard G. Stein, FAIA, in the June, 1972, issue of the *AIA Journal*. Aluminum materials and structures consume six times more energy (mostly electricity) than the same building using steel. A 100-story project would require 2.1 million KW-hrs. to process and assemble a basic aluminum design versus .77 million KW-hrs. for steel. Brick ,tile and concrete materials also use energy in their production but only two-thirds to three-fourths of their process energy is used to produce the product. All materials should be seriously considered before any design is finalized.

The design and engineering professions will rise to the challenges of the new energy conservation frontier with new ideas and concepts. We can no longer say, "If we take care of today, tomorrow will take care of itself." We must change that axiom to read, "If we consider the tomorrows today, there will be a better future for all." ■



(Continued from page 59)

evolution have proceeded quite rapidly when compared with the time it takes for change in churches or schools. However, these beginning steps leave many questions unanswered. What is to become of the small isolated rural hospitals? How can the small or isolated hospital successfully compete without the economies of scale and available technology of larger institutions? The mergers partially help answer these questions but they are only a few rungs on the ladder since additional mergers with the same institutions are extremely difficult.

The next step in the organizational evolution has been the establishing of a central base of operations to provide a central warehouse with consolidated purchasing for economy of scale, centralized data processing, highly trained and experienced personnel in all areas and consolidation of many overlapping services/sections. There have been many adaptations of this concept and all work relatively well.

A second approach is the formation of a separate corporation by a group of hospitals to provide this central base. This approach has the problem of everyone trying to steer the ship and therefore results in an inherent lack of control. This model cannot respond rapidly to a situation and is handicapped in its capability to maximize resources and to capitalize on opportunity.

A third model is unique in the United States. It was adapted from the "holding company" concept of banks. The Fairview Community Hospital has evolved from its foundation by the Lutheran Church for Norwegian immigrants in Minneapolis to a corporation providing services to more than 10% of the beds in Minnesota.

The development of a satellite hospital in suburbs expanded the service of the organization and caused the formation of a central base. The central base was further broadened as other hospitals began to purchase services from Fairview's central base. This sparked the idea of the hospital holding company. Although it looked good on paper, this organizational model was put to the test when Lutheran Deaconess Hospital, a 285-bed urban hospital, joined the Fairview organization. Lutheran Deaconess was in dire financial straits before the consolidation. One year later the financial figures were in the black, proving that this new model did work.

The hospital holding company's organization is composed of a corporate board of trustees, each individual hospital and a central department to provide services such as warehousing and data processing. The unique feature of the Fairview system is that it allows each hospital to have its own medical staff and board of trustees to guide it in meeting the needs of the community it serves, while providing a broad support base. This model consolidates the decision making bodies to provide better responsiveness and control plus a broader organizational base.

There are still many shortcomings in these pioneering developments of hospital organizational patterns but the private sector is striving to provide the communities it serves with the best, most responsive service combined with the most cost-effective service. The strides made in the last decade prove that the private sector can and will organize by itself. The next decade will be a very exciting one as private hospitals continue to develop and grow in service to their community.

References

1. "The Hospital", *MD*, June 1972, pp. 119-130.

2. H.R. Sommers and Anne R. Sommers, *Medicare and the Hospitals*, (Washington, D.C.: the Brookington Institute, 1967).

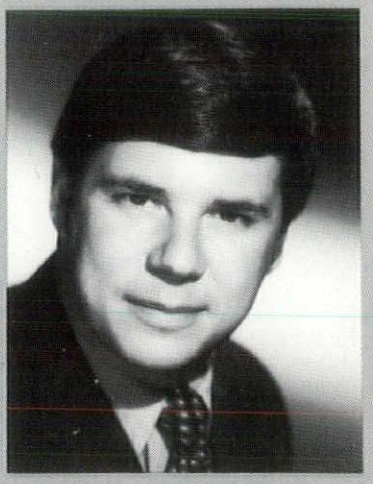
3. Minnesota Hospital Association, Twin City Hospital Association, and Blue Cross-Blue Shield, "The Simple Facts About Hospital Costs." St. Paul: Blue Cross and Blue Shield. ■

"Ideal" physician-population ratios

Specialty	Recommended population per M.D.	Specialty	Recommended population per M.D.
Allergy	25,000	Ophthalmology	20,000
Anesthesiology	14,000	Orthopedic surgery	25,000
Cardiology	25,000	Otolaryngology	25,000
Dermatology	40,000	Pathology	20,000
Gastroenterology	50,000	Pediatrics	10,000
General & family practice	2,000	Plastic surgery	50,000
General surgery	10,000	Psychiatry	10,000
Internal medicine	5,000	Pulmonary disease	100,000
Neurology	60,000	Radiology	15,000
Neurosurgery	100,000	Thoracic surgery	100,000
Obstetrics & gynecology	11,000	Urology	30,000

The ratios here are approximately mid-range figures drawn from 1972 estimates by specialty leaders.

Courtesy Medical Economics



profile

Glass has been used by architects throughout history. It has always served two basic needs: keeping out nature's elements and allowing a person to see out. Architects also refer to glass as a non-insulator. But recently these concepts have expanded, according to Craig Washing, district manager of sales for the Libby-Owens-Ford Company (LOF), Minneapolis.

"During the past decades technology has brought about new types of glass to meet many unique building requirements. For example, LOF has developed a new generation of special coated glass consisting of vaporized metal which acts like a mirror. This glass, using Thermopane as a basic unit, is an insulator capable of keeping out 92% exterior cold, light, and 80% of the heat, while 50 to 60% of interior heat is retained. This insulative effect has an enormous favorable result in saving heat and air conditioning costs. For this reason insulative glass is becoming very popular, especially in the Northwest. The new Minneapolis IDS Tower is a good example where this type of glass has been used exclusively," explained Washing.

After 12 years with LOF, Craig Washing continues to promote the proper usage and distribution of glass, general-wholesale, to local distributors. ■

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Color Design For Habitability

By Richard F. Haines, Ph.D.

Hospitals must be habitable. Offices must be habitable. Homes must be habitable. Any other structure that encloses man must be habitable. Most people would agree with these statements. Yet what does the word "habitable" mean? I define it practically: "A habitable environment provides its occupants with personally and collectively satisfying living and working accommodations during **and** after their occupancy". The key words here are personally, collectively, living, working, during, and after.

A phone booth used by one person at a time as well as an auditorium holding thousands of people **can** both be made habitable, indeed **should** be designed for habitability. If applied effectively, color can help do this. One's living room at home and one's working space at the office **can** both be made habitable through the application of proven principles of color design. Finally, most human beings possessing normal memories are influenced not only while they are inside a structure but also after they leave it. Its former habitability can play an important role in determining whether or not one will want to (voluntarily) reenter that structure again later. These are the basic elements of my definition of a habitable environment. But what about hospitals?

