

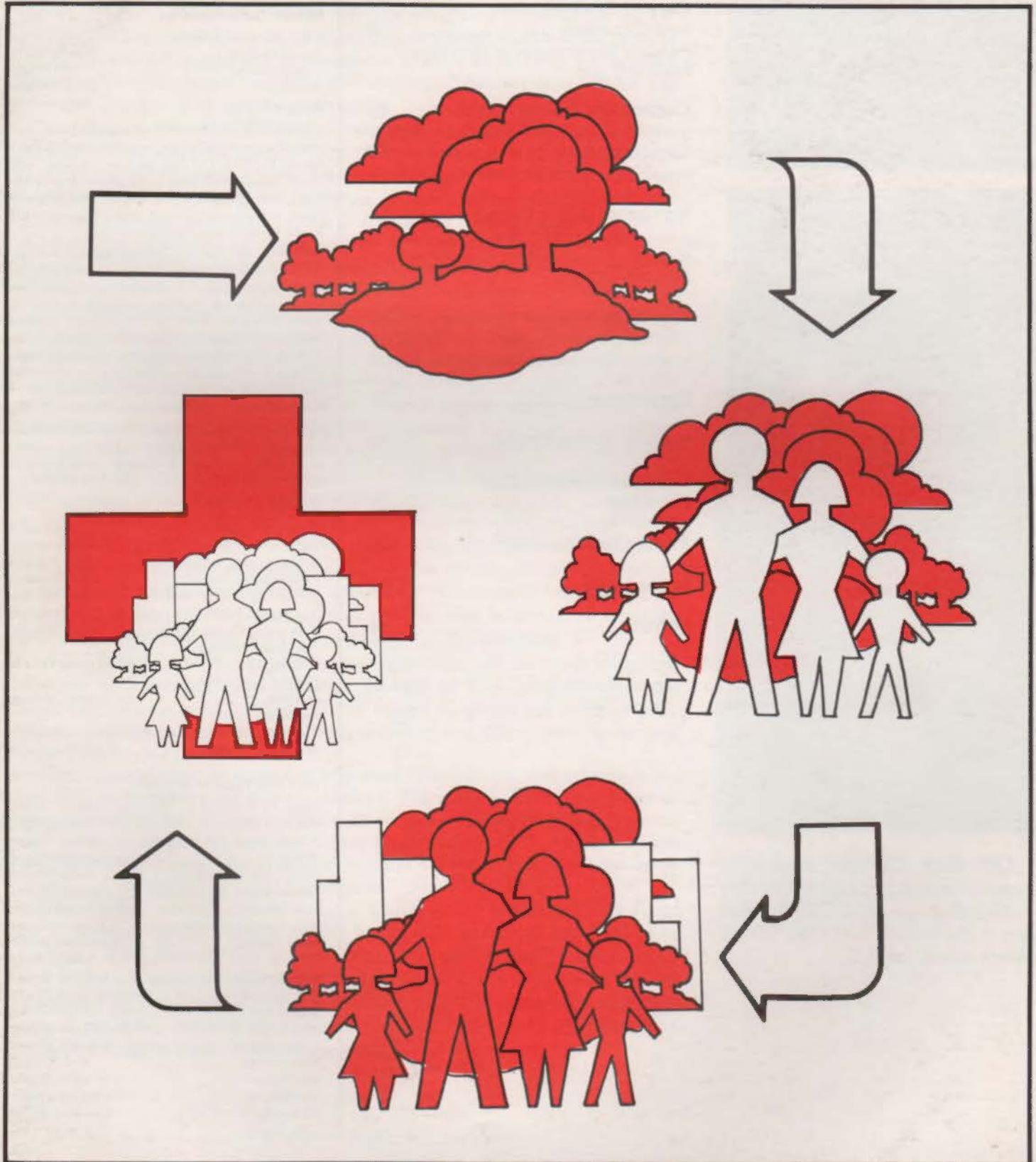
**In this issue:**

Health Care Design: An Overview  
Care of Environment and Organism  
Community Mental Health  
Samaritan in the Desert  
Barrier-Free

**Plus regular columns. See Contents.**

# Texas Architect

NUMBER FOUR VOL. 24 SEPT/OCT 1974



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**On the Cover** artist Mark Stinson's depiction of total health care — integrating care of the organism with care of the environment. See Dennis Kilper's article, page 9.

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# On Better Health Care

The rate of new construction and major remodeling projects for hospitals and related health care facilities in Texas continues at a strong pace. It is essential that architects and hospital clients fulfill their respective responsibilities to the betterment of the health delivery system. Our accountability to the public must be examined in the light of successes in meeting that objective. There are more than a few areas in which the emphasis of our respective responsibilities can be of significant importance. However, three of the areas which I would like to emphasize at this opportunity are building codes and construction standards, efficiency and flexibility of design and cost effectiveness of design in construction.

Building codes and construction standards in the health care field are probably more complex than in most other industries. Since most of these regulations are concerned with fire prevention and the safety of patients, personnel and the public, we cannot in all good conscience dispute their need and viability. However, there is a need for common interpretation in the resolving of conflicting regulations by all responsible agencies. It is also essential that architects involved in health care construction projects be knowledgeable and up-to-date on the application of these regulations. It is of particular importance that whenever regulation interpretations are not in the client's best interests the architect discuss this with the client rather than accept the unilateral decision. It may demand that appropriate efforts be made to seek clarification, exception or an alternate approach — at least question the absolute requirement of an illogical interpretation. Certainly our joint efforts through the Texas Hospital Association's Council on Construction and Plant Operation and the Texas Society of Architects' Committee on Health should continue toward the adoption of one definitive standard as the major guide, which would be used by all reviewing agencies.

Any project undertaken today must, in view of the changing health delivery system, be designed with special concern for efficiency and flexibility. To meet the changing needs in the delivery of health, flexibility must be emphasized. At the same time the application of industrial engineering expertise is essential if the operation of the planned facility is to meet the economic objectives expected by and rightly due the consumer.

Cost effectiveness in construction and operations has always been a chief concern but deserves more attention. In light of high construction costs, high maintenance costs, conservation of energy emphasis and other such aspects, considerable attention by both architect and client must be demonstrated in this area.

The responsibility for achieving improved effectiveness thru education has not been neglected by our two associations. For many years a close cooperative relationship has existed for just such purpose. Highlighting this cooperative effort is an annual combined educational seminar. Conducted during September each year, the program includes segments related to the areas mentioned and others of equal importance.

The seminar for this year is to be in Dallas at the Sheraton Dallas Hotel on September 19-20. Architects and health care personnel involved in or contemplating construction projects would do well to avail themselves of this important educational opportunity. "In Unity: For Accountability" is the theme for the Texas Hospital Association's current association year. Our special thanks is extended to the Texas Society of Architects for joining in a mutual attempt to make this theme a reality.



Bruce D. Sorenson  
Chairman  
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A handwritten signature in cursive script that reads "Bruce D. Sorenson".



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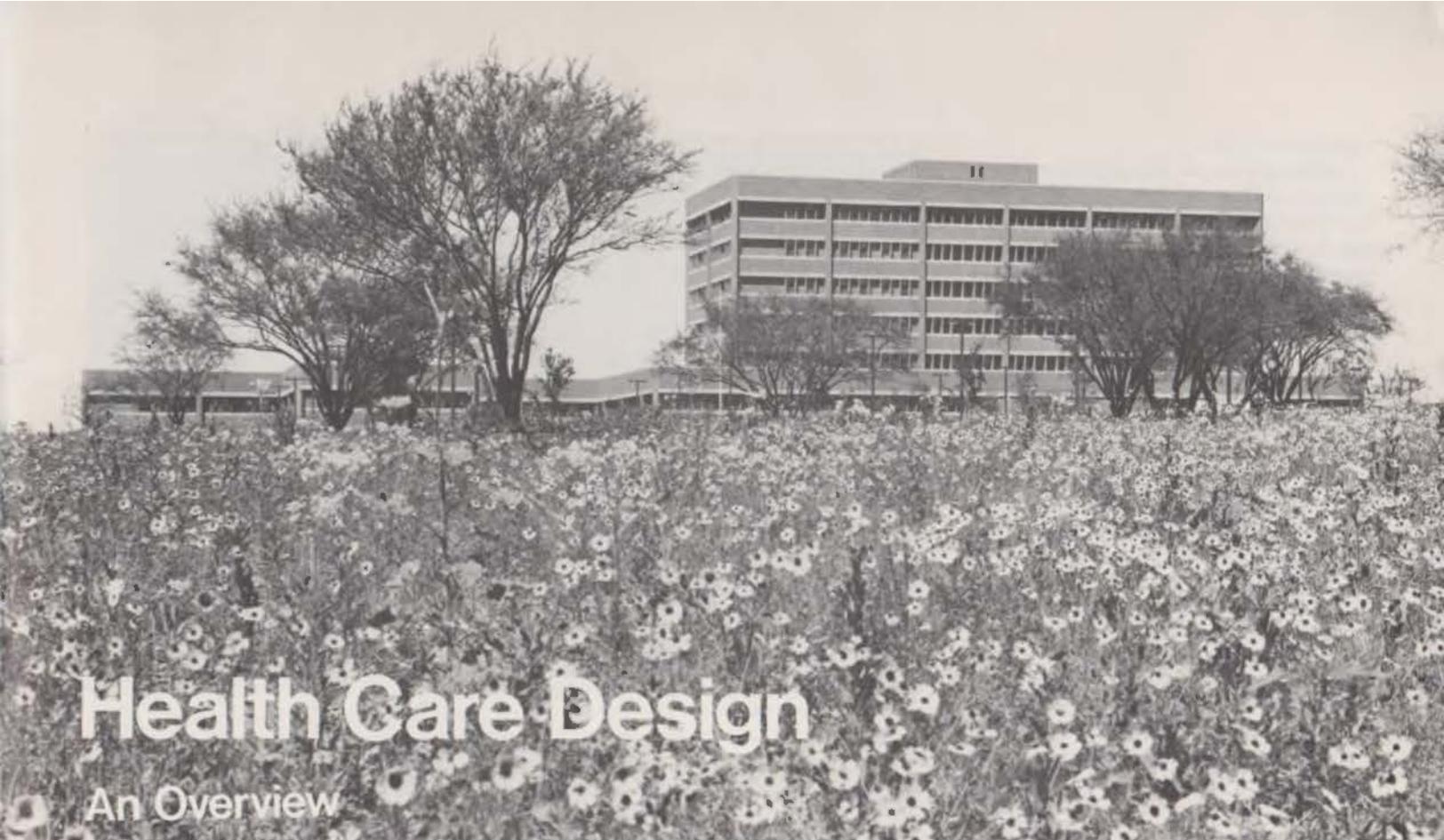


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# Health Care Design

## An Overview

*The 760-bed Audie Murphy VA Hospital in San Antonio*

**By Jason W. Frye**

We're designing now for 1980 and beyond. The way you and I obtain health care will have changed significantly by then. The buildings housing hospitals, clinics and other health services will also change. It is not sufficient, and probably never has been, to design by copying today's best examples.

Here then, in a style deliberately absent of complicated architectural and medical jargon, are some factors which will continue to affect health services, and, consequently, architecture for health care.

### **Elements of Health Care**

Our health care is not really a highly organized system, but it does have easily identifiable elements: 1) health care recipient, 2) provider of the services, 3) payor of health costs and 4) agencies controlling and approving one or more of the other elements. It is important to understand that the patient does not determine the quality or quantity of health services he receives. He has no influence over those who finance and/or regulate the conglomeration of health providers.

### **National Health Insurance**

In most hospitals, 30% of the patients are covered by Medicare/Medicaid programs in which part of the patients' costs are paid to the provider (hospital, doctor or nursing home) as reimbursements of the costs of care provided.

M/M also pays for depreciation of buildings and equipment as part of patient care cost, although the amounts are within set limits. Because of the large amount of capital flowing from the Medicare program, hospitals are essentially bound to accept the construction standards enforced by the Medicare office. (Currently this function is carried out by the Nursing Home Licensing Division of the Texas Department of Health). With National Health Insurance a probable reality by 1975 or 1976, many more people will be involved, and the financial significance for hospitals will be even greater. To architects who plan to serve health care clients, the effect will be to add to your work and force you to be familiar with the standards being enforced.

