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The publishers of Architecture Minnesota wish to express their appreciation to the MSAIA Architecture for Health Committee and its chairman, John Anderson, AIA, for their contributions and support of this issue on health care facilities.

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Does Architecture Tell the Whole Truth?

The architectural community in Minnesota is beginning preparations to host the 1981 National Convention of the American Institute of Architects. Next year's June issue of Architecture Minnesota will be the Convention Issue. That issue will contain much detailed information—both of a general and architectural nature—about the Twin Cities metropolitan area as well as about Minnesota.

The State's Department of Economic Development and all the Chambers of Commerce will provide data and materials to support the state's preeminent position in the nation and its unlimited growth and business opportunities. A healthy business climate makes for a good community and a good environment. These agencies' optimism is probably justified—even if one-sided.

There are many reasons to visit the State. The occasion of the National AIA Convention is a good one. Non-conventioners will also come to the Twin Cities to observe its architecture, its planning and governmental units, its visual and social textures and its people. In addition, however, a visitor should be guided in the appreciation of a city's or a community's very particular and unique characteristics. These need not be just curiosities. They should be candid appreciations of the efficiencies and deficiencies, of the excesses and also the shortcomings of a place. What gives a person interest also gives a city interest: its past, its failures and its recoveries, its courage and its achievement. A good profile is not merely a handsome silhouette, it is a lined visage in whose incidental geometry the passage of time has left a sadness and a glow. The Twin Cities glow a great deal at the present. The core areas of both cities, Minneapolis and Saint Paul, glow of newness and freshness. The new buildings shine and those under construction will soon join in.

Those tall buildings that form the silhouettes of both cities are mostly recent. Their message is one of exuberance, anticipation and success. A good number of older buildings are starting over and adding the richness of their textures to the downtown areas. This articulated and varied composite also contains the political centers of each city. These are dense with a variety of housing types and densities. The Twin Cities region is also rich with cultural facilities which have become world famous. Recognition is not easily won and the success or fame of many of our private and public institutions are due to the dedication and tenacity of a resourceful community.

Some of the problems which we must resolve are national in scope, others are very local: energy, natural resources, housing, human services, planning. . . . They are being discussed, debated and will be decided—and then revised. Although they probably will not be totally resolved, advances will be made—sometimes even painfully.

The Twin Cities metropolitan area projects an arresting profile. It is rich in natural resources, cultural resources, in official and semi-official imagination and it is vigorous in its architecture.

—Bernard Jacob
This issue of *Architecture Minnesota* will be distributed at the 1980 National AIA Convention in Cincinnati. The following pages are intended as a brief introduction to Minneapolis/St. Paul, the site of the 1981 Convention. After reading this, we think you’ll agree with Paul Gapp, architecture critic for the Chicago Tribune, who described Minneapolis as “a city where the chamber of commerce never has to tell lies, because it comes very close to being the utopia of the Upper Midwest.” We can’t promise Utopia, but we can promise an exciting convention city, bright with new buildings and handsome restorations, bustling with the “good life” chronicled in *Time* magazine. See you in 1981!

For your convenience, there is a listing of hotels, civic organizations and airlines serving the Twin Cities area on page 95 of this issue.


Minneapolis panorama: The 51-story IDS Tower with Edward Baker and Associates of Minneapolis is emblematic of the architectural renaissance of the Twin Cities in the late 1960s and 1970s. The IDS Center also contains the spectacular Crystal Court, 17-story hotel, and underground parking for over 500 cars. Also to be seen in the distance is the new Hennepin County Government Center designed by John Carl Warnecke Associates with Peterson, Clark Associates of Minneapolis.
Recognition is not easily won nor is good work easily achieved. A generation ago it appeared that our downtowns, Saint Paul and Minneapolis, were slated for oblivion. As time passed, the strength of the suburban centers and the inevitability of the automobile appeared unconquerable. And indeed, for a time, it looked as if the core city was simply to be a banking emporium. The suburban centers developed and prospered. They offered unlimited parking, apparently free, a diversity of stores and were very conveniently accessible to the adjacent residential developments. It was a small town recreated, except that all the stores were in one air-conditioned environment. It was a logical and powerful alternative to the downtown where the visual blight, costly parking and scattered stores made inordinate demands on the courage and spirit of shoppers.

Saint Paul panorama: Northwestern Telephone Buildings by Ellerbe Associates of Bloomington, Minnesota. The St. Paul City Hall and Ramsey Court House built in 1931 and designed by Holabird and Root and Ellerbe and Company. The tower at the right is the Kellogg Square Apartments building erected in 1972 and designed by Conventions Center Architects and Engineers, a consortium of Saint Paul architects.

The cities were not old enough to withstand it all but they were too old to capitulate. Obstinacy, the pioneer spirit, pride and some very determined and visionary leaders set out to rebuild the city. The recovery was dramatic and forceful. As so often happens, a much stronger, more beautiful and greater core city grew out of adversity.

In Minneapolis, the IDS Crystal Court is the greatest shopping center of them all; Nicollet Mall, Rice and Mears Park in Saint Paul are the Agoras of our day. Like all the great meeting places in the world, they have become human centers of the urban life. Our people have re-entered the cities. They have, perhaps for the first time really, begun to enjoy the urban life. This hopeful, warm, cheerful, tolerant feeling which gives the city its soul and in which all the arts can flourish, is what has made our quality of life famous.

Aristotle said “Men come together in cities in order to live; they remain together in order to live the good life”. The good life for all our citizens is yet to be attained, but we have made significant progress. —B.J.
Avoiding Cultural Confusion in the Twin Cities

"So, where are you from?"
"Minneapolis."
"Indianapolis."
"No, Minneapolis."
"What goes on there? I suppose the 500's a pretty big deal, right?"
"No, it's Indianapolis."
"Hey, do you know Mario Andretti?"

And so it goes. It's not easy to explain your home city to the uncomprehending outside world. Once you've managed to dispel the stubborn image of the Indy 500 and established the Vikings-Mary Tyler Moore connection, things start to go fuzzy again. To pull the picture into focus, you might ask your confused acquaintance to consider a few of the following cultural Fun Facts about the Twin Cities:

The St. Paul Chamber Orchestra, under former music director Dennis Russell Davies, recently won a classical Grammy Award. Walker Art Center was the first (and only, other than New York's Museum of Modern Art) museum in the country to exhibit Picasso's Picassos, the exhibition from Paris' Future Picasso Museum. Every year in May, the Metropolitan Opera performs for a week at Northrup Auditorium. The American Ballet Theater also visits annually. Neville Marriner, former conductor of the Academy of St. Martin-in-the-Fields, is the new music director of the Minnesota Orchestra, with Klaus Tennstedt taking up guest-conducting duties. The Guthrie Theater counts among its alumni such distinguished actors as Hum Cronyn, Jessica Tandy, George Grizzard, Frank Langella, Christopher Plummer, Roberta Maxwell, Patricia Elliott and Patricia Connolly ...