The primary function of a hospital is to provide an environment that is **totally** supportive of the professional and maintenance staffs to provide for patient care. Anything that detracts from this function should be eliminated from the hospital's design. This concept is diagrammed in Figure 1. The hospital as an environment (without any staff present) also can affect the patient directly. For instance, research has shown that certain surface colors can affect blood pressure, heart rate, sweating response, even time estimation. The use of super-graphics can be used to provide "psychological" aids to the patient, perhaps by pointing toward his recovery. Having the proper amount and quality of control of both natural and artificial illumination can also assist in making the hospital habitat more satisfactory. To be most effective, these design factors **must** be included in the hospital's plans at the earliest possible stage of design. Paint, for example, should not be thought of as an "add on" feature of an environment but as an "integral feature".

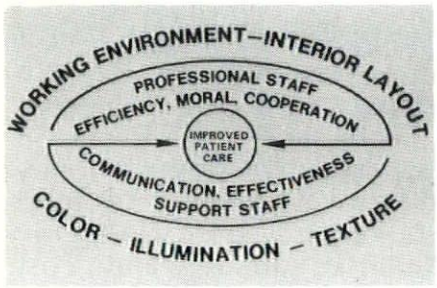

Figure 1. The hospital is to be totally supportive of the professional and maintenance staff to provide for patient care.

In order to begin to design for habitability on a more rational basis than has been done before I would like to suggest that there are three basic dimensions one must take into account. They are **Time, Satisfaction,** and **Stimulation.** Each can impact the other and each designed habitat should be able to be analyzed along each dimension, simultaneously! Such an analysis might look something like that shown in Figure 2. Here we see a habitat in which the degree of physical, emotional, and "spiritual" impact varies over **time.** This hypothetical habitat also presents its occupants with varying degrees of personal **satisfaction,** a variable that is extremely hard to define and illustrate here. Certainly, each person must define it for him or herself, and each architect should develop a number of criteria of what constitutes a satisfying habitat so that an appropriate one may be applied not to or for just one occupant(of a given habitat) but to and for the majority of the occupants. A hospital poses some real difficulties in this regard because it (typically) accommodates such a wide variety of people: highly trained professional staff members that practically live within the building; the general public (usually) bent on visiting their loved ones and then getting out as fast as possible; the maintenance staff that may work on varying shift bases; and of course, the patient for whom the whole habitat should be designed. Each group of occupants will have its own ideas of what constitutes a satisfying hospital environment; these differences pose a real challenge to the design professional. These differences also provide the designer with an exciting opportunity to be creatively responsible to the needs of the majority of the hospital's occupants, through excellence of habitability design!

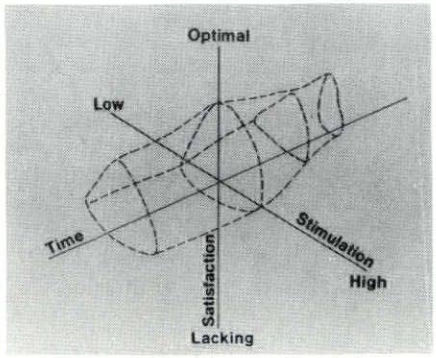

Figure 2. Diagram of the three basic dimensions of habitability and a hypothetical analysis of a structure using them.

If one must spend a long **time** inside a habitat, windows can provide for visual, mental, and emotional **stimulation.** So can pictures, supergraphics, skylights, and sources of artificial light. A window allows us to make a hasty and often welcome (visual) retreat, out the window, during long, boring conferences. All one has to do is look in a different direction, out the window. If the outdoor scene is pleasant enough one need not even feel guilty about doing so. A window also allows our eyes to focus at optical infinity, thereby helping to relax the tiny inner eye-lens muscles. A window also can present to us the interesting and almost constantly changing patterns of light and shade, color and motion of the world outdoors. It may be the changing nature of these

Richard F. Haines, Ph.D., psychologist/physiologist, is a research scientist for the Ames Research Center, NASA, Moffett Field, California.

scenes that provide novelty that provide visual **stimulation.** Let us return to Figure 2 for a moment.

At each point in time while we mentally walk through a designed space, we should be able to evaluate the degree of **stimulation** the area provides as well as how personally **satisfying** it is. If an area is found to be low in one of these dimensions perhaps the other dimension can be enchanced or else traffic flow speeded up. Hallways are prime candidates for such an approach. Building entry-ways are also very important for they help establish the visitor's "mental set" about what he is likely to find inside the building. Look at the next two figures (3 and 4) to see which type of entry-way you would prefer to use day after day. Would your choice change if you only had to use it once of twice? A patient's "mental set" may well be extraordinarily important in regard to his recovery. I believe that the patient's personal expectations about his state of well being can influence the course of his recovery. Related to this belief is the fact that colors in our society do have symbolic meaning. Does a patient have to be constantly confronted by white tile walls and pale pastel linoleum floors that convey some presumed message of sterility and cleanliness? White paint is no cleaner than black, all else held constant! Even though one type of surface microstructure may be more easily

Figure 3. Here is a novel kind of entryway for a structure.

Figure 4. Here is both a pleasant and more traditional kind of entryway for a structure.

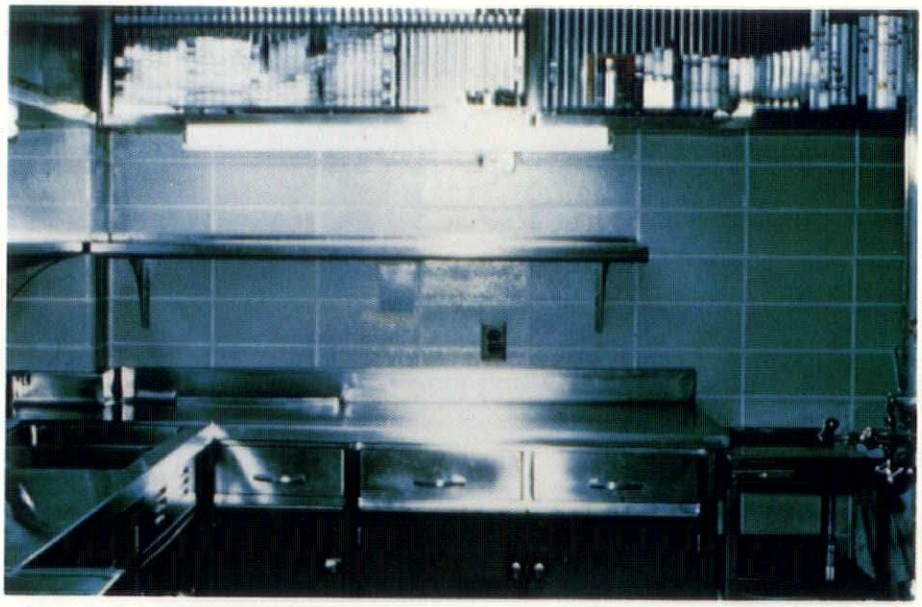

Figure 5. Photograph of typical hospital laboratory illustrating almost total absence of color.

cleaned or may even stay cleaner longer, that is a different matter from the choice of the color of that surface. Figure 5 shows a rather traditional laboratory space in a hospital. One is probably overwhelmed with the lack of color here.