### **Comprehensive Health Planning**

Under Public Law 92-603, Section 1122, comprehensive health planning is required on all federally funded projects. The burden for developing a comprehensive plan rests with each state, and with each local group. It has been the rule under this legislation that the state accept the responsibility for both developing a state plan, and establishing local agencies to enforce comprehensive planning. In Texas, the planning does not exist as an enforceable law because the State did not agree to accept the conditions of P.L. 92-603.

Eventually there probably will be comprehensive planning in Texas for both state and federally funded projects. Local "councils of

government" do now exist, and architects should acquaint themselves with these agencies, their procedures and their requirements in view of the high probability that eventually these agencies will be made effective by appropriate federal and/or state legislation.

### **The Health Maintenance Organization**

The Health Maintenance Organization is perhaps more of a concept than a concrete organizational entity. The basis of the concept is that it is less costly for the patient, and for the health services provider, to *maintain* the health of the people than to return the sick to good health. The idea is that a large group of people would pay in advance a fixed sum each year for all the health services they may need, thus giving the provider incentive to keep the members of the group well. Characteristically, these HMO's must have the full set of health services and facilities, including a hospital and a group of physicians together in an entity which contracts with the group to provide the services. The need for large diagnostic and treatment facilities designed to treat people "outside and walking" rather than "inside and inbed", springs in part from the HMO concept.

---

*Mr. Frye is a partner in the firm of Golemon & Rolfe, in Houston, and is chairman of the TSA Architecture for Health Committee.*

### Ambulatory Care

Ambulatory care is also an attempt to seek other means of answering health care needs in view of the continuing spiral of capital expenditures for nursing units that in the past have been necessary because insurance payments have been geared to the criteria that if someone is sick, he will be hospitalized for care. This criteria is slowly being revised and architects will be faced with the problem of new circulation patterns and new functions in the various building types grouped as health facilities. There is the implication for near-term remodeling and modernization projects for many of Texas' 600 hospitals. Architects must be prepared to assist hospitals and clinics make needed changes that will fit future methods of health care delivery.

### Codes and Standards

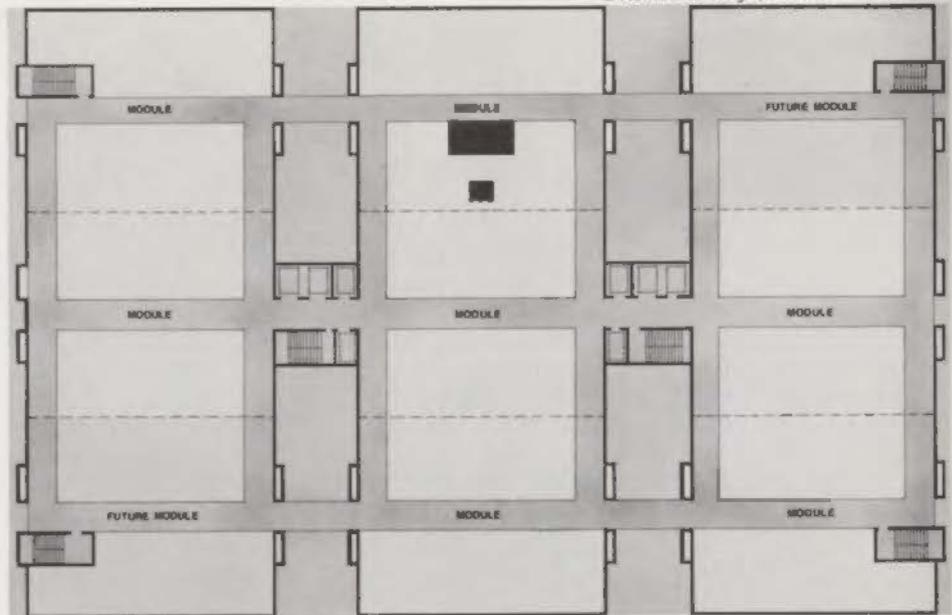
The problems of improving existing structures is aggravated by the increasing strictness of codes and standards that govern hospitals—their construction and operation. If well-conceived hospitals built a decade or so ago are not to be made obsolete by recent codes and standards, then architects and engineers must work to see that the evidence and logic of the codes is correct and that the requirements are reasonable. And the design professions must find economical, appropriate solutions that fit the requirements of codes and standards and last more than a year or two.

### Professional Standards Review Organizations

PSRO is a peer review concept that is being gradually implemented across the country in response to over-utilization of health facilities. Without addressing the pros and cons involved, it is safe to say that the result of PSRO's will be (in many communities) a significant reduction in the number of hospital admissions, and in the length-of-stay by patients in hospitals. In this way, PSRO's may reduce the need for health facilities, but because they will also look at the *quality* of health care, the medical professions will probably more heavily utilize diagnostic tools now available. And higher health care standards may stimulate the need for increased diagnostic and treatment facilities within the hospital, though fewer patients will be walking through the front doors.

### Group Practices

As in other professions, physicians are gradually tending towards grouping together rather than operating as individual practitioners. An emerging significant need will be for large Group Practice Clinic Buildings, associated with hospitals on site, and sharing the diagnostic services of the hospital, such as Laboratory and Radiology. Group Practice Clinics of this nature vary substantially from single practitioner offices in that the architec-



tural arrangement must allow great flexibility in the sharing of staff and facilities by the physicians. Though single and Small Group Practices will continue, the Large Group Practice will for obvious reasons be one of the most significant growth areas for the next five to ten years.

### Shared Services

In the past few years we have seen a number of hospitals jointly constructing a single laundry or kitchen facility to serve all of the hospitals in the group. Another service that works effectively in this sort of arrangement is a Central Warehouse or a Central Purchasing Facility for storing supplies on a shared basis and, in some cases, for the processing of sterile materials. Since most of these activities are basically mass-production services, the unit cost to individual hospitals goes down as the size of the facility goes up. In some areas of the state, there are large reference laboratories that serve a number of hospitals or physicians, utilizing computer technology for communications and diagnosis. These represent a series of innovative building types that did not exist for health facilities even as early as 10 years ago.

### The Technology Boom

In the delivery of health care, the impact of technology is perhaps greater than it is in any other building type architects must deal with. Principally, this is because the technology receives Federal support and the industries that supply health equipment are large, research-oriented firms. It is not unusual at all for the building process to take so long that technology will have made many of the early decisions obsolete. This affects virtually every department in the hospital, but now is principally affecting Laboratory, Radiology, Pharmacy, Surgery and Dietary more than other departments. Consequently, both the design and con-

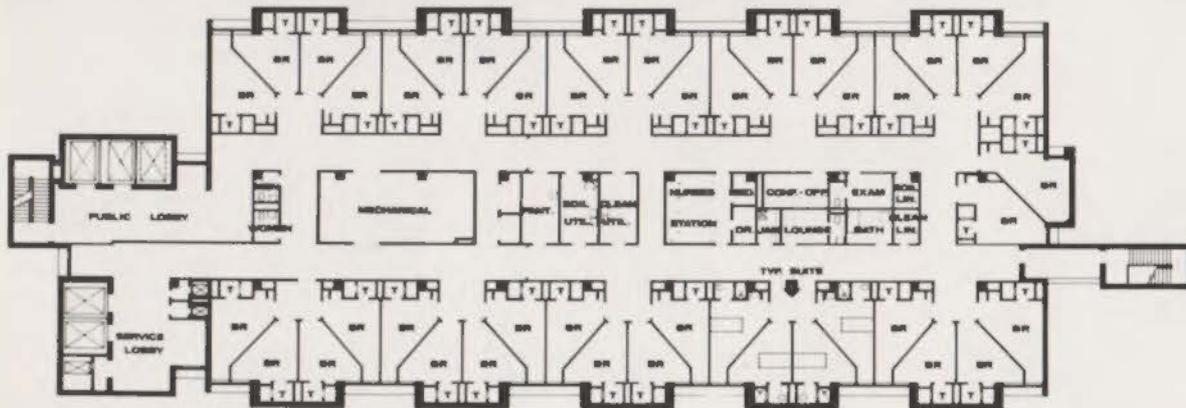


*Diagram shows planning concept of "large super-modules of flexible space" permitting low-cost change of function in the Neurosensory Center (rendering) for Baylor Medical School and the Methodist Hospital in Houston. The building is designed to expand horizontally and vertically by 100%.*

struction processes must be geared to accept change. Many architects have taken a "tenant" approach to design, building basically what is left space. There is a very high premium paid for taking this approach because the systems involved are sophisticated and very costly. The major effect is on the details of roughing-in for the equipment, and it is here that the greatest amount of flexibility should be provided. There have been some cases of new technology making entire departments or services of a hospital obsolete. The only answer for this as far as architects are concerned is to keep up with technology changes through a process of ongoing research. If you are not prepared to do this, a valuable alternative is to be sure that your client retains the services of a qualified hospital consultant.



Left is St. Mary Hospital in Port Arthur, the first stage of development of the master plan which will eventually replace all the existing older structures. Floor plan and model illustrate private room arrangement in which the hospital floor is 25% shorter than a floor composed of rectangular rooms, providing economy of space and a saving of staff walking distance.



### Extended Care Facilities

In this group, there is a broad spectrum ranging from domiciliary nursing homes offering basically custodial care to skilled nursing homes offering degrees of nursing that approach hospital care. There is a great need for skilled nursing homes nationwide because our population is gradually becoming older. In order to lower the cost of health care to the patient, it is extremely important to make avail-

able a lower level of care for those patients who can be treated on a less acute basis than is normally true in a hospital setting.

### Remodeling

There is a significant trend towards modernization and renovation of existing facilities because Federal funding is concentrated in this area. There are fewer dollars available for building new facilities. Federal programs have been oriented in this way because of statistics indicating a reduction in need for new health facilities; the greatest need is to modernize and update our existing urban and rural hospitals. In addition, more and more hospitals are looking towards remodeling as a way of reducing their capital expenditures because of high cost of new construction.

### Proprietary and Non-Profit Hospitals

In the past few years, we have seen the origination and growth of major proprietary hospital corporations. The large, voluntary non-profit community hospitals, whether they are County or City hospitals and tax-supported, or whether they are non-profit corporations by design, tend to construct for a longer building life than the

proprietary hospitals. Their services tend to be more comprehensive and their per/bed costs higher. In the design of a hospital, it is important to understand the differences by working carefully with the hospital in the early stages of programming and schematic design to insure that the design objectives of the hospital are taken into consideration.

In summary, in Texas, as elsewhere across our country, the hospital is not a single client. There are many different kinds of hospitals, and many types of clinics; and no single solutions for the design of either. It is important to adequately program and research a hospital or clinic project, perhaps more than any other building type. The growth of health facilities will continue because the needs and the demands of our population for health services continue to grow. Any architecture firm in Texas, or anywhere else, that becomes involved in health facility design will find that a major commitment of resources and time is required before the firm is equipped to adequately serve a health facility client. The challenges and the opportunities both exist.

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By Dennis Kilper

Architects and planners are health professionals. They are perhaps even more involved with the maintenance of good human health than doctors and nurses. This is true because their principle mission is to provide suitable shelter for support of human life, and because human health is fundamentally a consequence of the interactions between men and their environment. Their role in our time is one of marshalling contemporary capabilities to the end of optimizing the health-supportive qualities of the physical environment.

Virtually all human disorders, both physiological and psychological, have inherent environmental genesis. One breaks a leg by interacting with an icy walkway or perhaps contracts a virus infection by exposure to airborne microorganisms. Even genetic defects theoretically may be traced to progenitor man — environment interactions. Similarly, most psychological disorders, neuroses, are directly relatable to man's faulty interpretation of his relationship to his environment — to his place, his condition, and to other men.