It's almost enough to make you forget Mary Tyler Moore and The Vikings Anyone who talks about the Twin Cities' thriving and bountiful cultural life inevitably ends up sounding like a one person chamber of commerce. This area has so much to offer in every face and on every level of artistic endeavor that the choices seem inexhaustible.

Perhaps the widest variety of levels and styles is apparent in theater. Most visible, of course, is the Guthrie Theater
which was founded in 1963 by Sir Tyrone Guthrie as a regional repertory theater rooted firmly in the classical British tradition. Housed in Ralph Rapson's striking and elegant glass box just south of downtown Minneapolis, the theater was an exciting addition to the cityscape, as well as a major new cultural resource. In a sense, the Guthrie put the Twin Cities on the cultural map. Its success served as a partial catalyst for the subsequent "arts boom" and gave investors and artists alike the impetus to go ahead with new projects.

One of those incipient projects which came into full flower in the last decade was John Clark Donahue's internationally acclaimed Children's Theater Company. What began as a sort of
shoestring avant garde comedia dell'arte troupe in the early '60s grew in stages until it reached its present status as a major children's theater and school with its own facility adjoining the Minneapolis Institute of Arts. Credit for the theater's astounding growth must go to John Clark Donahue, whose vision shaped and defined the theater. Plays for children and adults, with the emphasis on spectacle and beautiful, innovative staging, make up CTC's repertoire. These works are performed in a sumptuous theater designed by Massimo and Lella Vignelli. The building itself was designed by Kenzo Tange and Parker/Klein Associates, Minneapolis.

Another major Twin Cities theater is the Cricket Theater, which only produces the works of contemporary American playwrights. It's a risky artistic policy, but one which has built them an enthusiastic and ever-growing audience. Formerly housed in an old movie theater in northeast Minneapolis, they are enjoying their first season in the Hennepin Center for the Arts in downtown Minneapolis, a restoration project of the Old Masonic Temple Building on Hennepin Avenue and 6th Street.

The list of Twin Cities theaters is enormous, but a few of the more unusual are: the Chanhassen Dinner Theater in Chanhassen, the largest dinner theater in the country, with four theaters under one roof; Dudly Riggs, an improvisational comedy group with two restaurants/theaters, one on the West Bank of the Mississippi River and one in south Minneapolis; Actors Theater of St. Paul, located in a small theater at St. Thomas College, is a relatively new group that emphasizes strong acting over elaborate production values; Chimera Theater in St. Paul, which specializes in musicals and light entertainment. There are many other theaters in the area that touch every point on the artistic and political spectrum with varying degrees of success.

The sophistication of Twin Cities audiences' musical tastes is reflected in the sterling quality of its musical organizations. The Minnesota Orchestra performs in the high tech, acoustically excellent Orchestra Hall on the Nicollet Mall, designed by Hardy, Holzman, Pfeiffer and Hammel, Green & Abrahamson. Formerly headed by Stanislaw Skrowaczewski, the orchestra has a new musical director, Neville Marriner, noted former conductor of the Academy of St. Martin-in-the-Fields. Another coup for the orchestra was the signing of the exciting German conductor, Klaus Tennstedt, to a guest-conducting position.

The internationally known St. Paul Chamber Orchestra, which rose to eminence under the daring, innovative baton of Dennis Russell Davies, has also acquired a new musical director, Pinchas Zukerman, the world famous violinist, now conducts the SPCO.

The Minnesota Opera Company, which recently commissioned a new opera house from the St. Paul architectural firm of Hammel, Green & Abrahamson, began as an experimental group called the Center Opera. Over 16 years, they have evolved into a somewhat more traditional ensemble with lively and unusual production values. Presently headquartered in St. Paul, they have split their seasons between the Guthrie Theater and O'Shaugnessy Auditorium on the campus of the College of St. Catherine.

Every year in May, grand opera buffs sate themselves with the huge-scale delights of the Metropolitan Opera. For one gala week, Northrop Auditorium on the University of Minnesota campus hosts the Met and its roster of stars.

Northrop also sponsors a varied and impressive dance season, the highlight of which is the American Ballet Theatre's week-long appearance, usually in the beginning of March. The best in national ballet, contemporary and folk groups are well-represented on the Northrop season.

The local dance scene is led by the Minnesota Dance Theater and School, which has finally, after much uprooting and uncertainty, found a home in the Hennepin Center for the Arts. Under the artistic directorship of Loyce Houlton, the MDT has become one of the nation's leading regional dance companies. Houlton has achieved international recognition and praise for her powerful, sensuous contemporary ballets. Her daughter Lise, who grew to maturity with the company, is now a soloist with the American Ballet Theater.

For more adventurous dance audiences, there is Walker Art Center's dance program, which imports small, avant garde dance companies for workshops, classes and performances. Although most of the performances take place at the Walker they often share space and sponsorship with other arts organizations. The Walker is perhaps the most eclectic and sophisticated of all the local arts organizations. The Edward Larabee Barnes building adjoins the Guthrie Theater and houses a fine permanent modern collection. Recent shows have included exhibits of the works of Picasso, Noguchi, Calder, Nevelson, Louis and so on. Other Walker programs cover film, jazz and new music, avant garde theater, poetry, and rock 'n' roll.

More traditional than the Walker is the Minneapolis Institute of Arts, which has a permanent collection and features a wide range of exhibits.

Landmark Center in downtown St. Paul, the award-winning restoration project by Winsor/Paricy, Inc. and Stahl /Benett of Boston, houses a number of arts organizations. They also sponsor numerous exhibits, on subjects ranging from architecture for children to a century of fashion design.

This in only a cursory listing of the most visible arts organizations. The truly adventurous visitor to Minneapolis/St. Paul can ferret out a wealth of small galleries, dance companies, theater groups, and independent artists all over the Twin Cities. Minneapolis is even developing its own SoHo in the form of NoLo (for North Loop), the warehouse district just north of downtown. Artists are living and working in loft and warehouse space in this area, which is spearheading a minor arts renaissance.

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Preservation And Reuse
In The Twin Cities
Foster W. Dunwiddie

Historic preservation in Minneapolis and St. Paul ranges from museum quality restoration of an early 19th century fort to the adaptive use rehabilitation of warehouse structures. In between, a wide variety of individual buildings and entire neighborhoods are undergoing active preservation.

On the one hand, Historic Fort Snelling, perched high atop the bluffs overlooking the confluence of the Mississippi and Minnesota Rivers, affords the visitor insight into life on the Minnesota frontier over 150 year ago. With the recent restoration of the Commandant's House (1822) and the Officers' Quarters (1846), Fort Snelling has been returned to its appearance in the early 19th century. Restoration of the diamond shaped Fort, a National Landmark, began in 1966.