Although the normal eye can discriminate more than 10 million different wavelengths there are less than 4,000 color names and some of these are only synonyms. Only 36 of these 4,000 color names are single words in the Maerz and Paul Color Dictionary. The point is simply this: In selecting colors for an interior(s) one must either rely upon one's eyesight in order to have available a sufficiently broad scale of colors from which to choose or one must be content with only a few hundred named colors. The availability of modern pigment mixing or matching equipment has made one's color selection tasks a little easier than before.

I fear the choices that are available to us are not nearly as large when it comes to the quality and quantity of artificial illumination. Much more research needs to be done on "possible" therapeutic benefits (defined very broadly) that may be derived from including such things as continuously variable levels of colored and white light, "warmth" and "coolness" of light sources, and even the temporal, on or off characteristics of the lights. To illustrate the documented fact that our eyes must be periodically stimulated for us to see at all, Figure 6 shows an orange oval on a green background.

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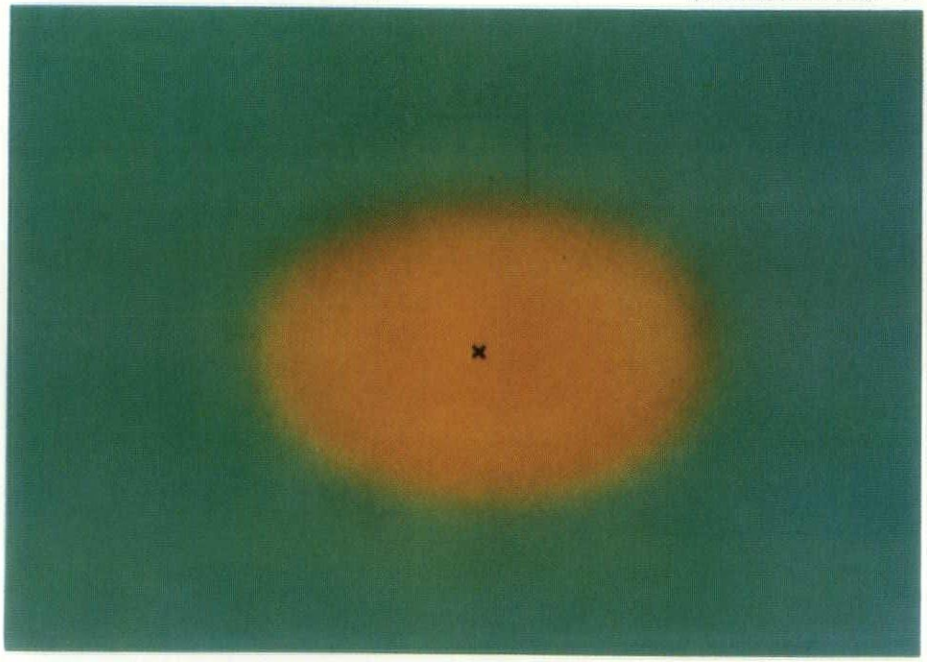
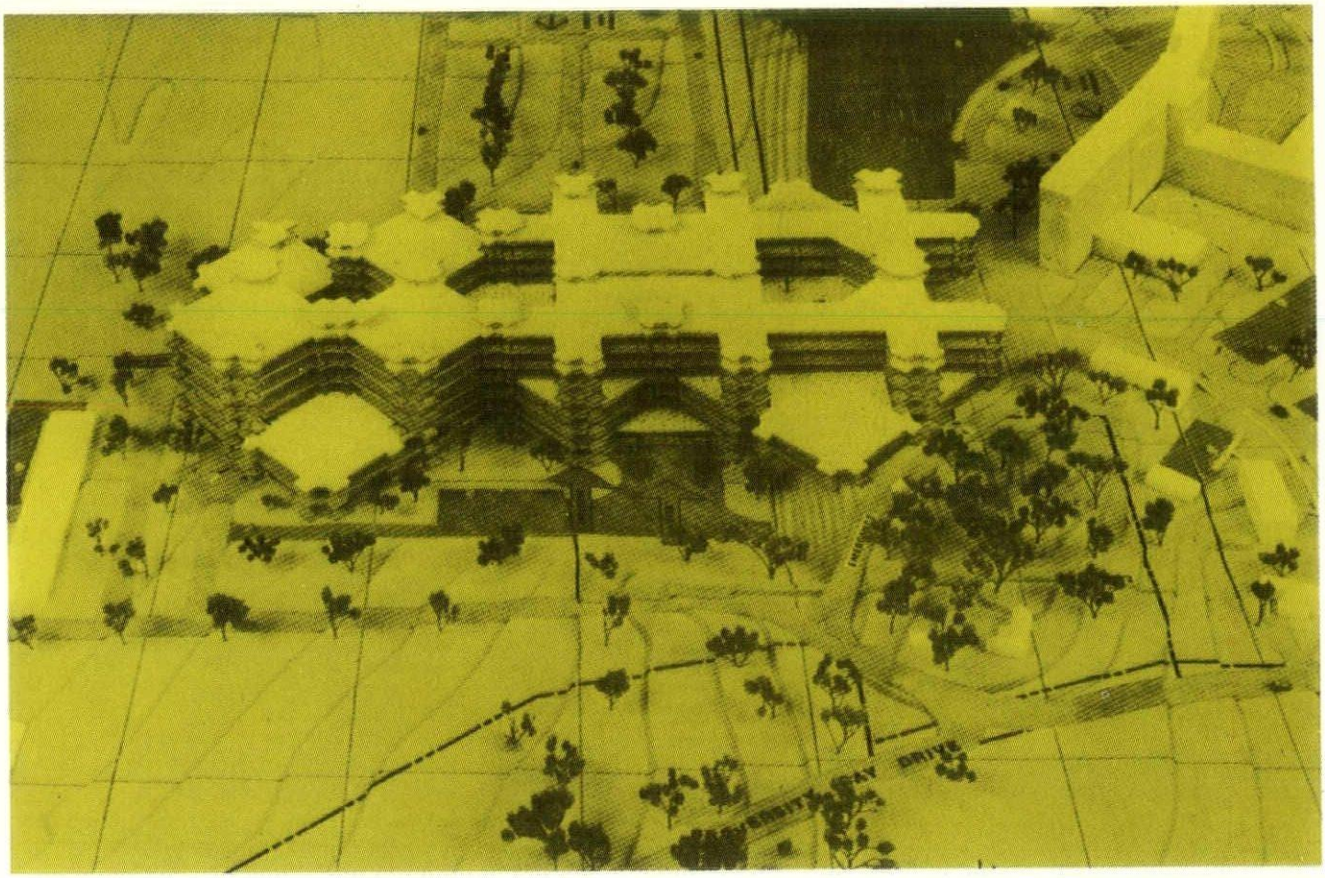


Figure 6. Visual pattern that can be used to demonstrate the necessity of image movement to yield visual perception.