Few significant links presently exist between systems for care of the organism and those concerned with the management of the health-promoting characteristics of environment. Among the latter group are the likes of architects and planners, and, of course, politicians, developers, and bankers. Such linkages should exist—treatment of the organism for correction of a debilitating disorder should be accompanied by the related treatment of the environment to remove those factors which contributed to the disorder in the first place. The former without the latter is no more than a partial reparatory, and hence temporary, process that in true meaning of the words should not be considered "health care". It does little to prevent the syndrome from recurring—the individual returns to his environment after care and the processes that tore down his health before start the cycle once again. Until treatment of organism and environment are integrated both in concept and practice, no "health care system" that honestly affords people continuing life or health support is possible.

This argument is significantly reinforced by the emerging emphasis of the health professions on preventive care, or continuing health maintenance. Within the industry these terms generally indicate developments in comprehensive individual health screening and early detection techniques supplemented with follow-up care after the acute episode. To the public health specialist they also mean comprehensive community health—management of the health-supportive features of the environment and the society of a given community. Both the doctors and the public health people have little

## Integrating Care of the Environment With Care of the Organism



### A Role for Architects

control over what is done to the environment or of the interactions between people that overtly and/or insidiously support or deteriorate people's health. So now, with modest good reason, the health professions are beginning to look to the planning and design professions to help find the bridge to developing a truly health-supportive environment. One must beware, however, for along with recognition of such needs comes blame for so many of the common ills of our buildings and our cities. Only architects seem to know that they have had but little impact upon the nature and fabric of the American city!

There is to be sure considerable historical precedent for the health advocacy goal in design. Curiously, though, when we dredge up examples of so-called healthful designs we invariably arrive at some ancient vernacular shelter form that most likely was designed and built by the same people who lived in it. Common to each of these shelter forms is a considerable economy of materials and means. Each, too, if abandoned, would in comparatively short time return to soil.

This is not to say that we should return to primitive construction methods or that "optimum health support" is another way of saying "less is more". But it is not surprising that the optimum health solution to any architectural problem is the one that tends to be the most

directly functional, that uses the least amounts of energy for construction operation and maintenance, is the most economical in terms of total materials and working time, occupies the least amount of land for the purpose, and does the least to damage or befoul its context.

If we look at the role of the architect in "care of the environment" we find this to be basically true. Care of the environment may be in the form of "episodic care" related to ameliorating specific conditions that brought about or were contributory to disorder in an individual or group, or it may be "preventive care"—that is, general maintenance or development of the positive health-supportive qualities of the environment. The former responsibility is most easily seen in the example of the epidemic of glass door injuries of the late 1950's and early 1960's. During that period scores of people were seriously, sometimes fatally, injured as a result of inadvertently walking through a clear glass door that was thought to be open. Potential remedies were to color or obscure texture the glass so that it would appear not to be a clear opening, or, secondly, to make the glass impact resistant and shatterproof. Today most such doors provide some visual indication of their presence and are constructed of tempered glass.

"Episodic care" might also include a form of follow-up care as in the case of redesign of a home environment to facilitate recovery of a disabled child, for instance. Much can be done in the design of living environments for small children, for elderly and for partially disabled persons to make daily life safer and less frustrating while at the same time providing encouragement to the individual to develop his self-reliance and in turn, his self-esteem.

It would probably include, too, the aspects of fire and accident safety provided for in the codes. These are fairly well worked out but not well supported with explanatory documentation. As a result, designers and clients who may not fully understand the logic behind various prohibitions of the codes relish the game of "how to beat them". This is unfortunate and as a problem should be addressed by the AIA and other educational and professional groups.

The latter form of care of the environment—"preventive care"—is a far more pervasive function of design. Nearly all design decisions affect human health now or in the future. It is an enormous problem to monitor these decisions to insure that they result in primarily positive health consequences for all affected generations. It is so important on one hand, and so complex on the other, that experts

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*Mr. Kilper, a practicing architect, is Assistant Professor of Architecture at Rice University as a specialist in health facility planning and design research applied to human health and adaptation impact.*

on the subject should be made available to consult with architects. For the most part there are no such experts. Therefore until the schools start training them it is up to the individual practitioner to use his own good judgment and to be wary of the potential health consequences of his own work. He must realize that he will not under the circumstances always be correct. He will sometimes make the logical wrong decision simply because conventional logic does not fit the problem and because he is not in possession of the vital facts.

There are numerous examples of mistaken assumptions regarding health consequences of design decisions. Pruitt-Igoe housing in St. Louis is an often-belabored case in point. Rather than catalog past failures and suffer the discouraging indictment they set forth, let us look at some useful principles for designers to apply in seeking to provide situations that might promote the total physical, mental, and social health and well-being of the people who would benefit from them.

#### 1. Follow the Codes

No building should be built without conscientious reference to one of the model codes, particularly regarding guidelines for fire and accident safety and for standards relative to sanitation and hygiene.

#### 2. Facilitate Maintenance

All shelter and equipment systems, primarily those which are partially mechanical, require continued or periodic maintenance—i.e., cleaning, adjustment, replacements, etc. Regular service or repairs should be thought out and facilitated (made safe and easy) by virtue of the design. Scores of deaths, injuries, and-or illnesses occur each year as a result of system failure due to inadequate or improper maintenance. Also, injuries to servicemen may be correlated to inadequate and unsafe working space and hard-to-get-at equipment. Proper maintenance also affects operating efficiencies for mechanical systems which in turn affects energy consumption, another health-related issue.

#### 3. Design for Optimum Stress on the Organism

Contrary to popular belief, what is most comfortable for man is not necessarily what is best for him as an individual or as a species. He is what he is today because of evolutionary adaptation to environmental stress. He needs some level of stress affecting all his senses and his neuro-motor systems in order to grow and maintain his physical strength and resistance to disease. He needs social or psychological stress in order to maintain mental acuity and to avoid isolation-related neuroses. Biologically, man functions as a closed-loop system. He has the



means to regulate his body temperature within close tolerances despite wide variations in "outside" temperature. He similarly regulates the amount of sensory input he receives and responds to intellectually, autonomically, and metabolically. If we continue to surround him with self-contained closed-loop systems that do his body's work for him, he will lose these capacities which would be essential to his survival if the power were ever shut off. In general, don't shelter him too much. Let him experience a rich environment full of differences but none so intense as to blind or burn or otherwise injure him as a result of one-time or long-term exposure; and, let him do as much for himself as possible—walking, running, lifting, thinking, working, playing, etc. Stairs, if properly designed, are good for everybody except very small children, the elderly, and partially disabled persons. Moving sidewalks are a "no-no" for everybody.

Although optimum stress levels for climate, light, noise, and anxiety, etc. have not been determined, research is under way. Results of this work should be sought by the profession and reported in its journals on a regular basis.

#### 4. Conserve Total Resources

There is no question of the linkage between protection of the human ecosystem and continued human life on this planet. Building and environmental projects, in order to be optimally health-supporting, must consume as little energy and material resources as possible, must occupy or compel occupation of as little productive (for forest, or agriculture, or other natural processes) land as possible, and must do very little or nothing to damage or befool the surrounding environment.



#### 5. Facilitate Delivery of Personal Health and Support Services

Urban systems should be so conceived as to facilitate and integrate delivery of, and access to, the vital health care and support services, including: emergency services, periodic health screenings, inpatient and ambulatory patient care services, police and fire protection, transportation, food and water supply, solid and sewage waste handling, etc. In general this can be done largely through effective planning and design of facilities in ways that allow these systems to function more as one total system than as many separate systems with only Mr. J.Q. Public as the interface between them. Clearly a health care delivery system must have the overall transportation system as a functional part, since the best doctors and hospitals in the world are of little value when major segments of the population at risk can't get to the facilities.

#### 6. Balance Opportunities for Privacy and Sociality

Much effort has gone into understanding man-environment relations in terms of psycho-social or behavioral responses. By and large this work has resulted in little information useful to designers beyond an heightened understanding of territoriality as an issue. What this boils down to is that every human being is different but shares with all others of his kind a need to demark and defend a place that is his own. A place to retreat to, and to set out from: a place of reference for use in his dealings with other men—social contact. No design, be it for houses or apartment complexes, jails, chronic hospitals, or business facilities, should deny individuals balanced opportunities for privacy and/or sociality. By privacy is meant complete social, visual, and acoustical isolation with some level of security against intrusion. (This applies to Western Culture as prevails in the

urban areas of the U.S.; in other cultures merely turning away from others or facing a wall is sufficient to accomplish a complete "sense" of privacy.)

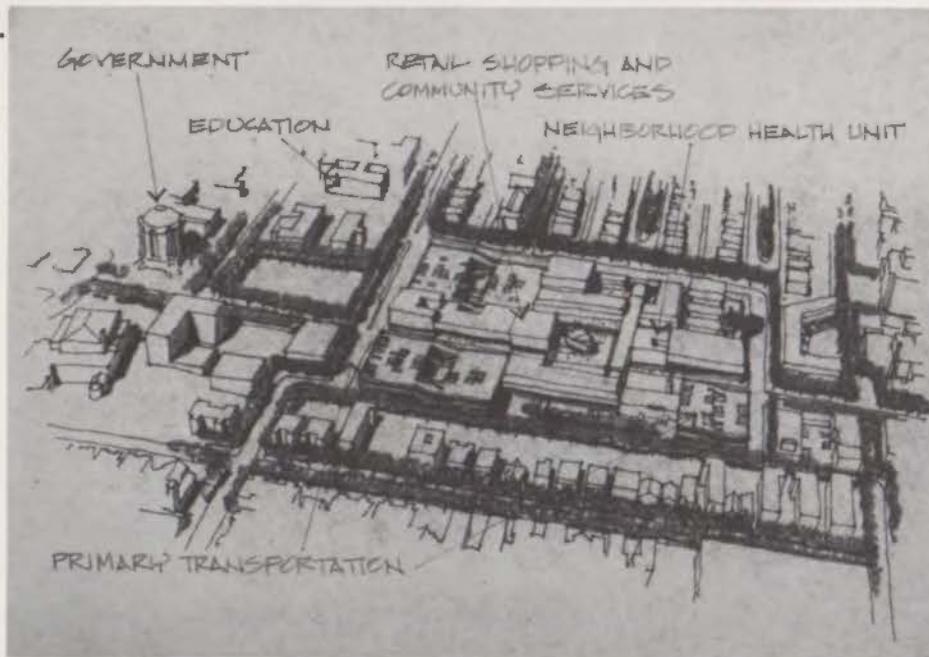
Providing opportunities for privacy or sociality at the individual's choice will do more to relieve the threat of violent and other anti-social behavior than most other popularly proposed designed crime prevention techniques combined—lighting and surveillance systems, etc., which merely make the criminal disposition more challenging, hence more appealing to some. It is also likely, but not guaranteed, to help keep a few comparatively healthy psyches healthy.

#### 7. Flexibility for Growth and Change

Don't try to control the future through design in order to preserve a good idea today. Ideas are not always time-bound, as history has proven. What appears logical today may make no sense tomorrow. Health problems and the technologies applicable to their resolution are changing several times per generation. Buildings and cities should be easy to modify physically so as not to force otherwise unnecessary and often costly social or functional changes in maintaining a rational fit between life and environment.

Finally, it is important that architects be trained to understand and deal with even the subtlest of health-affecting variables in their work. As architectural artifacts grow ever larger and more complex, and house people in highly controlled environments for long periods of time, this work becomes even more critical. Original research must be done by other disciplines, but much applied research can be done through cooperation of professional offices and organizations and schools of architecture, public health, and human factor studies. Principally, this cooperation should be in the form of continued job evaluation reporting, and correlation of results of such evaluation through a broadly based professional information system.