By way of contrast, a massive brick warehouse in the Gothic revival style on the west edge of downtown Minneapolis has been converted to an urban shopping center. Built in 1906 for the Butler Brothers, a wholesale commodity firm, this National Register property at one time stood vacant and was threatened with demolition. Today, however, its heavy timber beams and columns have been cleaned and an eight-story atrium created on the interior with shops, restaurants and offices. Butler Square will soon add a hotel to its growing list of tenants as the renovation of the west half of the building proceeds.

At Oak and Washington near the University of Minnesota, the old red brick Fire Station No. 19 (1893) has been renovated as Firehouse 19, a specialty restaurant. The kitchen for the restaurant is housed in the old stables that date from the period when horse-drawn fire rigs were used. The dormitory facilities for firemen on the second floor have been converted for office use in this National Register property.

Nearby on the corner of Hennepin Avenue and Sixth Street in downtown Minneapolis, the Old Masonic Temple Building has recently been renovated as the Hennepin Center for the Arts. Built in 1888, the exterior of the eight-story rock faced sandstone structure has been cleaned and the interior spaces converted into performing and theater facilities for the Minnesota Dance Theater and School, Inc., The Cricket Theatre and the Hennepin Cen-
Roof detail, Milwaukee Row Houses

Richardsonian Romanesque in style with Moorish and Egyptian Revival details, this National Register property presents a wonderful display of uninhibited Victorian exuberance.

Along the east bank of the Mississippi River on Main Street, the Old Main Street of the pioneer village of Saint Anthony, several buildings have been renovated. The Pracna Building, built in 1890, has the distinction of being one of the first adaptive use projects in Minneapolis. Originally a saloon serving the east side milling district, it has been restored as Pracna-on-Main, a fashionable restaurant. The project has spawned other rehabilitation efforts, not only in the immediate neighborhood, but throughout the metropolitan area. Among them is Saint Anthony Main. The old Salisbury and Satterlee mattress factory (1909) has been converted to specialty shops and restaurants under the direction of Benjamin Thompson and Associates, architects for the Faneuil Hall Marketplace renovation in Boston. Across Second Street the Martin-Morrison Block (1858), the Upton Block (1855) and the Old Union Iron Works (c. 1885) are slated for renovation as the new home of the Minnesota Opera Company. These buildings are in the Saint Anthony Falls Historic District, a National Register district.

Neighborhood conservation in Minneapolis is represented in the Milwaukee Avenue Historic District where a collection of 48 immigrant workers' houses have been rehabilitated. In Saint Paul, the Historic Hill District, another National Register district, is undergoing extensive rehabilitation from century-old Victorian houses to the mansions along Summit Avenue.
Once Saint Paul’s most fashionable residential area (1880–1930), the Historic Hill District embraces over 800 structures in a wide variety of architectural styles, from Greek Revival, Italianate, Queen Anne, Eastlake, Stick Style and French Second Empire to the popular revival styles of the early 20th century. Many of these structures have been renovated in an ongoing program of neighborhood conservation.

The Irvine Park Historic District, in what was St. Paul’s earliest fashionable residential neighborhood near the Upper Levee, has seen a dramatic change through rehabilitation of the houses surrounding the block-square Irvine Park. Here the Parker-Marshall House (c. 1850), Henry M. Knox House (1849), William A. Spencer House (c. 1857), Dr. Justus Ohage House (1889), Charles Wood House (1854) and the Michael Murray House (1887) have been rehabilitated. Irvine Park itself (1849) has been restored, complete with its cast iron fountain. Nearby the Forepaugh-Hammond House (c. 1871), a two-story Italianate, has been converted to a restaurant called Forepaugh’s.

Across Exchange Street the Alexander Ramsey House (1872), home of Minnesota’s Territorial Governor, has been restored by the Minnesota Historical Society along with its Carriage House (reconstructed from the original plans).

On the north edge of downtown St. Paul overlooking Mears Park, the offices and warehouse of the Noyes Brothers and Cutler Wholesale Drug Company (1886) has been renovated to become Park Square Court, with restaurants, specialty shops and offices. It is part of a 42 million dollar project for the rehabilitation and redevelopment of the surrounding 12-block warehouse district, old Lower Town.
of St. Paul’s pioneer days, which developed around the steamboat landing at the foot of Jackson Street.

Perhaps one of the most impressive adaptive use projects in the two cities is the Landmark Center in downtown St. Paul. Built in 1894, the Old Federal Courts Building originally housed the post office, the federal courthouse and the customs house. However, these functions moved from the building to new facilities in the late 1960s. Through the efforts of local preservationists, the building was saved from demolition and acquired by Ramsey County. Today, it has been restored as the Landmark Center. This National Register building is the home of the Ramsey County Historical Society, the Schubert Club, and the Saint Paul Chamber Orchestra, together with other civic and public groups. On the interior, the impressive four-story cortile of this Richardsonian Romanesque structure is used for performances, lectures, exhibits and a variety of other programs.

Historic preservation in Minneapolis and St. Paul reflects the pattern of preservation throughout the country. Older structures are being imaginatively renovated for extended use. Mechanic's cottages as well as mansions are being preserved. Heritage Preservation Commissions are active in both cities. But perhaps most important, there is growing public awareness and support for preservation in the two communities, preserving the history that belongs uniquely to each city.

Foster Dunwiddie, AIA, is a principal in the Minneapolis firm, Miller-Dunwiddie Architects, which supervised the award-winning restoration of the Commandant's House and Officer's Quarters at Historic Fort Snelling.
What do Welander-Quist Mortuary, the remains of the Hotel Commodore Bar, Hoerner-Waldorf Company and the Ziegfeld Follies have in common? Exteriors and/or interiors originally designed by Werner Wittkamp.

Hoerner-Waldorf’s small, three-story building at 2218 University Avenue, painted brown and tan and blended into the huge establishment is a humble introduction to this man’s work in St. Paul. At its dedication in 1930, this was the Cinderella Cosmetics building. Claire Windsor of Hollywood, other “screen beauties” and a troop of Twin City officials unveiled it by pulling aside a curtain covering the entire structure. A newspaper account read: “A dazzling background for the activities will be provided by a battery of lights . . . supplemented by 500,000 candlepower used in the building which is unique in the Northwest.”

In 1980, only the zigzag of the roof-line, a chrome banister and a mirrored first landing remain to evoke that glittering time. Memory of Wittkamp, a rather formidably glamorous young man himself, and of his contribution to good living (and dying) in the Twin Cities also approaches nil.

In 1924, theater in Berlin was bleak even for this protege of the Russian artist Pavel Tschelitschev. New York’s Broadway gleamed like a golden Promised Land. Pilgrim Wittkamp brought his training in European stagecraft and the new art-deco to the shrine, and was hired immediately by Flo Ziegfeld to do sets for his legendary reviews. Several successful seasons later, providing beautiful background for beautiful girls unaccountably palled and he accepted an offer from a friend, Percy Strauss, president of Macy’s, to do special windows for that firm.

One more stop intruded before Wittkamp reached the Twin Cities. Traditional scripts place Hollywood as reward and happy ending, but in the case of our subject it was only an episode. F. W. Murnau, a director he had known in Germany, brought him to California and signed him to a four-year contract as art director for Fox pictures.