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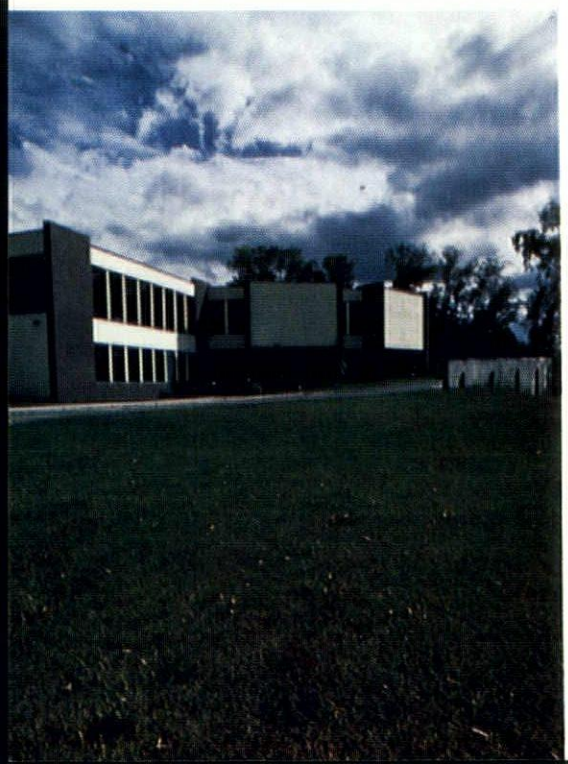
Madison-Milwaukee, Wisconsin



Rice Memorial Hospital
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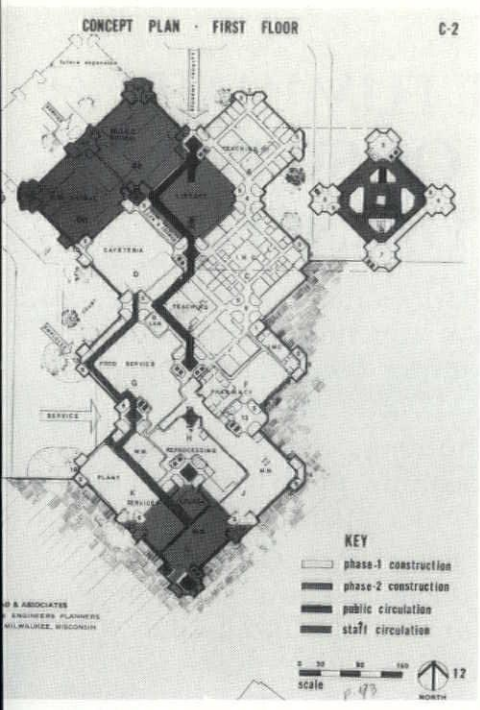
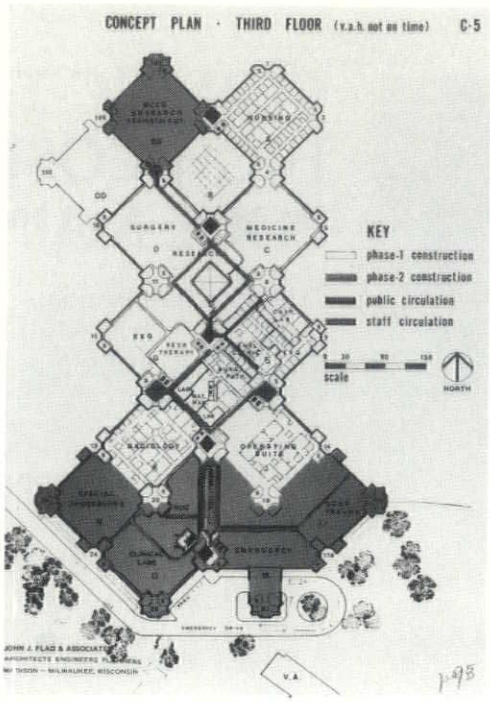
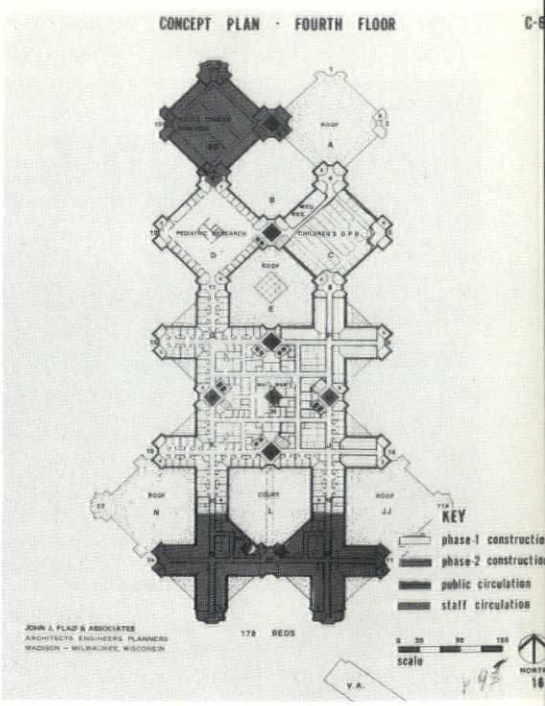
Osceola, Wisconsin







University of Wisconsin
Center for Health Services

Phase I of the University of Wisconsin Center for Health Sciences was included in the 1971-73 State Building Program. It is now under construction on the west campus site adjacent to the Veterans Administration Hospital. The design provided 433,432 net assignable square feet, including 325 hospital beds, as a first step in the construction of a comprehensive teaching, research and service facility. Phase I was originally planned to include two additional phases which, when complete, would provide all necessary programs for a fully operable clinical facility. These two additional phases have now been combined into one — Phase II.

The scope of Phase II is to provide an additional 230,363 net assignable square feet, including space for an additional 240 beds, for an integrated total of 663,795 net assignable square feet. Essentially the Phase II project entails the construction of 428,591 gross square feet in an extension of the modular configuration established by Phase I. Rearrangement of a portion of the Phase I space is also required to accommodate the total program while maintaining efficiency.

The program has been closely scrutinized by the Governor's Task Force and its consultants and now represents the minimum program required on the site to support the total clinical portion of the Center for Health Sciences. Concurrent completion of the joint-use facilities, which are to be funded and constructed by the Veterans Administration Hospital, is assumed in order to obtain an adequate total facility. ■

I firmly believe that if the whole materia medica as now used could be sunk to the bottom of the sea, it would be all the better for mankind - and all the worse for the fishes.