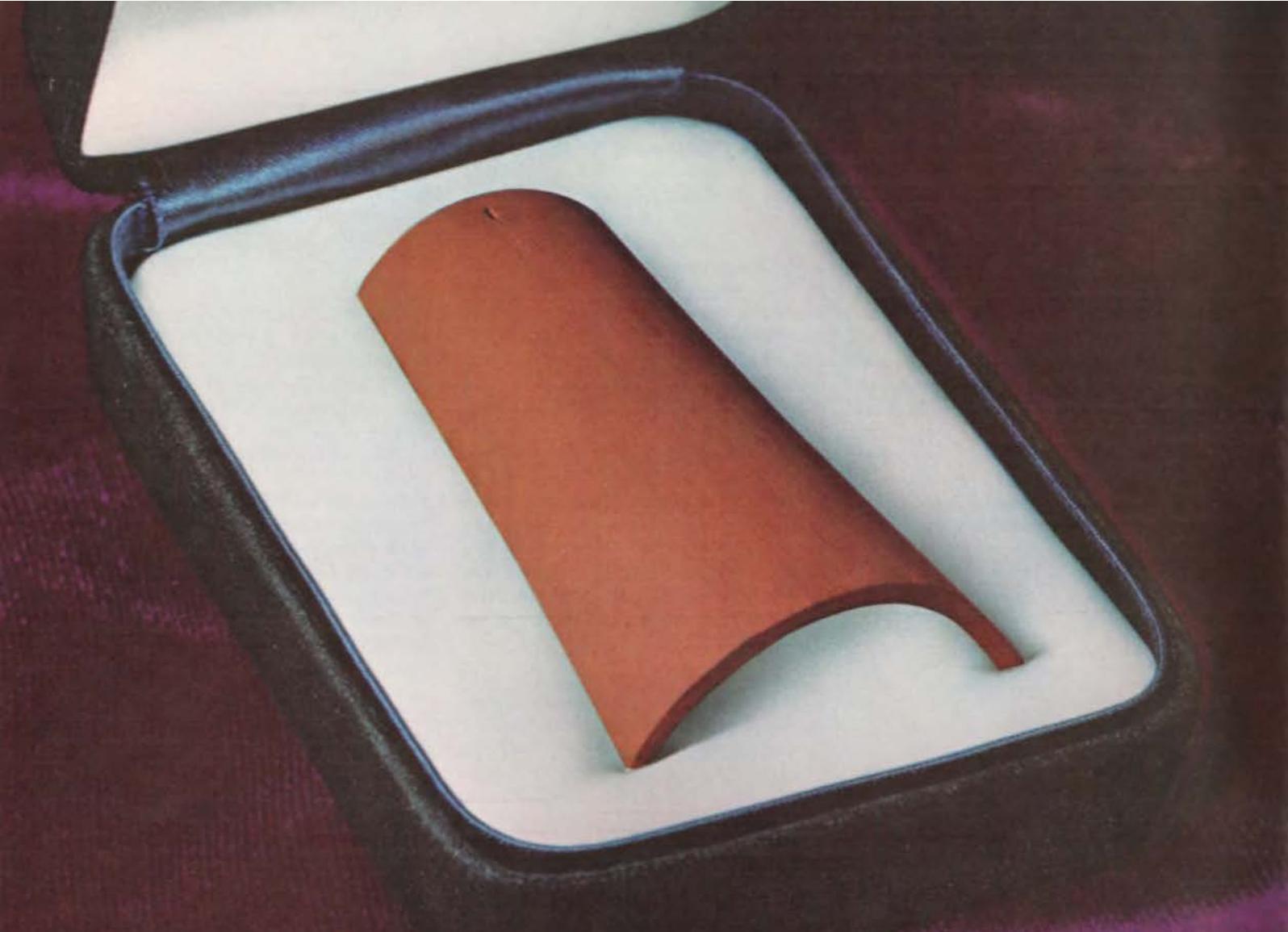
4.



5.



1. Pueblo at Taos, N.M.—sophisticated application of available materials and building methods. 2. Stairways—good for all except the elderly, partially disabled and toddlers. 3. Natural materials such as stone, unlike some man-made materials, are harmlessly assimilated by nature when discarded. 4. Transportation and health facilities should be planned together as a total system. 5. A major health-related design problem — high density housing prototypes suitable to the needs of families with children.



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Group and individual therapy simulated above by employees of the Texas Research Institute of Mental Sciences in Houston. Photos by Lindsey Lampp, Baylor Medical Illustration and Audiovisual Education Dept.

## By Clovis Heimsath

A few years ago I visited Rusk State Hospital, one of the large, decentralized psychiatric hospitals built in the early years of this century to house mentally disturbed Texans. By the act of stepping onto the site I became engulfed in the closed environment of centralized psychiatry, a private, eerie world where priorities in human activity changed, but as a visitor I was never sure just how. Surely there were too many people doing too little, but that reaction left out the architecture. There were too many people doing too little in buildings dating from the 1920's on an isolated site over 100 miles from either Dallas or Houston and in all likelihood at least this many miles from the families, friends and interests of those housed there.

To create a Rusk years ago, Texas needed a State Legislature interested in building isolated institutions, a medical profession ready to staff such an institution, and architects eager to design buildings and grounds for the closed environment, a simulated world for emotional rehabilitation. Like so many other isolated institutions, Rusk developed as a world of courts and enclosures, a hierarchy of living places (with the Superintendent's house prominently displayed). Men and women with emotional problems left the world they knew in Houston, in Dallas, El Paso, or in smaller Texas towns and were transported to their new "rehabilitative" world where they were asked to give up their family for a dormitory life. It was unlike anything they had experienced even in college, for their dorm mates here were not fraternity brothers out to dunk the Pi Phis at the University, they were other disturbed citizens, plucked from their communities to the centralized place that the State provided for care.

An index of rooms might show that Rusk had all those associated with the open society—a chapel, meeting rooms, hobby shops, a laundry, cleaners, repair shop, dining rooms, doctors' offices and so forth. What an index of rooms wouldn't show is the separation of the users from their families, friends and interests in their home communities.

A chapel at Rusk might look exactly like a church in Brenham, but the user would not be the same. To use the chapel at Rusk one would rise in a dormitory of other males or females, eat breakfast prepared by others in a cafeteria setting, and walk to a chapel where he would worship essentially alone, surely without his family, surely without Sunday dinner after worship. And his activities throughout the weekdays would be simulated activities. Perhaps the mechanic would have a work bench with a few tools, but not the opportunity to do the real work he remembered, or the support of friends and acquaintances in his trade.

The dreary part of Rusk is quite simple: in order to be available for a few hours of psychiatric counseling, the patient at Rusk is required to reconstruct his entire life pattern, make new friends, relate to new surroundings, adjust to a new time-frame. Centralized institutions would find it impossible to reconstruct the specific, individual life styles of a thousand patients; such a requirement is a theoretical and practical impossibility. Rather the patients must "learn" to conform to the surroundings that seem reasonable to the institution (and the legislature of the State that funds it). The adjustment to institutional living is the additional adjustment the mentally ill patient must make—just by coming to Rusk. That the institution is buttressed by an index of appropriate rooms implying normal activities may assuage the conscience of the general public, but it scarcely solves the human problems that family and community separation brings.

Community mental health is a necessity in Texas, because it provides treatment without the secondary problem of separation. The wife or grandfather or young son is still with his family if treatment is locally available, still at his job if the illness is not too serious. Even when serious, the patient may be back on the job after a confinement of only a few weeks, and continue his treatment for a longer period as an out-patient.

The medical profession has recognized the necessity of community health and, fortunately for Texans, a movement towards implementing community mental health is well underway. The movement was given impetus by the Governor's Committee of 100 for Mental Health Planning a few years ago, the legislature's establishing a vehicle for decentralized service, a community-oriented Department of Mental Health and Mental Retardation, and the grass-root support of the Texas Association of Mental Health and similar organizations for retardation.

But is community mental health Architecture? In the grand image of Architecture it is certainly not. Architects even 20 years ago felt that isolated, closed environments were worthy design projects, following no doubt their acceptance by medical professionals and legislators who drew up the programs. Architects never felt particularly involved in the administrative treatment or life-style implications of their closed environments. In fact, until recently, Architecture has been thought successful if it solved functional problems, with function narrowly defined, and of course, aesthetic problems.

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*Mr. Heimsath is president of the firm of Clovis Heimsath Associates, Inc. in Houston.*

# COMMUNITY MENTAL HEALTH

Today in Texas, Architects are changing their view of what architecture is. The first part of Architecture, that is, the size and location of a facility, is recognized as a major decision from which all else follows. The Architect is becoming involved in helping make this decision by providing alternate physical environments, and alternatives in treatment procedures. What might be called behavioral architecture is developing as an approach to medical facility design—the architect and the medical professionals developing a program together before requests for funding are presented to the Legislature.

The programming liaison between behavioral psychologists, staffing experts and architects provides a needed vehicle to anticipate the degree of reconstructed life style that an institutional closed environment will imply. The problems of adjustment can be considered in design planning sessions rather than in feedback analysis reports after the fact.

Architects are being shown the naivete displayed in their plans from another age, where design was thought to determine behavior rather than be a background for it. Behavioral architecture is nothing short of a new emphasis on the goal of architecture; behavioral architecture has as its goal behavior within the building, not aesthetics, per se.

The community mental health center will be a far more modest architectural undertaking than the institution of old. There will be no need for the ancillary buildings and rooms, the churches, the gyms, the shops and other simulated community environments, for the health center will be in the patient's community where the major social activity centers will remain operative for the patient. The mental health center will be designed to do its job and nothing else, for the time a patient is separated from family and community will be figured in weeks, not years. And the emphasis will be on outpatient facilities, not beds and the containment they imply.

Frankly, centralized psychiatric hospitals are the perpetrators of imprecise thought, thereby affecting environment, behavior, and community. While community health centers will be modest in comparison, they will work efficiently in treatment and involve the architect as never before in the interface between treatment program and the proper setting for that treatment.

With Dimitri Demopolus, we developed programming scale plans for a prototype rural and urban community mental health center a few years ago. The emphasis on outpatient use is apparent, what isn't apparent is the necessity of placing such centers in communities of approximately one per 200,000 people, on routes of convenient bus service, in areas with shopping and social activity. For the building alone



Demonstration Urban Community Mental Health Center

is only part of the treatment needed; the unstated is the supportive community. These designs are only guides, perhaps to position a center in proper juxtaposition to transportation, community and activity. An old building, remodeled, is more appropriate or a leased building is better used and the facilities for service are modularized into marble partitions, not un-

like an office building space plan.

The treatment method comes first, with an emphasis on preventative care through community seminars on areas of stress. The architecture must be supportive, in the best sense of the word—and in behavioral terms that is architecture! ■

# Samaritan in the Desert



The people came in mass — doctors, lawyers, school teachers, janitors, carpenters, plumbers, policemen, fry cooks, business executives, students, volunteer workers and housewives. They came armed with ideas, with plans and with enthusiasm. And they got what they wanted.

When initial planning began for Desert Samaritan Hospital, in Mesa, Arizona, the team — Caudill Rowlett Scott, associate architects Drover Welch & Lindlan, and hospital consultants James A. Hamilton Associates, Inc. — set out firmly to involve the people of surrounding communities in the design process. The major vehicle for this involvement was a series of "squatters", or community "brainstorming" sessions, organized by CRS Partner-in-Charge James Falick. More people than expected — some 400 in all — attended the sessions held in the local YMCA. Encouraged by the architects and consultants, group after group expressed itself. Questionnaires were distributed. Computer analyses were made. Space requirements were drawn to scale on brown wrapping paper and used in gaming sessions involving everyone.