Wittkamp did sets and lighting for Janet Gaynor’s first picture, Sunrise. In an early interview he told of the 10,000 extras hired to fill the streets, and of using slanted floors and ceilings to give perspective, with children dressed as adults to keep background in scale. Of a number of pictures he did with Murnau, one, Our Daily Bread, is a film classic, uniquely realistic for its period.

During those years, Wittkamp also designed a mirror and glass stationery shop, Chryson’s, in Los Angeles, which merited a two-page spread in the Architectural Record of December 1930.

The flashy art-moderne look of this charmer convinced Jack Sinykin to persuade its designer to come to St. Paul to design a similarly striking small factory with the ostensible purpose of manufacturing cosmetics. Only after the wing-ding dedication ceremonies did its designer learn that the principal business of Mr. Sinykin and the building was to be liquor. While the end product, illusion, is the same, the time was pre-repeal and one was illegal. Wittkamp prudently removed himself from the association.

The storied crusade to “clean up” St. Paul was four years away, but this wide-open midwestern city had an appeal, for when wife Catherine begged him to return to California, Werner urged her to join him in St. Paul. Catherine Wittkamp insisted it was too
cold. When she told this story in the dark springtime of 1979, she said, “I’ve lived here 40 years and it’s still too cold.”

Repeal of Prohibition in 1933 gave hotel and restaurant owners the opportunity to demonstrate to the WCTU, which had evoked grim pictures of the corner saloon, spitoons and all, that drinking was a genteel occupation of the smart set and one could get stiff in style. The “cocktail lounge” was the place to do it and the art-deco moderne stream-lining of the period was in perfect harmony with the idea of such a sophisticated oasis.

In the Twin Cities, Werner Wittkamp’s projects were tops. The watering holes of the Curtis Hotel and the Lowry retain none of the high style he put into them, but until the 1978 explosion, the Commodore Bar was intact Wittkamp. And there were restaurants: the outline of the original ’30s exterior is still visible in the run-down Town House on University Avenue. The great Criterion which he did on the same street is gone. Holcomb’s and The Country House across the St. Croix River in Wisconsin were first done by this artist-designer whose success in pleasing his customers lay in using the principles of stage-setting and lighting which appealed to Flo Ziegfeld. He contrived to make everyone look and feel better than they were.

Wittkamp also applied this appropriate skill in the interior decoration of mortuaries. He hated gloom, according to Gene Willwerscheid, one of his clients. From the first interior done for their new building on Grand Avenue in 1942, through subsequent re-doings, Wittkamp used warm lighting and cheerful color to mitigate the unhappiness of occasions there. The Adam place on Rice Street in St. Paul, Listowel on Snelling and Welander-Quist on Dupont in Minneapolis also benefited from Werner’s stagecraft.

Wittkamp moved with the times out of the European art-deco which first had brought him fame and projects, but he continued to supply the best elements of flattering stage sets in his work. One needn’t recall the past or encounter bereavement to view an example of his theatrical touch.

A couple with whom he became friends early in his Twin City career—the Wittkamps lived first in the Oakview Apartments at Lincoln and Dale, St. Paul—were Pat and Veronica McLean, owners of the Lexington Restaurant. Don Ryan, its manager, describes Wittkamp as “one of the nicest people I’ve ever known,” and gives a share of the credit for the restaurant’s success to the comfortably elegant environment Wittkamp provided in 1938, 1953 and 1969 successively. Mrs. McLean was so pleased with his work that she delayed the completion of the corner “Williamsburg Room” for six years until Werner recovered sufficiently from the disabling stroke he suffered in 1961 to indicate to workmen the way it should be done. This was his last project. He died in 1973. Catherine Wittkamp, retired after 30 years at Dayton’s Oval Room, said from the home they shared in Golden Valley, “He made so many beautiful places. He was a wonderful man.”

Why our cities became home to a European artist with successes in New York and Hollywood, one can only surmise, but Twin Citians have enjoyed themselves in life and looked better in death as a result of his treating all the worlds he dealt with as a stage.

Beverly Vavoulis is a Twin Cities freelance writer interested in architecture and related subjects.
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"Quixote" from Hirshfield's Picasso Collection adds an artistic and soothing note to an examining room at the Winthrop Medical Clinic, Winthrop.

Antelope Vinyl complements parquet table in newly decorated conference room at Veterans' Administration Medical Center, Minneapolis. Shown above: Diane Gephart, VA Design Department.

Custom-Colored Vinyl from Hirshfield's provides rich background for artwork at the Family Medical Clinic, Ltd., Minneapolis. Shown above: F. Michael Streitz, Hirshfield's. Designer: Mary Mellen.

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Lake Superior Maritime Museum, Architect: Architectural Resources, Inc., Hibbing, MN; Army Corps of Engineers

First Federal Savings and Loan, Architect: Gene Hickey & Associates, Minneapolis, MN

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Two St. Paul architectural firms recently received Honor Awards from the American Institute of Architects. The Colonial Church of Edina, designed by Hammel, Green & Abrahamson, St. Paul, was one of seven projects to win an award in the Current Use category. The jury for this category described the complex as "a subtle, integrated building group that responds to the users' needs... the content of gabled forms, white trim, and rich, gray mass create the harmony of a perfect village square. Although it is an 'historic recall' design, it responds to modern energy needs and modern user requirements."

The other honor award went to Landmark Center, St. Paul, which was designed by Winsor/Faricy, St. Paul and Stahl/Bennett, Boston. Landmark Center was one of six winners in the Extended Use Category. The jury said that it was "perhaps the best example of adaptive re-use we saw... the internal structure shows creative restraint in rebuilding and restoring its spaces... the building is a major renovation/conservation statement." The awards will be presented at the National AIA Convention in Cincinnati, June 1-4.

The Leonard Parker Associates, Minneapolis received an award from the joint American Institute of Architects/American Library Association for the University of Minnesota Law School Library. The Library was one of six national winners in the biannual competition. In its award citation, the jury described the project as "a stepped massing with...a building block effect...a sensitively designed, sculptured massing made up of a series of blocks tacked horizontally and vertically which seem to reduce its apparent scale...well spaced with good lighting and graphics." The awards will be presented at the American Library Association's Annual Conference in New York City, June 30.

On April 1, 1980, the Minnesota State Senate passed the SF-919 Statute of Repose legislation. The Statute of Repose will protect architects, engineers, and contractors who were previously liable for an indefinite period of time for claims regarding any construction defects. Governor Quie signed the legislation into law on April 7.
George E. Rafferty has been elected to the College of Fellows of the American Institute of Architects. Rafferty, who is President and Director of Architecture at Rafferty, Rafferty and Mikutowski in St. Paul, will be invested on June 2, 1980 at the National AIA Convention in Cincinnati, Ohio. This lifetime honor, which was conferred on 92 architects this year, is awarded for notable contributions to the profession.