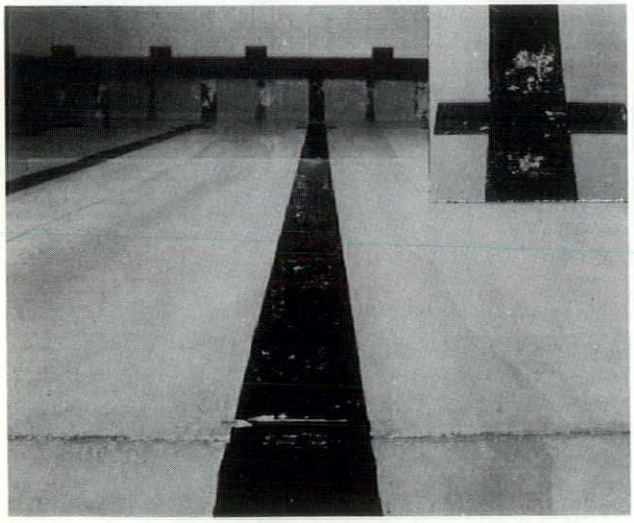
Oliver Wendell Holmes
(Address, Massachusetts Medical Society, May 30, 1860)

Better to hunt in fields, for health unbought,
Than fee the doctor for a nauseous draught.
The wise, for cure, on exercise depend;
God never made his work for man to mend.

John Dryden

Sometimes give your services for nothing, calling to mind a previous benefaction or present satisfaction . . . For where there is love of man, there is also love of the art. For some patients, though conscious that their condition is perilous, recover their health simply through their contentment with the goodness of the physician.

Hippocrates



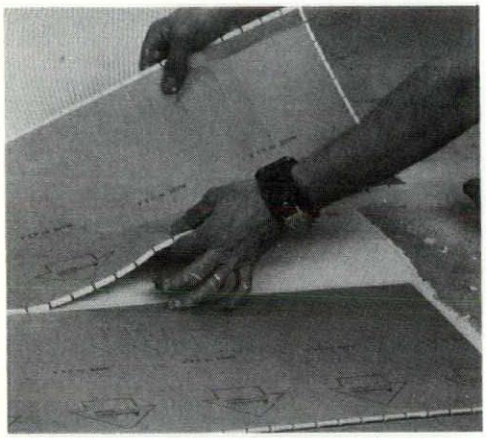
Before – pool surface is cracking and peeling (see inset). Pool needs daily cleaning and filtering system maintenance once a week.

CERAMIC TILE ELIMINATES HIGH COSTS OF SWIMMING POOL MAINTENANCE.

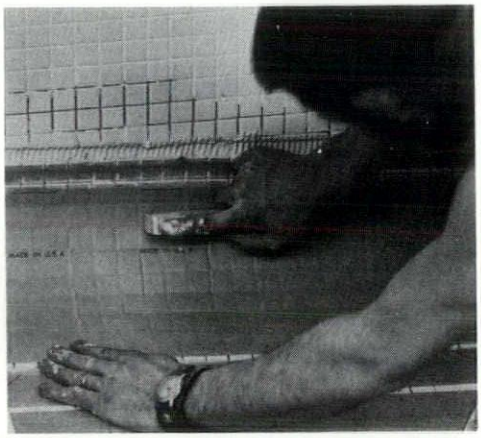
That's what officials at Park Senior High School, Cottage Grove, Minnesota, concluded when they totaled the cost of maintaining their painted pool from 1966 to 1972.

The maintenance and contracted work included sandblasting, painting, cleaning paint chips from the filtering system, daily pool cleaning, etc.

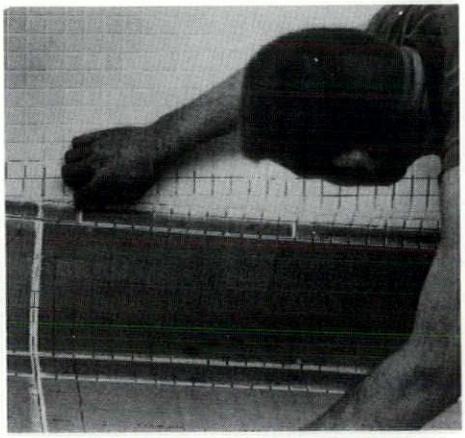
Officials decided to cut costs with Ceramic Tile early this spring. Now with work completed, they have a beautiful pool that will last indefinitely – *with minimum maintenance.*



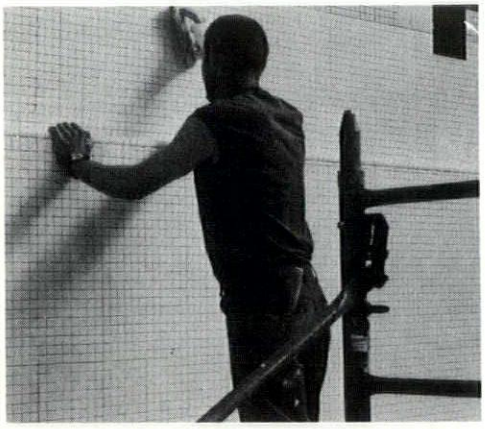
After sandblasting paint and cleaning surface, Ceramic Tiling begins.



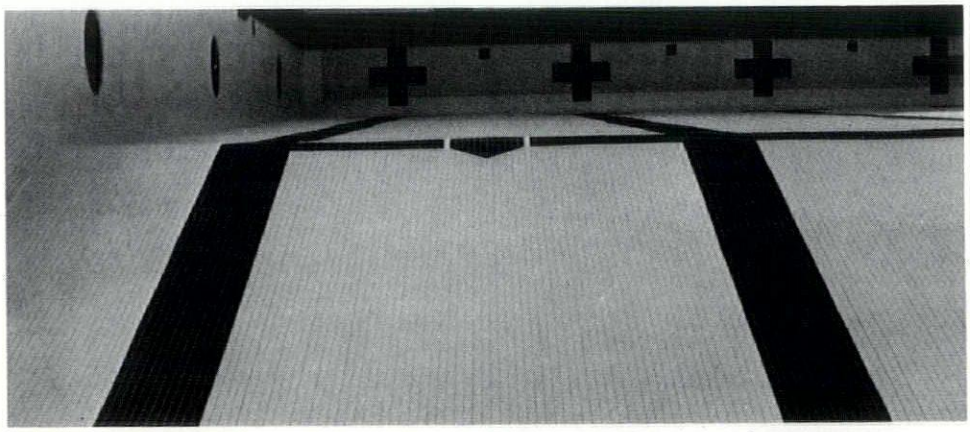
Guildset Craftsman beats Tile into setting bed for permanent installation.