What did the people want? They wanted a full-service medical facility. And hospitals, they said, were too noisy; what could be done to make one quiet? They wanted good provision for visitors. They wanted a hospital that was modern, efficient, and tech-

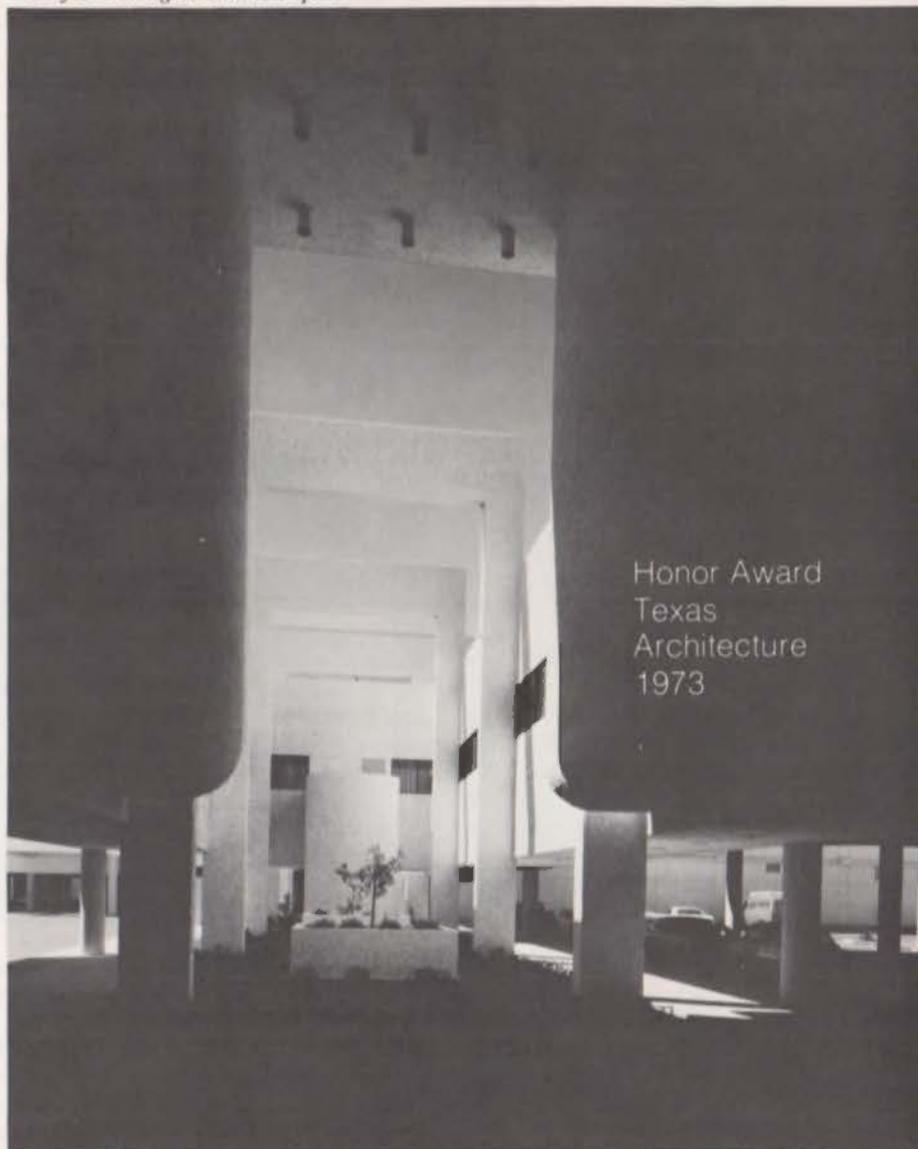
nologically advanced, but constructed on a human scale expressing the local southwestern informality. And they wanted a design that would blend visually with the flat open reaches of the desert.

Aesthetics they got. The long white hospital, stretching a blend of massive curves and rectangles over the desert like some contemporary Indian city, harmonizes strikingly with the rich browns and blues of its setting. These colors are further accentuated by dashes of yellow and red painted into selected exterior recesses.

The basic zoning of the hospital consists of parking and reception on the ground level; medical services on the second level above parking; administration, nurses' training and dining on the third level; and mechanical systems on the fourth level. A pair of four-story nursing towers — located on the western portion of the site and connected to the rest of the hospital by a "spine-corridor" system — provides 273 beds in the initial phase. Additional nursing towers can be built to the east, north, and south, expanding the bed capacity to 1100.

Outpatient and inpatient areas are located on opposite ends of the complex, separated by shared facilities, such as radiology, surgery, and pathology. Space has been left between the various medical departments to permit horizontal growth in more than one direction. The structure also allows for the

View from along circulation spine



Honor Award  
Texas  
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View from patient balcony



addition of an entire floor above medical services.

The circular design of each nursing unit as an "endless belt" of 18 single-patient rooms evolved from an ideal staffing pattern drawn up by the Director of Nursing and the consultant team. Their theory was that a ratio of 18 patients to one registered nurse, one licensed professional nurse and one aide would equal the most efficient use of staff and the best nurse/patient relationship. From a nursing service point of view, the "endless belt" concept permits the number of beds serviced by each nursing team to be altered as patient and staffing patterns demand, while the patient, for his or her part, is never more than 55 feet from the nurse's station.

Individual patient rooms — designed in clusters of four — are shielded from the harsh desert sunlight by deep overhangs which become outdoor patios for use not only by convalescent patients but by visitors as well. Inside, the rooms glow with warm colors and textured materials engendering a homelike atmosphere.

This same atmosphere exudes from the lobby of the hospital, which rises four stories to culminate in a huge skylight. A patterned "Navajo" carpet, massive furniture, and polished stucco walls reflect the early Spanish and Indian heritage of the desert region. "When you enter the lobby," says Paul Kennon, Jr., Senior Vice President and Director of Design for CRS' Los Angeles Division, "there is a feeling of uplift. The vastness of this space has drawn a variety of responses from visitors to the hospital. To some, it resembles a cathedral, to others, an inviting outdoor room. Everyone agrees that it is completely unlike the stereotyped notion of a hospital lobby. There is no hint of the antiseptic here, but rather an aura of comfort and warmth."

The information and admitting areas adjacent to the lobby have been conceived with a like sense of neighborly invitation in mind. Off to one side are an intimate meditation chapel and a gift and flower shop. On the second level, a family waiting area for surgery and the fathers' waiting space overlook the colorful main floor. Employee dining areas on the third level have access to the same view.

Such amenities have evoked much praise from Desert Samaritan's users — the people. Patients and visitors speak of their hospital in terms such as "comfort", "loveliness" and "convenience", but what impressed one patient the most was its "hominess". As one nurse said, "It's like having a new pair of shoes that fit perfectly the minute you try them on."

*The Houston-based firm of Caudill Rowlett Scott, now in its 27th year, also has offices in New York, Chicago, Los Angeles and Beirut.*

Patient room



Photos by Caudill, Rowlett, Scott



*Lobby from third level*

*Outdoor courtyard*

*Falick*

*Kenon*



*Family waiting area in nursing unit*

*Admissions area*



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East Green Office Commons  
Architect: Milhoan Partnership  
Contractor: Fry, Inc.

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## WORTH-HILL MEDICAL BUILDING

### The Doctor is In

When Drs. Ken Hempel and Gene Wheeler, of Dallas, began to ponder the construction of new facilities for their growing associated practice, they decided to put the accent on patient comfort — “to lighten the patients’ spirits and move away from a drab and cheerless, strictly business environment.” They also wanted a joint space that would maximize the identity of each of the four doctors’ offices. Given these objectives, it was logical for them to call on an architect who was one of their patients — C. Kenneth Roberts, then associated with the firm of Craycroft-Lacy & Partners.

Patient comfort and convenience were achieved through a number of means, including front-door parking, inclined entrance ramps for wheelchair patients, and a one-story basic design which eliminated the need for climbing stairs and waiting on elevators. These features were amplified by a decor, lighting and landscaping arrangement created with an eye toward patient good cheer.

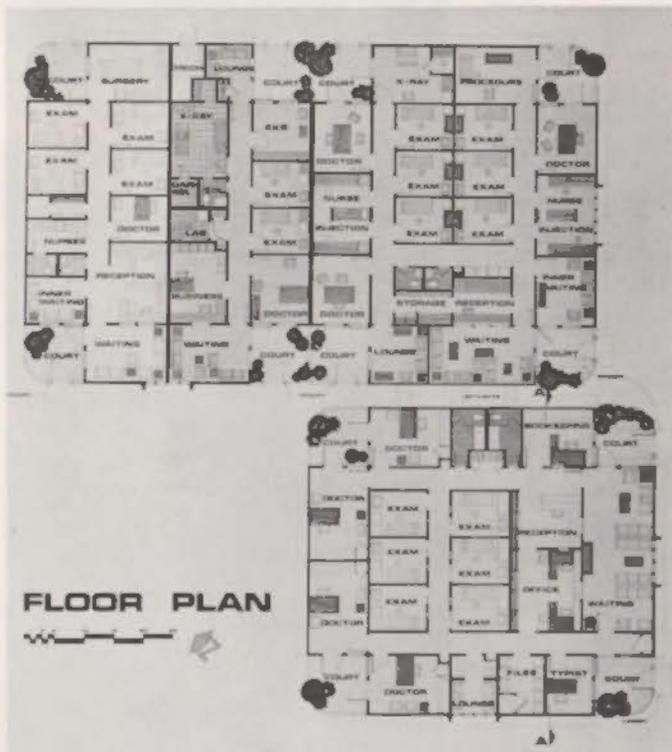
The concept was to define each doctor’s office and give him a better sense of identity within a larger complex. The individual offices form a cross in plan, with the central area reserved for examining rooms, storage, and x-ray. Offices, lounges, consultation rooms and waiting rooms are arranged around the perimeter so as to take advantage of natural light. Above each office, shielded by parapet walls, is the mechanical equipment, so arranged as to enable the doctor to control his own environment.

Since the neighborhood offered little in the way of an attractive view, the perimeter areas were opened to private, landscaped courts providing a barrier to aid in security while affording the offices a sense of openness. Outside materials are plaster on dry wall wood frame, with a raised seam metal roof featuring wooden trusses and trim.

The doctors’ diagnosis: “an office surpassing our wildest dreams of beauty and livability, and as a successful garden lease property.”

*The Dallas-based firm of Craycroft-Lacy & Partners began in 1961 as a partnership between Jack Craycroft and Larry Lacy and now employs 35 people in a many-faceted practice.*





*Pete Skarzenski,*



*Ken Roberts,  
Project Designer*

# BARRIER-FREE



By Larry Paul Fuller

They used to kill them (back when man was uncivilized), "evil spirits" and all. As human dignity rose to higher levels, the physically handicapped were spared, cared for — tolerated, if not "accepted". But now they're demanding equality.

And a primary concern of those involved with civil rights for the handicapped is a curbed, staired, man-made environment which poses daily obstacles to mobility-impaired individuals. For more than 400,000 Americans in wheelchairs, 170,000 with artificial limbs and a million who wear heavy leg braces, the right to pursue vocational, cultural and recreational interests is limited in some degree by the continual problem of "getting there".

Take Charles Eskridge, for example, a 32-year-old journalist stricken with polio at age two, who knows all too well the frustrations posed by architectural barriers. Once offered a teaching job at a state university, he was forced to refuse because of two flights of stairs. "There was simply no way for me to get to and from the floor where I was to office and teach," he said. "They'd never thought much about the need for an elevator."

Or consider psychologist Mildred Vuris, or receptionist Suzanne Wright, who are both confined to motorized wheelchairs. Mrs. Vuris realizes that the limitations imposed upon her by the man-built environment will also tend to limit the activities of her perfectly healthy three-year-old daughter. "I'll be wanting to do more and more with our child," she says. "But there are still many places I simply can't go." Even the building where she works as a therapist day-to-day lacks the basic accessibility requirement of a toilet facility which will accommodate a wheelchair.

Suzanne Wright is also disturbed by what she sees as unnecessary restrictions on where she can go — what she can see and do. There's the continuing hassle of having to call in advance to determine whether an establishment is barrier-

free, or whether obstacles that do exist are surmountable. ("Motorized wheelchairs weigh a lot," she says. "Not just anyone can lift me, even over a couple of steps or a curb.") Museums, hotels, and theaters are often hopelessly inaccessible. And, with the steep curbs to negotiate, she hasn't ventured into the downtown section of her city "for five or six years." "Proprietors don't seem to realize that the handicapped have money to spend, too," she says, "if we can just get there."

There exists no form of discrimination more blatant than that which is leveled toward the handicapped in the structuring of the man-built environment, says Doug Lawson, of the Texas State Building Commission. But he adds that neither is there a form more unintentional; architectural barriers are more a result of ignorance and oversight than of malevolence or indifference. Lawson attributes this lack of awareness to limited exposure of the handicapped, which in turn is promoted by inaccessibility of buildings designed for use by an able-bodied public.