Penny Saiki, AIA, won the graphic design competition to choose a logo for the 1981 National AIA Convention, which will be held in Minneapolis/St. Paul in May 1981. Saiki's design was chosen from a field of 39 entries by the 1981 National Convention Committee at AIA Headquarters in Washington, D.C. Her logo, a simple, elegant rendering of a script letter 'e' (to tie in with the Convention's Energy theme), will appear on all mailers, brochures, publications, stationery, exhibit badges, tickets, programs, banners, flags, and any other material used for the convention. Saiki is an architect employed by Minnesota Mining and Manufacturing in St. Paul.

Architectural Alliance has been retained by Sperry Univac to develop preliminary plans for a new 145,000 square foot facility at the Univac Park office & laboratory complex in Eagan, Minnesota. The facility will house Univac's newly formed VLSI Semiconductor Division.

Ralph Rapson and Associates, Minneapolis, are the architects for a proposed Montessori School and Administrative Offices facility for the Montessori Foundation of Minnesota. Originally planned for a small, sloping urban site in a residential neighborhood in Saint Paul, the building was to be an energy efficient structure built almost entirely underground. Due to use of the site in an industrial development project planned by the city, construction plans for the proposed facility, which featured terraced play courts, a greenhouse, and solar collectors, have been temporarily suspended.

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Winners of the Whittier Alliance Infill Housing Design Competition have been announced. The competition, which was sponsored by the Whittier Alliance and the Dayton Hudson Foundation, was to redesign an existing duplex within the context of low density, small scale inner city housing in Minneapolis. Judging was based on cost effectiveness, energy efficiency, construction feasibility, affordability, compatibility with surrounding structures, and the design itself. Winner of the $1,000 prize was Thomas Hoskens, who chose the 2718 1st Avenue competition lot. Hoskens is employed by Korsunsky, Krank and Erickson, Minneapolis. Brad Hokanson and Steven Leary each won a $500 award for their designs for the site at 2210 Clinton Ave. Hokanson is employed by Miller Hanson Westerbeck Bell Architects, Minneapolis and Leary by Weichselbaum and Associates, Rochester.

A project planned for a $300 million complex for office, retail and condominium housing will be located just west of Minneapolis in Minnetonka and Plymouth at the intersection of Interstate Highway 494 and Highway 12. The first phase is to include a 300 room Radisson Hotel and 400,000 square feet of headquarters for the Carlson Company, Inc. as well as restaurants, shops and a corporate training center. Completion of the hotel is expected in 1984 and of the headquarters in 1983.

The total development is planned for completion in 1990, and will contain over 2.5 million square feet of building space which is slightly larger than the area of the IDS Center. The development will be built on 307 acres which Curtis Carlson has assembled since the early 1960's.

The oldest building in Minneapolis is to be adapted for a new 1201 seat home of the Minnesota Opera Company. The Upton building circa 1850, and two adjoining buildings between Praecka on Main and St. Anthony Main will be used in a plan by Hammel, Green and Abrahamson of St. Paul for the Opera House, provided that sufficient funding is acquired. The Upton building is being given by The Jefferson Co., headed by Louis Zelle. The company submitted a grant request for a $6 million Urban Development Action Grant (UDA6) through the City of Minneapolis which is to be acted on in June. The three historic buildings' exterior work will be preserved while the interiors will be totally rebuilt for one audience house of 749 floor seats with a 452 seat balcony. The main floor seat will be farther than 42 feet from center stage. A thrust stage will project 20 feet front of the proscenium, which is planned to be 60 feet wide and 57 feet high, to permit both "proscenium" and "thrust stage" productions. Behind the restored buildings, a stage house addition will contain the 118 foot wide stage, fly loft, offices and dressing rooms. The technical workshop will remain on Grand Avenue in St. Paul.
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Minnesota Celebrates: Historic Preservation Week, May 11-17: The MSAIA has joined with over 25 other cultural and civic organizations to co-sponsor a week of activities devoted to historic preservation in Minnesota. A great variety of events, exhibits, films, lectures and tours will be held throughout the area all week. A few of the highlights include:

Riverfront Happening: Sun. 1–4 p.m. at 42 Prince St. SE, Mpls.
Mpls. Kick-off: Mon. Noon at NSP Plaza and will include “Womans Work” displays.
St. Paul Kick-off: Mon. Noon, Landmark Center
Metropolitan Heritage: An Exposition of Resources for Restoration of Older Homes—Tues. & Wed. 5–9 p.m. at Landmark Center will include The Architectural Center and a slide show of preservation projects by MSAIA firms. Call Ramsey Cty. Hist. Soc. 222-0701 for details.
White Bear Lake Tour and Lunch: Wed. & Thurs. 10–4, courtesy bus at Landmark Center, call Bobbies in the Park for details, 429-7997

Special lectures include:
Restoring Middle Class Homes, Sun. 12–3:30, call 646-8629 for details
Old House Conference, Mon. 9–4 at the Womens Club of Mpls. call 870-1329 for details on this day long event.
Buying a Historic Home/Restoring a Historic Home are two separate lectures at U of M St. Paul campus, call 373-0725

There are a lot of walking and bicycle tours of both Mpls. and St. Paul throughout the week.
St. Paul bike tours call 224-3857; St. Paul walking tours call 222-0701
Family Historical Architectural walks in Mpls. call 348-2226
The MSAIA Mpls. #6 Bus Tour map will be available on the #6 buses all week.
MSAIA will have a display of architectural boards on preservation projects at St. Anthony Main all week. Special films will be shown at Mpls. and St. Paul downtown libraries and at Southdale Henn. Cty. Library.
The MN Transportation Museum will open the Como Harriet Streetcar line and the Minnehaha Depot, Sun.
Detailed calendars are available at most area libraries, historical societies and the MSAIA.
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The Leonard Parker Associates, Minneapolis, has been chosen as the architect for the new New York University Law School. The project involves the remodeling of and additions to the existing law school building, which is located in midtown Manhattan at the intersection of Worth and Church Streets. Completion of the $5½ million project is expected sometime in the spring of 1982.

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Selecting the right architect for a construction program is a key decision. For a period of time, months and sometimes years—the architect effectively becomes a partner in the organization. How well and how long will the facility serve its intended purpose? Will it be responsive to the needs of its users and the community? What will it say about the company’s image? The architect will affect the answer to these questions extensively.

Investing in a new facility is unlike purchasing a commodity. At the outset only perceived need and a few ideas exist to define the scope of the project. The initial ideas become the basis for the architectural program, the conceptual design and ultimately the working drawings and specifications from which the new facility will be constructed.

We have asked several architects questions revolving around the key issues of architectural selection.

**James P. Cramer:** To start the discussion, let me ask what you feel some of the critical considerations are that need to be made by a corporation when selecting an architect.

**Saul Smiley:** First, I think it’s important that a corporation look inside itself, identify its needs and how they relate to the overall goals and objectives of the corporation.