Guildset Craftsman installs individual mitered Tiles for uniform finish.



Grouting completes installation of trouble-free Ceramic Tile.

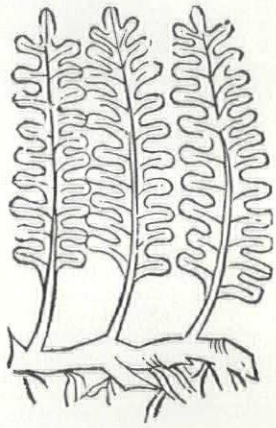


After – pool has durable Ceramic Tile surface that won't chip or peel. Maintenance costs are cut and pool will look new for years.

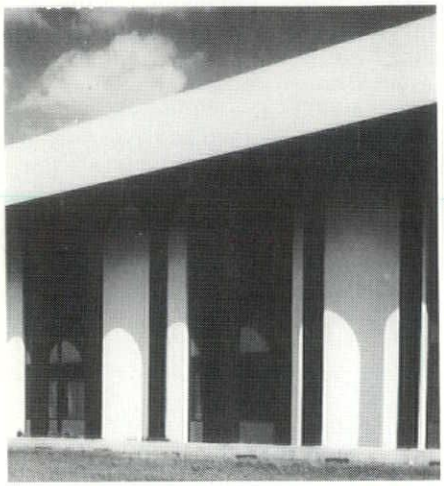
Matson & Wegleitner Architects, Inc.

Simply hold this illustration about a foot distant, close one eye, and look very steadily at the small black cross in the center. It should not take too long for the entire oval to disappear. It will reappear only when you blink or shift your gaze away from the cross. Interesting visual illusory effects like this might be added to one's design(s) both for **stimulation** and **satisfaction** reasons. A few summary remarks are offered next.

Making hospitals habitable in the way the term is defined here is not easy because of the wide diversity of functions each must play and the wide variety of people each must accommodate. Nevertheless, I believe it is possible and in many creative ways. By approaching the problem systematically, through the use of a dimensionalized model such as is presented above, one is able to begin to quantify each designed space separately and then linked by time and movement to (hopefully) produce a consistent whole that is habitable. Space does not permit me to provide the many background references on the matter of color and design but the interested reader may want to read works like *Light, Color, and Environment* by Faber Birren (van Nostrand-Reinhold, 1969) and *Color in Business, Science, and Industry* by Judd and Wyszecki (Wiley, 1952, 2nd. ed.). I am sure that the time and effort expended on making hospitals more habitable will be more than repaid by the knowledge that the patients and other occupants of the building are benefitting in many many ways. ■

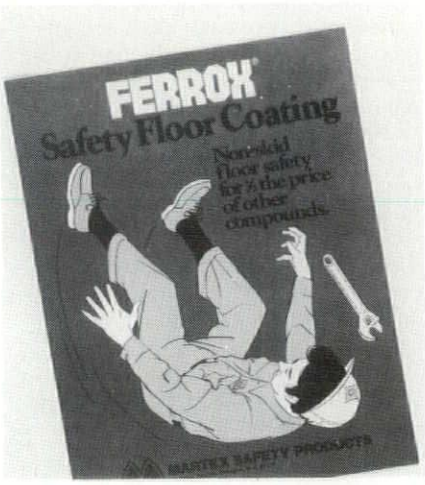


New Products



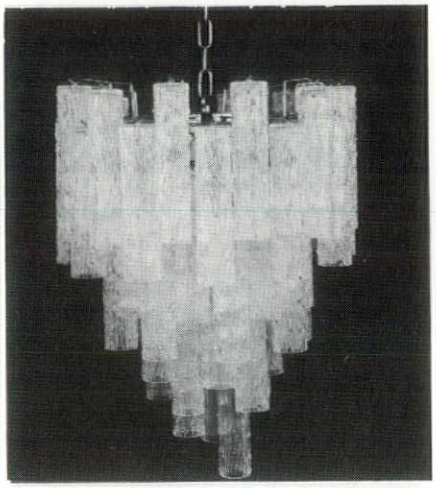
Libby-Owens-Ford Features Tinted Glass

Featuring Parallel-O-Bronze glass windows made by the Libby-Owens-Ford Co., the Wm. C. Brown Co. Publishers Bldg. is Dubuque's most beautiful award winning structure. Office partitions with LOF's stripped glass walls provide privacy and easy maintenance. The LOF glass is glazed in Thermopane insulating units, providing a shield against heat loss. Information is available from the firm at 811 Madison Ave., Toledo, Ohio 43695. ■



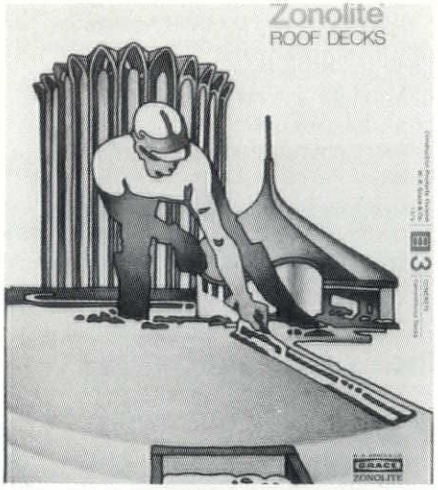
Ferrox® Safety Floor Coating From Martex Safety Products

A non-skid safety floor coating is available from Martex Safety Products. Ferrox is a long-wearing floor and deck coating that makes slippery, wet or oily areas safe. This coating has a rugged composition containing thousands of abrasive particles. It can be applied to any clean, dry surface with a roller, or brush. Literature is available from Martex Safety Products, 1A Paine Ave., Irvington, N.J. 07111. ■



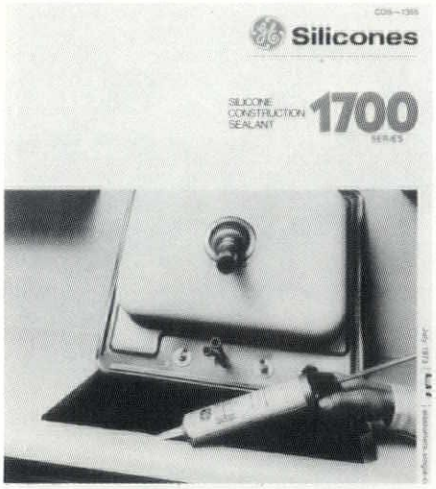
Lighting Fixtures Feature Contemporary Design

Contemporary design and elegance combine to create the newest in decorative lighting fixtures from Crystal Mart. Hollow Venetian Crystal tubes are blended with chrome plated frames to develop high-fashion lighting. Crystal Mart has dramatically expanded its product line to include a wide range of modern designs. Information can be obtained from Crystal Mart, 410 Commack Rd., Deer Park, New York 11729. ■