Charles Eskridge agrees that this "vicious circle" does exist, but maintains it can be broken by decisive action on the part of the handicapped population. "We should have made ourselves more visible," he says. "For too long we've cut ourselves off from change by accepting second-rate status — by being thankful for a side-door or alley entrance, when we deserve as much as anyone else to use the front door." Unlike many mobility-impaired individuals who focus on "making do", Eskridge is an active reformist. He is president of MIGHT (Mobility Impaired Grappling Hurdles Together), an Austin-based organization dedicated to instigating change by heightening awareness of problems faced by the physically disabled.

One of Eskridge's main points in his argument against architectural barriers is that everyone benefits when a building is barrier-free. He points to the fact that most people, at one time or another, experience some form of physical disability — old age, injury, or even an armload of groceries — and can appreciate such barrier-free design benefits as ramps, handrails and wide doors. "We're the largest and oldest minority," he says, "and everyone is a potential member."

Aside from the element of convenience, there are economic advantages to barrier-free design. Ramps are generally less expensive to construct and maintain than stairs, and they minimize tripping and resulting liability claims. Also, ramps and wide doors conform to highest fire and safety standards, allowing for rapid evacuation during emergencies.

Emphasizing the need for information campaigns, Eskridge says that although general awareness is on the upswing, the real needs are not well enough recognized and understood, even by those attempting to implement barrier-free standards. For instance, a ramp approach to a door is built too steep, or without an adequate level platform at the entrance. Or perhaps the ramp and platform are in order, but the door is too heavy to open from a wheelchair. Often a curb is placed between a parking lot and an otherwise accessible building. And Mildred Vuris tells of a shopping center's elaborate elevator which she cannot operate because ash trays block her wheelchair's approach to the control panel.



Efforts to heighten awareness of architectural barriers began on a nationwide scale in 1959 with a campaign by the President's Committee on Employment of the Handicapped and by the Easter Seal Society. In 1961 the American National Standards Institute (then the American Standards Association) released a model set of standards for barrier-free architecture. And in 1968, the federal government passed a law requiring all new federal facilities and major renovations to be barrier-free. The next year, with the passage of Senate Bill 111, Texas began its own "Program for Preventing Architectural Barriers" and hired Doug Lawson to get it underway. The act, later amended by HB 1319 and SB 613, requires Texas buildings (and major renovations) constructed by use of federal, state, county or municipal funds to be "accessible to, and useable by, the physically handicapped."

Lawson's department reviews building projects to which the law is applicable and issues a certificate of compliance when the requirements have been met. This often involves a continuing process of plan revision and on-site inspection of the construction project. Since the program began, Lawson's staff has reviewed more than 3,000 projects. And, although the office was set up to review structures to which the law applies, Lawson also offers free guidance in barrier-free planning of privately-funded buildings not affected by the law.

Now, 49 of the 50 states have barrier-free legislation affecting state-financed buildings. But what Eskridge and others would hope for is legislation applicable to all public buildings, whether publicly or privately funded. Lawson says he thinks total accessibility legislation is coming in Texas, "but not for some time." Currently, each city in the state determines its own standards for privately-funded buildings,

usually by adopting an existing building code. But most codes now in use are out-dated versions with inadequate accessibility provisions, or have been modified by the city so as to make the requirements more lenient.

Some progress has been made, in this era of social consciousness. North Carolina and Maine have recently passed legislation supporting barrier-free design in all buildings used by the public. Several states, including Michigan, Maine, and New Mexico, have adopted curb cut laws requiring gradual slopes at intersections to accommodate wheelchairs. In Texas, Dallas' Committee for the Removal of Architectural Barriers has succeeded in obtaining curb cuts for downtown and has initiated modifications of facilities at the State Fairgrounds. Finishing touches applied to the new Dallas-Fort Worth Airport are making the facility a model of barrier-free design. And the city of Houston is currently considering extensive code modifications. Attracting more interest than ever before, MIGHT has plans to form additional chapters in other major Texas cities within the near future. And as barrier-free design of buildings wins acceptance, more and more emphasis will be shifted toward transportation for the handicapped.

"There is still a lot to do," says Eskridge, "but we're getting there."

1. *Suzanne Wright, receptionist*
2. *Mildred Vuris, psychologist*
3. *Charles Eskridge, journalist*



# Checklist for Barrier-free Design



Essentially, "barrier-free" means the following conditions have been met:

## Site Development

There should be an appropriate number of parking spaces at least 11 feet wide which are approximate to the facilities and reserved for use by the disabled. Walks should be 48 inches wide, with less than 6% gradient and no abrupt changes in level. There must be at least one primary entrance at ground level.

## Ramps

Ramps (used when required for accessibility or utility) should slope no more than 8.33 percent, or 1 foot in 12 feet. Thirty-two-inch high handrails are needed on at least one side of the ramp. There should be a level platform at the top of the ramp, or at 30-foot intervals. Surface must be of non-slip material.

## Entrances and Doors

All door openings must have a clearing of no less than 32 inches. Thresholds should be no higher than ¾ inch.

## Stairs

Risers should not exceed 7 inches in height and should not have abrupt (square) nosing. Handrails must be provided and should extend 18 inches beyond the top and bottom steps.

## Floors

Floors on a given story must be of a common level throughout or be connected by a ramp, and must be of non-slip material.

### Toilet Rooms

Toilet rooms should have at least one toilet that has a 32-inch outward-opening door, is no less than 34 inches wide and 50 inches deep, has handrails on each side approximately 32 inches high, and has a water closet with a seat 20 inches from the floor. At least one lavatory should have a narrow apron and should be mounted approximately 31 inches high so as to accommodate a person in a wheelchair. Where urinals are used, at least one should be no higher than 19 inches from the floor. An appropriate number of towel dispensers, mirrors, shelves and disposal units should be mounted no higher than 40 inches from the floor.

### Water Fountains

Water fountains should have up-front spouts and controls, which are hand-operated or hand-and-foot-operated, and should be no higher than 36 inches from the floor.

### Public Telephones

An appropriate number of telephones should be placed so as to be reached by individuals in wheelchairs and equipped for those with hearing disabilities.

### Switches and Controls

Switches and controls for light, heat, ventilation, windows, draperies, fire alarms and all similar controls of frequent or essential use should be placed within reach of individuals in wheelchairs.

### Identification for the Blind

Raised or incised letters or numbers should be placed in a standard location beside each door to identify rooms and offices. Doors not intended for normal use, or that pose danger for a blind person entering or exiting through them, should be made identifiable to the touch by knurling the door handle or knob.

### Elevators

Elevators should be provided and useable by the physically disabled at all levels normally used by the general public. Elevators should allow for traffic by wheelchairs and control buttons should have identifying features for the benefit of the blind.

### Warning Signals

Warning devices should be both audible and visual, for benefit of the blind and the deaf.

### Hazards

Every effort should be made to eliminate such hazardous conditions as open manholes, unsecured access panels and low-hanging or protruding obstacles.

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# A WORD ON THE CODES

By Harry Simonton  
and  
James Polkinghorn

Many instances of unbelievable conditions existed in Texas health facilities prior to the adoption of licensing standards. One example is a hospital in a West Texas town which had all patients around a central fireplace (the only means of heating the building) lying in urine-soaked beds, using fruit cans for urinals, and sardine cans for ash trays. Another case involved a farmer who brought his horse to a hospital for a vaccination.

Impetus for reform came in 1947 with passage of the Hill-Burton Bill, which provided federal funds on a local matching fund basis for the construction of health facilities across the nation. Many hospitals applied for and received grants through the program, which included regulations to insure that the funds were being spent appropriately. The Hill-Burton program continues to be a major source of funds and has set the pace for hospital construction standards.

Addressing conditions found to be existing in hospitals of the state, and following some precedents set by other states, Texas adopted a hospital licensing law in 1959 and promulgated a standard written around the Hill-Burton "General Standards of Construction and Equipment for Hospitals and Medical Facilities." Both the Hill-Burton and Hospital Licensing Standards adopted portions of the then-current "Building Exits Codes," NFPA101, and the pertinent National Fire Protection Association publications. The Building Exits Code was rewritten and today is known as the Life Safety Code.

In 1967, Congress passed the legislation which created the Medicare Title XVIII and Medicaid Title XIX program under the existing Social Security Act. Medicare is a health insurance program for the aged; Medicaid provides health care for elderly indigent and their dependents. Due to several disastrous nursing home fires, Congress in 1970 adopted the 1967 Life Safety Code as one of the requirements for participation in the Medicaid program. In October 1971, Medicare Title XVIII followed the lead set by Medicaid and also adopted the 1967 Life

Safety Code by administrative order. The State Health Department is under contract with the Department of Health, Education and Welfare to administer both the Title XVIII and XIX programs, including the 1967 Life Safety Code. These programs are particularly involved with nursing homes and hospitals construction and operation.

Hospitals accredited by either of the two nationally recognized accreditation agencies, the Joint Commission for the Accreditation of Hospitals, or the American Osteopathic Association, must meet the requirements for participation as defined in the Medicare Program. Therefore, any hospital which is so accredited is exempted from the annual Medicare surveys, including the Life Safety Code surveys. Recently, however, Congress enacted HR 1, which requires that the state Medicare agency make a sampling of the accredited hospitals.

Since adoption of the Medicare/Medicaid programs, other federal and state regulations have also been adopted which affect health facilities, though not directly aimed at the industry. These include the Occupational Safety and Health Act, adopted by the U.S. Congress, and Texas Senate Bill 111, which provides for facilities for the handicapped in publicly-funded buildings.

An important aspect of understanding and using the codes and regulations is knowledge of the government agencies responsible for their administration. In most cases, these agencies are only too willing to work with the architect to develop a facility which will meet all of the codes for which they have responsibility. And this will be done in the early stages of plan development while it is still possible to make changes without devastating cost.

Adoption of codes and regulations has solved many of the problems encountered in hospitals prior to the 1960s. The quality of patient care has increased, and there has been an improvement in sanitation and sepsis control. Patients now are also safer from fire and other hazards due to the strictness of the codes. But along with the improvements came additional problems, the most obvious being increased construction and operating

costs. The Life Safety Code, for example, has cost many small hospitals as much as \$40,000 to \$50,000 to comply, while the cost to some of the larger hospitals has run into the hundreds of thousands of dollars. Of course this increased cost is passed along in the form of increased patient costs, which results in increased insurance rates and higher taxes. It is unfortunate that patient care and safety have at times been compromised because of costs. However, the choice might be between substandard care or no care at all, if the facility is forced to close its doors.

A second problem is that in many cases the codes and regulations impede innovation and new ideas. It should be a goal of every interested party to influence the code writers to leave enough flexibility so that new or innovative ideas will not be rejected by administering agencies simply because "the code" does not recognize another solution to the same problem.

Probably the most perplexing and difficult problem for the health facility administrators, architects and engineers is the multiplicity of codes and agencies administering these codes. Often the codes are overlapping and the overlapping areas are directly contradictory. Also, there are conflicting interpretations of the same code within an agency or between different agencies administering the code. This has become such a problem to the hospitals of the state that the Texas Hospital Association has formed an Ad Hoc Committee to study ways to unify all the state and federal agencies involved in administering these codes.

It appears that at this point in time the improvements which have been wrought in the health care industry certainly outweigh the additional problems brought on by the adoption of the various codes and regulations. The question might well be "What will the future bring?", especially with the

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*Harry Simonton is a registered engineer with the Texas State Department of Health, Hospital Facilities Section. Architect James Polkinghorn is a partner in the firm of Pfluger and Polkinghorn in Austin.*

National Health Insurance Bill on the horizon. The situation can get a lot better or a lot worse, depending on how the bill is written. Some versions of the bill would unify all of the present state and federal regulatory agencies into one big super-agency with a unified set of standards instead of the many standards now in force. On the other hand, if the program is set up in a manner similar to the present Medicare/Medicaid program, it will simply be one more regulatory agency with one more set of standards that the architect and administrator will have to deal with. It would appear that all who have an interest in the design and construction of health care facilities would be encouraged to use what influence they have to try to direct this new legislation in the direction of a better and more unified set of standards regulating health facilities.

## Requirement Modifications

By T. E. Harden Jr.