**Bernard Jacob:** It’s also a good idea for a corporation to appoint as soon as possible a building committee charged with the responsibility of seeing the project through and with the authority to make the necessary decisions along the way.

**Lloyd Bergquist:** Yes, I also think that it’s important for the corporation or the building committee to articulate budgets and the anticipated completion schedule very early.

**James Cramer:** You have all participated in interviews conducted by building committees or designated groups. Do you think there is a selection process that works best?
Saul Smiley: The perfect selection process probably doesn’t exist. A number of states, counties and firms that procure services frequently have established designer selection procedures that have been tested and refined. For the most part, they seem to work quite well.

Dick Faricy: The selection process should consider the total architectural team. Who are they? Who are the specific individuals and what talents and abilities do they bring to the team? The selection process should pin-point the talents and resources of an architectural firm and how they relate to the goals and principles of the client. Demonstrated responsibility and leadership in energy considerations, budget controls and time schedules are extraordinarily important aspects of any project.

Dennis Walsh: There is a good deal of variety in architectural firms. Most have categorical strengths and weaknesses. The critical considerations to be made by a corporation are usually unique to the corporation and thus the corporation will want to be sure that the architectural firm has an understanding of the project and an ability to meet the budgetary and schedule requirements. This last consideration will, to a great extent, be based on the firm’s personnel and its current and projected work load. I also like to recommend that for large and small projects alike the clients get out and visit the architectural firms, get a face to face picture of what the firm is like from the inside.

James Cramer: Our office has helped a number of corporations develop a designer selection process that is suited to the special nature of the corporation and facilitates a comprehensive selection procedure which includes invitations, evaluation, ranking, and negotiation of the architect’s compensation.

Edward F. Baker: I think it’s essentially important that the client knows what to expect in terms of scheduling, budget and design. Clients want attractive structures by an architect who can offer the savvy and understanding which comes from knowing the local community.

James P. Cramer: An issue we talk about frequently is how our regional architects compare with national architectural firms. There are a number of projects underway in this area now being undertaken by large out-of-state firms. Why do clients make a decision to hire a firm from another part of the country?
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Edward Baker: Right now five of the largest projects underway in the Twin Cities have out-of-town architectural firms guiding them. It appears to be far easier to find an architect from other areas and not to see the talents of our own local architectural community. From my own point of view, it indicates parochialism to only consider national firms who are recognized for the work they have done in the past. It's interesting to me that some of our regional firms are now being recognized and hired in other parts of the country and yet some of these firms' best buildings cannot be found within this state.

Dennis Walsh: Our business is 85% national. We go after a lot of large projects nationally. Because of the large scale, local firms are sometimes not considered. The weight of the firm in terms of its size and resources is often a key factor. And rightfully so.

Lloyd Bergquist: I must say, however, that I am very encouraged by the number of local corporations that are retaining local architects to provide them with professional services. In many outstanding instances, this is resulting in some of the best architecture in Minnesota, much of which is receiving or has received national attention. For example, Minnesota architects have been selected for projects such as the Minnesota Opera Company, The H. B. Fuller Company International Headquarters, Gelco Corporation's Headquarters, Minnesota Mining and Manufacturing Corporation's Headquarters, Western States Life Headquarters, Minnesota Mutual Insurance Headquarters, the St. Paul Companies Life Insurance Headquarters, Economics Laboratories and so on. There does seem to be an increasing awareness of the talents available locally and also an increasing desire to support this talent. So, from that point of view I feel that the situation is improving a great deal.

Bernard Jacob: It's gratifying also to see the national media, particularly the professional press focus so much attention on local architectural firms. And these architectural magazines are voracious in their appetite for regional architectural news. . . .

James Cramer: I think it's particularly gratifying also that out of 13 national awards to be distributed in June at the AIA National Convention in Cincinnati, two will go to Minnesota firms. One to Winsor/Faricy Architects of Saint Paul with Stahl/Bennett, Inc. for their work on the Landmark Center in Saint Paul, the other to Hammel, Green and Abrahamson of Saint Paul for their Colonial Church in Edina.
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Loach: Get up, lay down, drink this, swallow that . . . marvelous, isn't it?

Ash (smiling): The well-nigh inexplicable rituals of our confinement, friend.

Loach: And what have they done? Time slipping away, all they can think to do is bang me knees with little hammers and come round half a dozen times a day for a sample of my blood. It's not their time, is it? It's mine. And time's money, I don't care what you say. Any more doctors come round me for blood, I shall turn round and ask them straight what they're doing with the bleeding stuff?

Ash: They're students practicing.

Loach: I shall say: What you doing with it, drinking it, are you?

The National Health
Peter Nichols

Photography: Shin Koyama

Mayo Clinic, Rochester
Architect: Ellerbe Associates
Architecture and Health Care
Bruce N. Wright

As the 1970s have slipped away, bringing in the 1980s, there is a feeling of helplessness in the health care industry not unlike that experienced by the character Loach. With the onslaught of life safety codes, Certificates of Need, government regulation of health care costs, malpractice suits, rapidly inflating construction costs, and general economic chaos, architects and health care administrators alike may be wondering what “they” are doing with their blood. With the Federal government tending toward greater restrictions and stronger controls, an architect attempting to practice his trade in the health care field can get very frustrated.

“Subway” lobby/reception space, Mayo Clinic

The ‘70s have been labeled the “Me Decade.” With an increasing interest in self rather than community, a multitude of people became fascinated by health foods, sports, and self-improvement fads. With that came greater awareness of the body’s health and inevitably, a questioning of the costs and procedures involved. Major changes in health-care procedures have come about as a result of this questioning and subsequently, changes in the design of facilities. Legislation in the 70s by Congress, funding the starting or maintaining of Health Maintenance Organizations (HMOs) has had its impact on health care design. And of course the state of the economy has taken its toll on design as well.
A recent article in the *Saturday Review* (Feb. 16, 1980) by Dr. George Silver predicted national health care programs for the '80s that could well change the look and configuration of health care facilities. "Primary care will be in a team process, with family doctors and nurse practitioners or medical assistants liberally distributed in small clusters throughout the neighborhoods of communities for easy access by patients. The team will be part of groups, which in turn will be part of hospital units serving designated populations. Very complicated, delicate, and expensive hospital procedures will be restricted to a few regional hospitals, and effective transport and emergency vehicles will tie this network of care together," writes Dr. Silver.

The size of health care facilities will change as well as the design. In most cases, the facilities will become smaller. Compared to the massive, post-World War II hospital expansion, the '70s have seen the cutting back of the number of beds (always the basis of measure) in the aftermath of an economic war.

In a March 6 broadcast of National Public Radio's "All Things Considered," it was predicted that $800 million savings in health care costs could be affected by bed reductions. "Too often hospital beds are being filled by patients that may just as well be home," the reporter said. What happens to the empty beds? In many cases, they are being converted into specialized use rooms. These include radiology, intensive-care and coronary-care units, or out-patient ambulatory-care units.