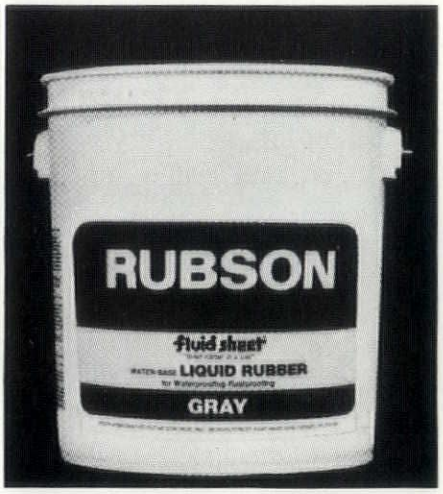
Roof Deck Brochure Published By Zonolite

A twelve-page catalog on Zonolite® roof decks has been published by Construction Products Div., W.R. Grace & Co. Containing technical data, specifications, and systems drawings, the brochure covers the use of Zonolite insulating concrete in structural concrete, formboard and metal centering systems. The catalog is available from the firm's branch at 1720 Madison St. N.E., Minneapolis, Minn. 55413. ■



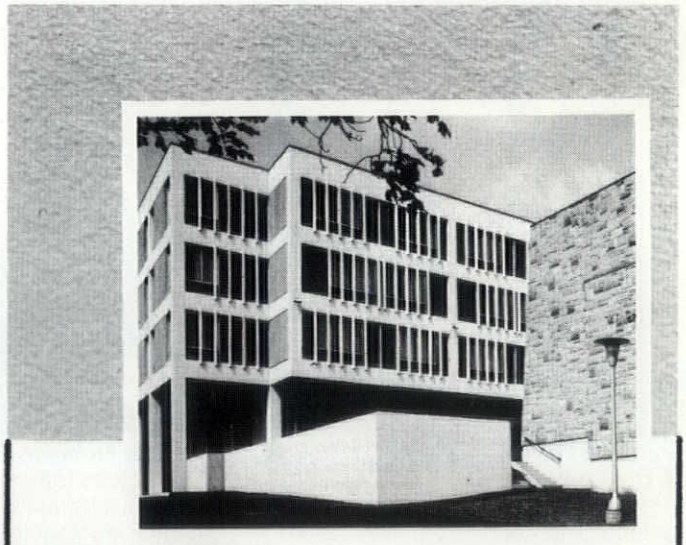
General Electric Has New Silicone Literature

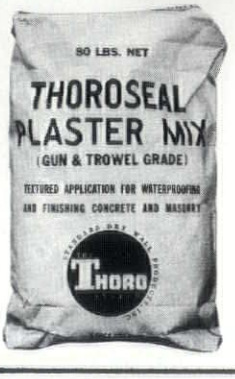
The Silicone Products Dept. of the General Electric Co. has literature describing its Silicone Construction Sealant 1700 Series. The sealant is a multi-purpose, mildew-resistant product developed for applications such as sealing showers or rimless sinks. The product will not crack or discolor due to humidity and varying temperatures. Information is available from General Electric Co., Waterford, New York, 12188. ■



Rubson Fluid Sheet— New Waterproofing Material

Rubson Fluid Sheet is a liquid rubber waterproofing material and protective coating. This can be applied to surfaces with a brush, roller or spray gun as a liquid, which then cures within 12 to 14 hours, to form a seamless, protective rubber blanket. The material can also be painted with most acrylic and chlorinated rubber base paints. For more information contact Snow-Larson Co., 1221 No. Second Ave., Minneapolis, Minn. 55405, (612) 374-1216. ■





Forty contractors, engineers and material suppliers were at MMI's Estimating Workshop at the Marriott Inn.

A day-long workshop on masonry estimating and construction methods was attended by 40 contractors, engineers and material suppliers.

Workshop leader was Donald S. Roth, engineer and estimator of Donovan Construction Co., St. Paul. Roth directed discussions and demonstrations of estimating techniques in quantity take-off, pricing materials and labor, computer applications and construction methods.

According to Roth, estimating masonry work on commercial projects is one of the most difficult parts of the bidding procedure faced by a masonry or a general contractor. It also is a portion of the project that presents a high risk factor.

The workshop was held in cooperation with the Minnesota Masonry Institute and the Minnesota Concrete and Masonry Contractors Association. A program of a similar nature is being planned for those who were unable to attend the first session, says Robert Hanson, executive secretary of MC & MCA. ■

Gramling Elected President of Tile Contractors

Elected president of the Minnesota Ceramic Tile Contractors Association recently was T. A. Gramling, president of Northwestern Tile Company. He is pictured at center right presenting the President's Plaque to '73 Pres. W. E. Haines of Dale Tile Co.

Gramling had served on the association's board and also had served as president in 1963. He was a director and treasurer of the Tile Contractors Association of America and a member of its executive board.

Vice-president is Bud Trebby, shown on the left, and secretary-treasurer is Stan Selvig. ■

Exterior Problems Eliminated

Problems inherent in exterior concrete blocks, exterior stucco, or plaster can be eliminated by specifying Thorseal and Thorosheen, a new product made by Con-Pro, Inc.