Codes and regulations governing the construction of health care facilities continue to increase in number and complexity and cause rapid escalation in the cost of facilities.

Publication No. (HSM) 73-4017 by the Department of Health, Education and Welfare entitled "Minimum Requirements of Construction and Equipment for Hospital and Medical Facilities" establishes the requirements of Title VI of the Public Service Act, which applies to construction and equipment of all projects requesting Federal Assistance under the act. This publication is an impressive development over that which first appeared in the Federal Register on February 14, 1947.

Recent major additions and revisions to the "Requirements" include one encouraging feature — emphasis on functional and performance requirements which promote good medical practices. The Secretary now can issue waivers to specific requirements

which will allow for new developments and new construction techniques so long as the resulting construction will equal or exceed the standards.

Other major changes are:

- Special design requirements for the handicapped, relating to their access to public buildings, have been highlighted.

- Specific detailed requirements for intensive care units in General Hospitals have been outlined.

- Construction and Sprinkler standards have been revised in accordance with NFPA 101.

- Acceptable limits have been indicated by which surgical and obstetrical can share or make common use of certain services.

- The requirements for free-standing, out-patient facilities have been developed in a separate section.

- The requirements for rehabilitation facilities have been reorganized and consolidated into one section.

- Standards have been established governing the installation of glass so that the hazard to pedestrians due to breakage is minimized. These are also set out in the Uniform Building Code to which reference is made.

- Requirements to assure the self-sufficiency of the installation in the event of a natural disaster have been added. This includes an emergency communication system.

- Ventilation requirements for various areas of the hospital have been changed to conform to appropriate sections of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard No. 52-68 and to sections of NFPA Standard No. 90A.

- Oxygen and Vacuum System Requirements have been expanded and clarified generally to conform to the newly adopted Compressed Gas Association (CGA) pamphlet P-2.1 entitled "Standard for Medical-Surgical Vacuum Systems in Hospitals" in addition to the NFPA Standards 56A and 56F.

- Certain sections of National Council on Radiation Protection (NCRP) report no. 33 and report no. 34 establishing standards for both the design and use of equipment and the structural design and evaluation of shield-

ing from Medical X-Ray and Gamma Ray energies have been adopted.

- New standards for the testing of materials in order to regulate the amount of smoke generated by building insulation and interior finishes have been adopted. They are NFPA Standard No. 701 (Flame Resistant Textiles and Films), National Bureau of Standards Technical Notes 708- Appendix II (Text Methods for Measuring Smoke Generation Characteristics of Solid Materials) and Underwriters' Laboratories, Inc. Standard No. 992 (Test Method for Measuring the Flame Propagation Characteristics of Flooring and Floor Covering Materials).

The organization with the most influence upon the development of more stringent requirements in building construction is the National Fire Protection Association, principally composed of and supported by the manufacturers of fire protection equipment, fire casualty underwriters and fire department officials. It appears that each disaster in the Western World serves as justification for more restrictive requirements. The hotel fire in Tucson a few years ago prompted recommendations for sprinkler systems in all hotels regardless of construction, and seemed to ignore the wood construction of the subject building which was the primary fault. The July 1974 issue of the *Fire Journal* (NFPA publication) carries lengthy articles about the fires in the Joelma and Andraus buildings of Sao Paulo, Brazil and the Avianca Building in Bogota, Columbia. The article recommends sprinkler systems, even though other features in the building's structure, such as open stairways, open shafts, flammable paneling and inadequate stairways were far more responsible for the loss of life than the absence of a sprinkler system. Had any one of these structures been in accordance with any recognized 1967 building code, it is very probable that there would have been no loss of life and the property damage would have been minimal.

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*Mr. Harden practices with the firm of Preston M. Geren Architect & Engineer and Associates in Ft. Worth.*

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# Comprehensive Health Planning

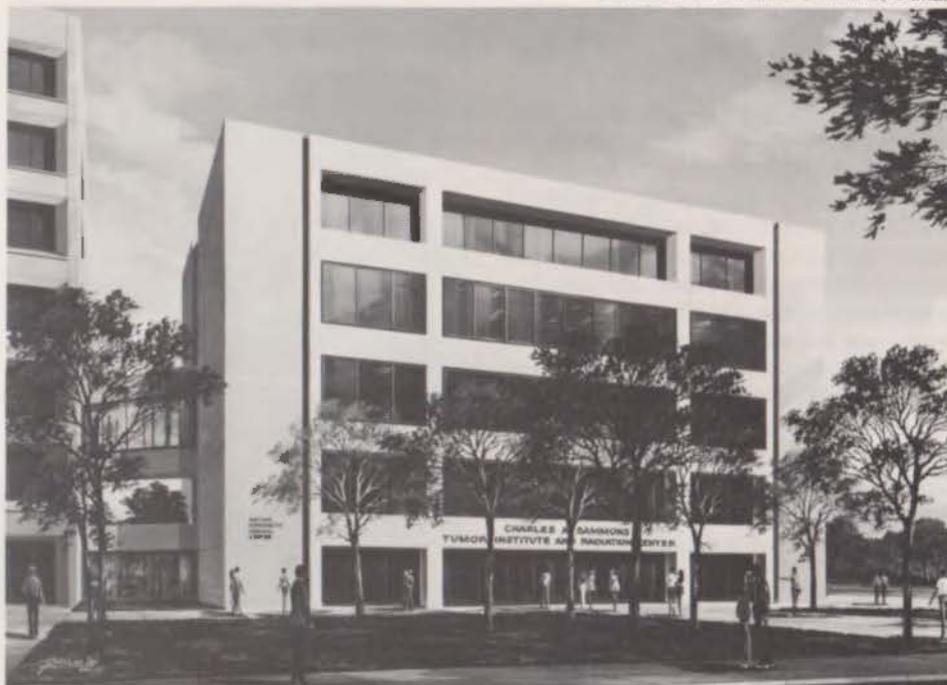
By Ronald L. Skaggs

Comprehensive Health Planning is a major factor in the design of today's hospitals. Numerous social and technological changes in the past few decades have often resulted in unnecessary overlapping by health providers in support of the consumers while in other cases certain needs of many segments of the population have been left unmet. The concept of comprehensive health care is based on the premise that the specific service the patient requires will be readily available on a twenty-four hour seven-day per week basis with a full continuum of back-up support available. The difficulty comes about in determining the mechanism of economically providing total care in an accessible manner (hopefully without duplication) as a part of a regional network. This means providing the kinds of facilities that house only the services necessary to support the patients' needs at that level of care. In the past, there has been an abundance of facilities duplicating certain glamorous or profitable services while leaving certain more necessary services untouched.

The purpose of Comprehensive Health Planning then is to establish as best as is humanly possible an orderly system of total health services through a cooperative linkage of rural health stations to community (satellite) hospitals to regional hospitals and specialized medical teaching and treatment centers. In 1966, Public Law 89-749, the "Partnership for Health Act", was passed with emphasis on Comprehensive Health Planning. Since that time all the states and numerous regional sub-units have formed health planning organizations and have been frantically working to establish comprehensive health plans which can offer a semblance of guidance in determination of what specific health facilities should and should not be providing. Added emphasis was placed on the Comprehensive Health Planning effort through the passing of Public Law 92-603 Social Security Amendments of 1972 which, in part, requires any health care facility planning a capital construction program in excess of \$100,000 to submit to regional health planning review and approval or stand the chance of

SEPT/OCT 1974

Harwood K. Smith & Partners, Dallas



losing federal reimbursement for expenditures under the Medicare and Medicaid programs.

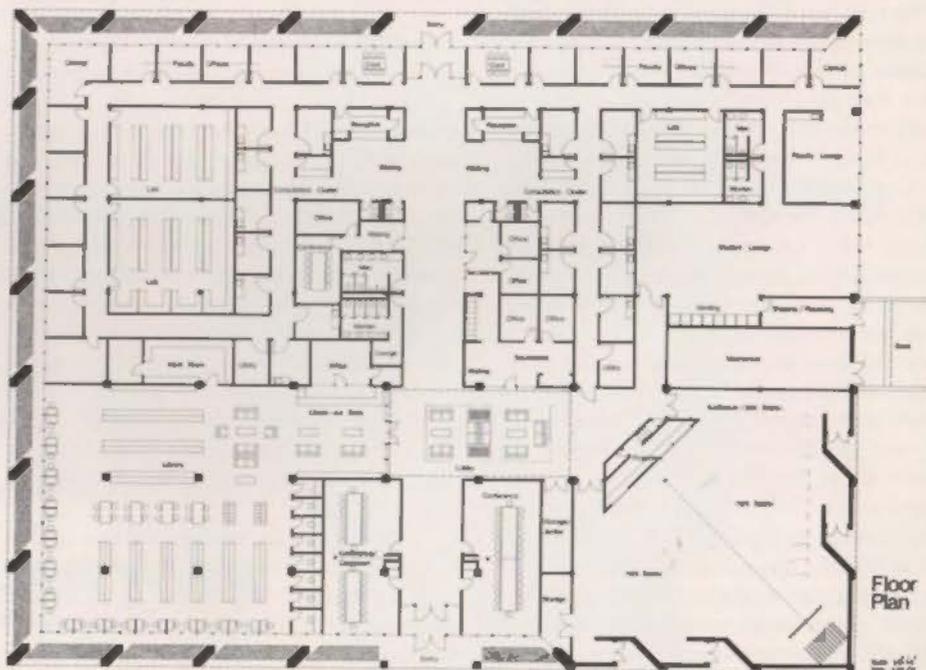
What does all this mean to the architect designing a health care facility? To adequately provide the professional design services the client requires he must look beyond the one specific facility he is planning. He must assist the client in establishing facility needs as they relate to other facilities in the community and region. If a long-range plan for services and facilities has not been developed, it is advisable that one be developed. The architect should establish a general familiarity with the level and kind of care the specific facility must provide as part of the total system and understand the requirements and differences of each facility type within the system.

What facilities are required and how do they fit into the total continuum of Comprehensive Health Planning? The health care continuum can generally be categorized into three levels of care, each level having different facility needs. At the **Primary Care Level** rural community

*The Charles A. Sammons Tumor Institute and Radiation Center, an adjunct of Baylor University Medical Center in Dallas, furnishes total diagnosis and treatment for malignant disease by grouping the three major segments of cancer treatment (radiation therapy, chemotherapy and oncology) into one regional therapy center. A multi-disciplines program will be emphasized interrelating the various phases of patient care, research and education.*

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and neighborhood related facilities are required. Emphasis is placed on first-time medical treatment, prevention, health maintenance and rehabilitation. In urban areas facility needs might be neighborhood health clinics or community mental health centers, while in rural areas they might be primary non-complicated hospitals or non-acute nursing homes. The primary care facility lends itself to operating as a satellite facility of a regional network. The primary care level is considerably lacking in many areas due primarily to economic constraints. In many cases, rather than building new facilities consideration must be given to the adaptation of existing community facilities; such as "store front clinics". Ideally, free-standing primary care facilities should be tied to the next higher level of care with the idea that services not provided at the primary care level will be available at the secondary care level. At the **Secondary Care Level** community and sub-regional facilities generally termed as the community hospital are required. In addition to primary services, this level provides a supportive source for the care of most illness with back-up hospitalization for diagnosis and treatment. Such facilities consist primarily of short term acute care hospitals ranging in size from 100 to 300 beds often with adjunct ambulatory and extended care facilities. These kinds of facilities serve as the core of the regional network and generally support defined self-contained districts in which services can be organized around a common population base and geographic boundaries. The **Tertiary Care Level** facility is generally located in large urban centers representing the entire continuum of health care backed up by highly sophisticated diagnostic and therapeutic procedures such as hemodialysis, radiation therapy and high-risk neonatal care. These facilities are most often identified as teaching institutions and specialized hospitals tied to medical schools and research centers. Kinds of facilities include teaching hospitals, medical centers, children's hospitals and special diagnostic and therapeutic centers.