This procedure points up the increasing amount of design work done in remodeling and modification to existing facilities. Among the major developments to come out of this trend has been the evolving of hospital interior designers, environmental pathologists and the study of psychosomatic and psychological responses to hospital environments.

Bob Dylan wrote, "The times, they are a-changin,'" and it is not too much to expect that the future decades will bring as many significant and sweeping changes than the past has. When it does, we may concur with Peter Nichols in *The National Health* when he writes, "We're removing the beds as they fall vacant because, I'm glad to be able to tell you, the whole ward block is in for a very extensive facelift. Which I am sure you will agree is long overdue. The walls will be washable avocado pear, the curtains and counterpanes in Cotswold Stone. High level louvres on the windows. King's Fund Beds with Slimline mattresses. Into the jet-age with one big jump!"

Bruce Wright is an architect employed by the firm of Rafferty, Rafferty & Mikutowski, St. Paul. He is a member of the Architecture Minnesota committee.
Many issues face hospital leadership when questions are raised about facilities expansion and replacement. Obviously, the construction must be economical and within the hospital’s means. In addition, it must be highly functional. Very recently, questions of energy or utility costs have become extremely important. Along with resolving these complex issues, the new or expanded hospital must also play a part in the larger, areawide plan of providing health services in the community.

Against the background of these challenges it is very encouraging to the design profession that those responsible for establishing hospital policy have come to feel that buildings which are functional, completely efficient, and economically built are still lacking something. There is a growing awareness that the hospital must be a place people are proud of, with a comfortable, livable environment. People need to feel that the hospital is not only safe and functional, but also warm and comforting.

It is well known that the hospital environment can pose real health hazards for both patients and staff. These hazards can threaten the staff who are directly employed in patient care (such as nursing and in the diagnostic departments) as well as those who work in the ancillary departments (housekeeping, laboratory, bookkeeping, and others). Additionally, of course, the hospital environment can even become threatening to the health of visitors and the general public. These health hazards can be not only physical or chemical in nature, but also psychological or psychosomatic.

The recently developing subspecialty of environmental pathology, particularly in the state of Minnesota, has learned a great deal about the hospital environment. Environmental pathology has its origin in the study of human disease, which is pathology. It is an extension and a specialization of pathology which looks at and identifies occupational and environmental-based disease. The most frequently utilized methodology is the clinical laboratory approach. Dr. Vincent F. Garry, Director of Environmental Pathology with the Minnesota Department of Health and University of Minnesota said, “The environmental causes of these problems can be anything ranging from a chemical in an area to the stresses in the environment, whether it be the nature of lighting in a room or the kind of air filtration in a space… These are all the kinds of things that can be contributory to not only organic disease but psychosomatic disease.”

One hospital activity that poses a significant health hazard is the use of gas sterilization. Ethylene oxide, the most commonly used gas for this purpose, is a documented, well-known mutagen capable of producing genetic damage. Recent studies seem to show beyond question that exposure to ethylene oxide can produce serious genetic damage in both animals and humans; the animal studies indicate that it can also produce tumors. The first problem involving the use of the gas relates to its actual release into a space at the end of the sterilization process. At this point, the gas is generally drained into some sort of trap. Frequently, the ethylene oxide is released into the atmosphere in these ways, where it can potentially harm those who work with the sterilizer. The engineering systems of the building must eliminate or minimize this problem through appropriate ventilation and adequate drainage.

The second part of the problem relates to the operational practices of the staff in the area. A common occurrence is that articles or packages of articles are put into use shortly after sterilization with ethylene oxide. However, these packs of articles should first be properly aerated; unless this is accomplished, individuals are again exposed to the gas. In the past it may have been possible simply to keep the door to a room closed and the windows open and expect Mother Nature to properly exhaust the space. In modern buildings, however, consideration must be given to the proper ventilation and drainage from these sensitive areas.

Other sections of the hospital which frequently expose staff members to the health hazards of inadequate ventilation are areas where various solvents are utilized. For instance, in a histopathology lab a great number of solvents, particularly formaldehyde, can produce degrees of intoxication, contact sensitivities, or headaches and nausea through frequent exposure. These areas must also be appropriately ventilated, and the systems employed in the building should be adaptable when these areas are expanded or moved.
An additional health-related problem which is on the increase is the appropriate storage and disposal of nuclear materials, such as the radioactive isotopes. A safe area must be set aside and appropriately equipped, so that the quantity of materials generated can be stored for a period of months, depending on their half-life, which allows them to break down and become relatively harmless. Obviously, the method of disposing of these materials has to be known at the time of design so that appropriate provisions can be made.

Another extremely routine aspect of hospital operations which is often hazardous to the health of the staff, patients, and visitors is the disposal of trash and removal of soiled linen. Again, Dr. Garry: “Most of us in the hospital world have been exposed to so much of that junk that we usually tend to be resistant, but when you are talking about things like infectious hepatitis or some sort of viral disease, then knowing how to handle those materials becomes a real problem.” In the design of a facility, not enough thought is given to these hospital functions. Adequate space to hold soiled linen and trash, and then adequate provisions to physically remove this material to an appropriate collection point, are important requirements. All of these spaces must be served by a mechanical ventilating system designed to ensure that the contaminants will not be airborne into adjoining areas.

Special attention needs to be given to all the areas in the hospital where patients who are unusually susceptible to infectious disease are housed or treated. Patients who have received renal transplants, patients who are on chemotherapy, and burn patients, to name a few, are especially susceptible. The space planning in these areas, and particularly the ventilating systems, must be such that these patients can be effectively isolated and protected.
Hospital design professionals are aware of all of the above-mentioned health problems in the hospital environment. One problem that may be harder to deal with is the use of new materials in hospital construction. When untested materials and assemblies are put in a closed hospital environment, they can combine in unanticipated ways. For instance, a number of glues currently on the market include isocyanates, which can cause allergic problems. Many of the new wall surfacing and ceiling surfacing materials have been known to give off formaldehyde, and some preservatives and fire retardants have been found to be mutagenic. The building designers must take on the responsibility of studying the new products specified for the hospital and must ascertain that when used in the closed environment, and in combination, they will not contribute to the health hazards already present.

Another important aspect in any consideration of the hospital’s environment is the human reaction. How do you humanize the hospital environment?

First of all, it may be simpler to say what the humane hospital environment is not. A “bad” hospital building cannot be made comfortable with mere surface decorations and picture selection. A successful human environment or interior requires a much different approach.

Achieving a truly humanistic, comfortable environment requires a commitment from the hospital administration and leadership. They must understand that this is not at all incompatible with the requirements of hospital function or economy and, if properly understood, need not be compromised for them. A strictly functional approach can provide a safe environment, but it excludes many other requirements of the people who live and work in the hospital, and often produces a stern and monotonous facility. The hospital must give off an aura of sympathy and concern for people. The building designers, at the direction of the hospital leadership, must provide for the human needs of everyone who will use or come in contact with the facility.