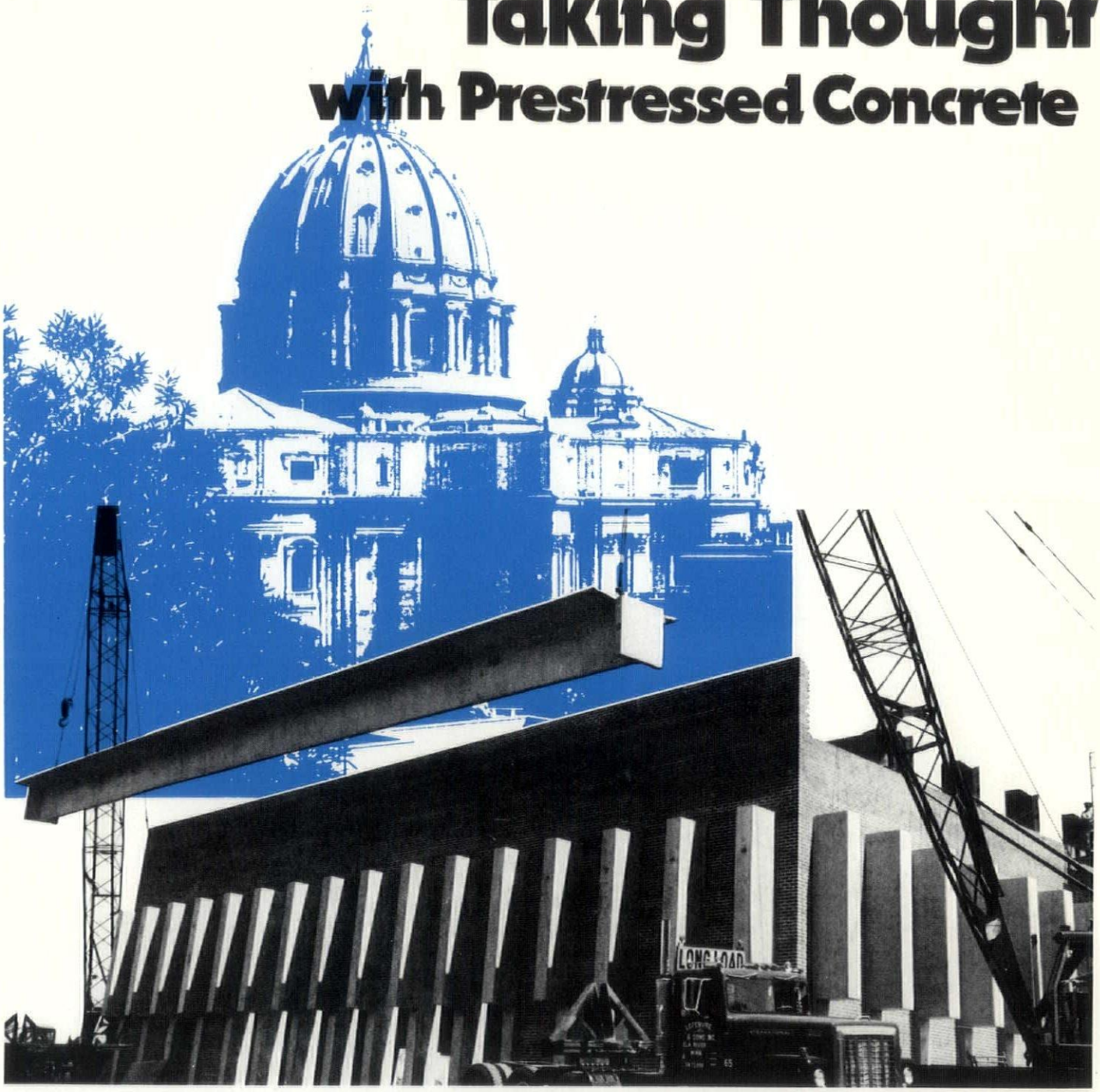
Organic materials containing latex block fillers and exterior paints using the wrong latex or ingredients are usually the most common causes of failure in masonry coatings. Con-Pro Inc. promises when using the Thorseal Block Filler and Thorsheen combination that: a waterproof coat is guaranteed for five years with an actual expectancy from 10 to 15 years, it will never have to be sandblasted for another coat, and the product will not peel, become brittle, powder, dust, nor will it craze crack.

Where has this product been used? Many highway departments are specifying this Thorseal-Thorosheen combination for use on bridges, divider strips, and retaining walls in order to protect concrete from sun, rain and freeze-thaw cycles.

For more information contact Con-Pro Inc., University at 30th Ave. N.E., Minneapolis, Minnesota 55418, (612) 781-9583. ■

Index to Advertisers

Taking Thought with Prestressed Concrete



The Vatican stands as a monument to man's creative thinking. The type of thinking which brought mortar and stone together into one of the great religious edifices of all time.

Today's Prestressed Concrete structures capture man's religious thought in a modern, space age society. The Abiding Savior Lutheran Church, shown being completed with Prestressed Concrete giant roof beams, is a monument of beauty and function.

Here is a 750-seat sanctuary and educational complex that is not only a sanctimonious place to worship but a pleasant atmosphere for religious learning. Prestressed Concrete made it possible. Pictured being hoisted into place is a giant single "T" roof beam. The component is 93 feet 6 inches long, 8 feet wide with a special end diaphram. It provided many construction advantages: fabricated off the job site and independent of high-priced on-site construction cost factors; pieces shipped as needed to the job-site; erection was fast and trouble free. The completed church is both functional and pleasant — truly a source of pride to the congregation.

PROJECT: Abiding Savior Lutheran Church
Spring Lake Park, Minnesota

ARCHITECT AND
PROJECT MANAGER: Ekberg-Petri, Inc.,
Minneapolis, Minnesota

ENGINEER: Frank Horner Co.,
Saint Paul, Minnesota

PHOTOGRAPHY: Courtesy of the Sun Newspapers

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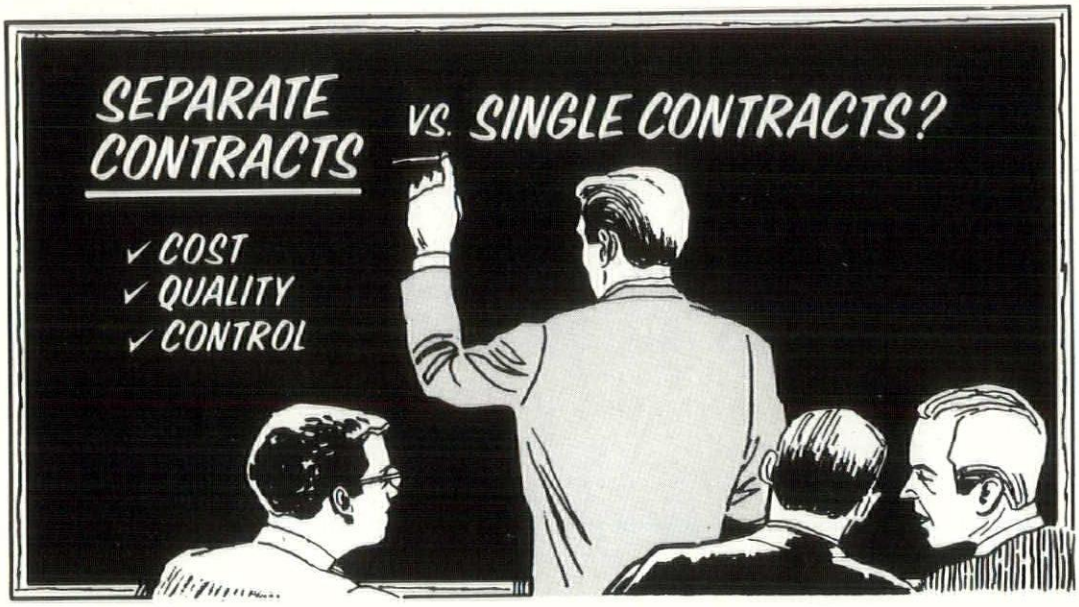

Separate Doesn't Necessarily Mean Equal!

. . . particularly when you compare separate contracts with single contracts. That's when the merits of the separate contract system become obvious. Separate contracts aren't merely equal to single contracts; they're far more advantageous.

Mechanical systems have become too complex to leave any of their elements to chance. That's why letting SEPARATE MECHANICAL CONTRACTS is so important.

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The results are better efficiency for architects and engineers, proven economy for clients.

Compare separate contracts with single. By every standard, the separate method isn't just equal. It's much superior.

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