To plan responsive facilities within the comprehensive regional framework, the architect must be prepared to work with various review and planning agencies and keep abreast of how the total health delivery system in the community is organized. Major emphasis must be placed on identifying community needs and the establishment of proper distribution and utilization of services. In order to wisely spend limited construction dollars, in-depth analysis of the most efficient use of existing facilities is required; only then can realistic priorities be placed on new construction. After this is done, more meaningful building design can result.

## The Rural Hospital

With the complex problems faced in the design of our larger urban hospitals, it is easy to overlook the major need for health care facility requirements in the rural setting. Over fifty percent of the hospitals in Texas are located in rural communities and, although they approximate a lower percentage in total bed count, they represent a large portion of the state's hospital needs. Rural areas across the state are, in general, experiencing a similar problem . . . a difficulty of maintaining the level of health care the community requires.

In rural areas there is an increasing need for additional health professionals, and the problem is compounded by the fact that during the last two decades there has been an outmigration of younger age groups to urban centers, resulting in a smaller and older population. In numerous areas medical facilities no longer match the communities' needs and are often outdated. Federal reimbursement programs such as Medicare are placing more stringent life safety requirements on facilities, leaving many existing facilities in a dilemma . . . either upgrade through new construction or renovation, or go out of business.

Most rural hospitals have less than 50-beds, and quite often a low percentage of

these beds are occupied. A large portion of patient income comes from Medicare and Medicaid. There is often insufficient medical, nursing and allied health staff to support the patient needs. Generally, because of widespread farms, ranches and population centers, driving distances present major difficulties in providing the kind of medical care needed.

Although greater emphasis is being placed on ambulatory care and preventive medicine, limited provision of acute care beds cannot be ignored. Generally, the older population of rural areas requires more health care and often acute bed care on a prolonged basis.

When planning the rural hospital, special emphasis should be placed on building only those hospital functions required for primary level care, leaving more sophisticated facilities for larger hospitals in population centers that can justify such use. An effective method of supporting the rural patients' needs without overbuilding is for the rural hospital to establish shared services with other hospitals in the region or affiliate with larger secondary care hospitals for referral support. There are examples of rural hospitals that are effectively operating as satellite facilities to urban institutions, thus providing immediate day-to-day care as required, with comprehensive care and services available from the back-up urban hospital. Planning activities should support ultimate capability for air ambulance service to the urban centers.

The services most commonly required in the rural hospital are emergency, non-complicated obstetrical, and routine medical and surgical patient care. Facilities to support these services require general bed care facilities, limited surgical and obstetrical facilities, emergency facilities and back-up diagnostic laboratory and radiology activities. General administrative and supply support facilities are also necessary. Serious consideration should be given to incorporating all of the communities' health-related facilities with the hospital on the hospital site.

There is the increasing trend for rural

communities to construct doctor's clinics as an adjunct to the hospital. The clinics are often provided to the physician at limited or no cost as a strong recruiting element. Long-term care facilities are also being constructed in conjunction with such hospitals to relieve pressure on census fluctuation in the acute bed area. The grouping of such facilities permits a sharing of certain services, and each thrives on the other.

Technology in the design of rural hospitals varies little from that required in the urban hospital. The major difference is the number of facilities and elaborateness of equipment and support systems. The challenge still exists in designing functional facilities that can adapt through time while providing efficient and therapeutic environments.

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**Facing page:** *The Regional Area Health Education Center, Texas Tech University School of Medicine in Amarillo, is the first of a network of outreach health and education centers to be located in West Texas metropolitan areas. Each regional academic health center houses educational facilities, clinics, research laboratories and support functions. Above: Hemphill County Hospital, Canadian, Texas, designed to accommodate the eight to nine thousand residents of Hemphill, Robert and Lipscomb Counties, will offer primary health care functions including emergency, non-complicated obstetrical, newborn, medical and surgical services.*

*Mr. Skaggs is an associate in the firm of Harwood K. Smith & Partners in Dallas.*

# Endangered Species

Many an old house, leveled to make way for a parking lot, would make for no significant loss in terms of aesthetics or function. But the San Antonio Conservation Society is concerned about the fate of one old home whose presence at 415 Broadway would be sorely missed.

The history of the beautiful two-story Victorian dwelling dates back to 1888 when Saul Wolfson built it for his family. Wolfson was a well-known merchant with a flourishing dry goods store on Main Plaza which later became the famed White Elephant Saloon. He died in 1923, leaving the estate to his wife Emelia, who in turn left it to their four sons, Abe, Emil, Milton and Jesse. Abe Wolfson maintained his residence at the old house until Mrs. Chester Webb bought it for her home and antique gallery.

Mrs. Webb restored the building, receiving an award from the Conservation Society, and secured for the structure a Texas Historic Plaque. But now the house is on the market with no restrictions preventing its being torn down for use of the 75x140 foot lot.

Within easy walking distance from downtown, and zoned for business, possible adaptive uses for the structure are many. Building space is an ample 6500 square feet, with good parking in the rear. Address inquiries to Mrs. Chester Webb at 415 Broadway in San Antonio, (512) 222-2525.



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# In the News

## Preservation Workshop

An Architectural Preservation Workshop will be held in Austin Nov. 1-2 under the sponsorship of the University of Texas School of Architecture and the AIA Historic Resources Committee.

Annually sponsored by the committee, the national conference will be directed primarily at students, but is open to all professionals and interested individuals.

The program, which is being held in Texas for the first time, will include leading professionals' case studies in preservation of historic structures and districts, as well as reports on technology relating to such efforts as restoration of paints, metals and masonry.

Registration inquiries should be directed to: **Tom Moriarity**, Workshop Coordinator, c/o UT School of Architecture, Austin, Texas 78705, (512) 471-1922.

## Architects in Industry Seminar

The third annual Architects in Industry Seminar for architects who are employed by business and industrial corporations is scheduled Oct. 7-9, at the LaCoquille Execu-

tive Seminar Center in Palm Beach, Florida.

The seminar will include case studies of corporate approaches to architectural and environmental problems and workshops and panels on cost and design factors in corporate architecture. Also planned are sessions designed to help participants solve problems they face as corporate rather than traditionally practicing architects.

## Winning Schools

Thirty-three out of 43 entries have been selected for display in this year's Outstanding Schools Exhibit at the convention of the Texas Association of School Administrators and the Texas Association of School Boards in San Antonio Oct. 6-8. After final exhibits are in place, all entries will be distinguished as 1st Honor Award, Merit Award, or Honorable Mention.

Award jurors were: Architecture for Education Committee Chairman **Bill Martin**, and committee members **Bob Allen**, **Glen Rucker** and **Bryan Thruston**; Mrs. **Tess Norris**, San Marcos ISD Board; and **Lyman Ellis**, staff architect for the Texas Education Agency.

## Solar Energy System

The National Science Foundation (NSF) has awarded a contract to the Westinghouse Electric Corporation to provide a solar energy heating and cooling system for a public school in Atlanta, Georgia.

This is the first NSF experimental solar energy installation to combine cooling with heating from the outset. The Atlanta structure, the George A. Townes Elementary School, has 500 students on a year-round schedule, and the building is used for community purposes on evenings and weekends.

Objectives of the experiment are to design, fabricate and operate a total system solar heating and cooling installation which will satisfy the needs of a large building, identify and resolve problems in such an installation, and establish the degree of social and economic acceptability.

## News of Schools

**John Gallery**, Associate Dean of the UT Austin School of Architecture, and Assistant Professor **Dr. Terry Kahn**, have been awarded a \$30,000 grant under the Community Service Continuing Education Program of the Higher Education Act of 1965 for their project, "A Unitary Private-Public Decision System for Large-Scale Land Development." The two purposes of the project are to give cities tools to evaluate large development

projects occurring nearby, and to devise a system of land management control that could be adopted by Texas Counties.

## News of Firms

Architects **Gary K. Adams** and **Lynn Reynolds** have announced the formation of a new firm — Adams and Reynolds, Architects Planners, Inc. — at 2909 Lemmon Ave. in Dallas.

Austin architect **Don Edward Legge** has been appointed Vice President and Managing Partner of the new Austin offices of the Coastal Bend firm Architects Brock Mabrey and Partners. Legge previously served for five years as Executive Director of the Texas Society of Architects.

**Hugo V. Neuhaus Jr.**, FAIA, Neuhaus Associates, have announced the relocation of their offices to 929 Riviana Building, 2777 Allen Parkway, Houston, Texas 77019.

The Dallas firm The Oglesby Group, Inc., has announced that **Norman W. (Bill) Irion** has become a principal of the firm. Other principals now are: Enslie O. Oglesby Jr., James E. Wiley, Robert L. Halford, Kirk Johnson Jr. and Norman W. Irion.

The office of G. Pierce, Goodwin & Flanagan, Architects, Engineers and Planners, Houston, have announced the appointment of **Logic Tobola II** to Associate Partner and **Gary Murphy** and **Leland Fontenot** to Associates.

Dallas architects **Ronald A. Bogard** and **John E. (Jack) O'Brien** have announced the establishment of a new office: Bogard/O'Brien/Architects, at 6350 LBJ Freeway, The Registry, 221 West, Dallas.

## Industry News

Austin consulting engineer **Grover C. Williams** has been installed as President-elect of the 7000-member Texas Society of Professional Engineers. Williams, who has been an active TSPE member for 16 years, is Vice-President and Chief Engineer for the Soil and Foundation Division of the Trinity Engineering Testing Corporation in Austin.

**Bobby Dillon**, vice president, marketing, of Ralph Wilson Plastics Co., in Temple, has announced the appointment of **Robert H. "Bob" Cottle** as manager of marketing.

**J. Bicknell Lockhart Jr.** has been named General Manager of Monier-Raymond Roof Tile Co., headquartered in Corona, California. Monier-Raymond is a joint venture of Raymond International, Inc. of Houston and Concrete Industries (Monier) Ltd. of Sydney, Australia.



# Services



## Energy House

This energy-conserving dome house in the New Mexico desert was assembled by Robert Reines and six of his friends in less than a day. The self-sufficient home, constructed of 48 steel panels at a cost of \$12,000, functions totally on sun and wind power. Prototype I, as it is called, is 31½ ft. in diameter and 14 ft. 5 in. high. Inside is a kitchen, living/dining room, bathroom, office, and a second-story bedroom comprising 655 sq. ft. on the first floor, 200 sq. ft. on the second. Atop the dome is a 6-ft. 1 in. skylight. Prototype II has also been built, and eventually a community of domes is planned by ILS Laboratories, Inc., and Earth Life Systems, Inc.

## AIA Library

An oft-neglected benefit of AIA membership is free access to the Institute's 17,000-volume library. The library offers a loan service to AIA members of all circulating books in the collection (not including reference books, rare books, bibliographies or periodicals). Books may be requested by title or by subject and up to six volumes may be borrowed for two weeks from time of receipt.

The library is not equipped to undertake extensive research, but will answer requests for information on such subjects as architects' biography, architectural history, AIA history, building types, etc., and will prepare short bibliographies of holdings on specific subjects. The library collection, strongest in contemporary American architectural books, offers titles on such subjects as: contract law, marketing services, brochures, photography,

income planning, office management, project management, etc.

To keep up with new acquisitions, members may subscribe to a "New Publications" listing by sending in \$1.00 and an address label from their *Journal* or *Memo*. Address correspondence to: Ms. Susan Cosgrove, The Librarian, AIA Library, 1735 N. Y. Avenue, N. W., Washington, D.C. 20006.

## Letters

*Texas Architect* encourages communications from its readers and reserves the right to edit for style and/or economy. We assume that any letter, unless otherwise stipulated, is free for publication in this column. Please address correspondence to: Editor, *Texas Architect*, 800 Perry-Brooks Building, Austin, Texas 78701.

**Editor:** Recent issues of the *Texas Architect* magazine indicate to me that it has become a first class publication in every way. It is graphically superior; it has articles in it which really are readable and stimulating. It has taken a long time, but *Texas Architect* has it made.

My congratulations to all concerned.

Ralph A. Anderson, Jr.  
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- full American breakfast, lunch, full course  
dinner, snacks & midnight buffet daily •
- live entertainment • briefings on ports  
of call • shipboard activities

- San Juan
- St. Thomas
- Nassau



**BRALEY WORLD TRAVEL**  
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