The first of these needs is a sense of scale and orientation. Whether the facility is very large or very modest, there is a danger that it will be sensed as an impersonal institution and that the individual person will be lost within it. These feelings can be overcome by the provision for appropriately sized and interrelated spaces and circulation elements. Areas at the elevator lobbies, for instance, can provide visitors with a place to sit and wait for a moment or simply to collect their thoughts. For purposes of orientation, a strong physical element, such as a central courtyard or even a central series of elevator lobbies or reception spaces on each floor, has been used successfully to give both outsiders and the staff a sense of direction within a complex.

Another extremely important need is contact with the outside world. The medical staff who work within the facility all day long, as well as the patients and the visitors, require a link with nature during the period of time they are in the facility. Frequently, we find an absence of windows in hospital corridors, and very few rooms (other than the patient rooms, which legally must have a window) provide a view or an opportunity for people to come in contact with the exterior. Surgical departments or labor and delivery
departments are good examples, since many staff members and patients spend extended periods of time in these areas and can lose contact with the world outside the hospital.

Another often overlooked human need of the hospital environment is that of providing small, comfortable rooms where people can relax. Whenever possible, there must be an adequate provision for visitors to get away from the area of the sick patient in order to sit for a moment with a cup of coffee, a magazine, or some other diversion. The patient and the visitor should have access to a lounge or solarium where they can talk or rest outside the patient's bedroom, a room which is often intimidating for many people. Equally important is the need for the medical and nursing staffs to have a place where they can escape from the inherent pressures of their responsibilities. This need applies to the employees in the ancillary areas such as laundry and dietary, as well as to the highly skilled professionals in critical care patient areas.

Hospitals are most often regarded as institutions and, as such, are perceived as threatening to most people. The odors, lighting, security hardware, and the noise are all detrimental to the human needs of those in the hospital. Appropriate alternatives to many of these systems have been tested, and hospitals are beginning to demonstrate the concern of administration and the design professions. For instance, at times many parts of hospitals can have quite unpleasant odors. Appropriate ventilation systems must be provided in these areas to eliminate these intimidating smells. Other areas of the hospital can be extremely noisy, resulting from the hard surfaces on the walls and floors, the paging systems, the use of many carts and wheeled appliances, and the large numbers of people present. Materials which absorb sound, including recently developed ceiling assemblies and carpeting (where appropriate), can be extremely helpful in providing a quiet environment.

Providing a hospital environment which is both safe and humane is a great challenge. It requires a commitment from the hospital itself, as well as from understanding design professionals. Dr. Garry said, "Historic tradition and common sense tell us that the hospital must be the kind of place that provides optimum surroundings for people. It is very hard in a hospital setting to provide that kind of atmosphere and at the same time have all the mechanical devices, equipment, and other aspects that are necessary for the care and treatment of the patient. Whoever comes up with an appropriate design for this deserves a prize." Hospital design has been a highly technical activity in the past, but the requirements for safe and humane environments must not be overlooked.

Mr. Higgins, AIA, is an architect consultant with Hamilton Associates, a Minneapolis-based hospital consulting firm. Ms. O'Loughlin is an editor for the firm. Vincent F. Garry, M.D., is an environmental pathologist with the Minnesota Department of Health and University of Minnesota.
Four years ago, Hennepin County Medical Center (HCMC) moved into a new building spanning two city blocks on Park Avenue near the heart of downtown Minneapolis. The modern, complex structure contrasts sharply with the cramped, deteriorating building two blocks away on Portland Avenue from which the hospital had served the community since the late 1890s.

Although the need for a new building had long been apparent, it was obvious by the 1960s that the hospital's very future depended on it. Thus began a planning program which eventually included a directive from the Metropolitan Health Board (MHB) shaping not only the future of the County hospital but of nearby Metropolitan Medical Center (MMC) as well.

Both hospitals, one public and one private, had been planning independently for new facilities; but the MHB—the health-care planning arm of the Metropolitan Council—would approve new construction only if the two hospitals agreed to a program of shared facilities and services, including a physical joining of the two institutions. The MHB was concerned with holding the line on increasing hospital costs and saw the proposed cooperative effort as one way to provide continued high quality care and services to the community without early duplication of certain equipment and services.
Through an architect-sponsored charrette—an intensive seven-day planning session involving medical, administrative, and nursing representatives along with architects—the two hospitals overcame their initial lack of enthusiasm for the proposal. In a week’s time, they hammered out the rough plans for approximately one million square feet of space. Just as important, however, the group set the tone for a spirit of cooperation that continues to influence the relationship between the two institutions. Four years later, what began as an experiment has become a successfully functioning reality.

In its new location, with approximately 500,000 usable square feet, HCMC continues its role as the County’s primary provider of health care to the indigent. In addition, extensive emergency, inpatient, and outpatient programs are available for persons of every social and economic stratum in the community. The hospital also enjoys a national reputation as a prestigious teaching hospital.

A primary goal of the building design was to enable HCMC to respond quickly and easily to growing or changing health-care needs in the community or to changing methods of health-care delivery. To achieve this degree of flexibility, three concepts were of primary importance.

Photography: U.S. Steel
The cytoid—A megastructural element whose name derives from its bio-medical overtones. (Cytology is a branch of biology dealing with cell formation. In this connection, cytoids are considered units of growth.) Each cytoid is a 75 foot square with a 15-foot square tower at each of its four corners. All columns, stairs, and mechanical equipment are located within the towers, leaving the remainder of the cytoid with large open spans of architecturally manipulable space.

Interstitial space—An extra floor between each occupied floor containing hospital’s mechanical and electrical delivery systems. Each interstitial space is approximately seven and a half feet high, permitting easy service employee walk-through. The spaces are also accessible from the tower stairs. Equipment can be raised into the space simply by removing the suspended ceiling below it.

Co/Struc—A modular exchange system of drawers, shelves, lockers and small frames, was selected in place of much of the fixed casework traditionally found in hospitals. Flexibility is found also in this basic system of material transport and storage. This system is used extensively throughout HCMC. It is used in the patient rooms, clinic examination rooms, and most storage areas, as well as throughout the clinical laboratory. This later application was chosen after thoroughly testing the product to insure stability for the many delicate operations in the laboratory. The flexibility allows for a variety of working heights depending on the task to be performed at the bench. Ease of change in this rapidly advancing area was of prime importance. The entire food system was designed around the Co/Struc locker since it was the container of choice for the transport of materials. Transport throughout the complex is accomplished by transferring the lockers to special yokes on an endless monorail system. Destination dials program the yoke to move horizontally, call a material transport elevator, move vertically in the elevator and finally discharge at the appropriate floor. What seemed like special containers at first have now become the everyday way of material handling and storage.
These and other systems were chosen to afford the greatest flexibility in changing spatial arrangements within the open areas or remodeling sections of the building when necessary. The horizontal space layout of the cytoïds allows a direct relationship of inpatient, outpatient, and medical service office areas. For example, the majority of internal medicine patient beds, the medicine outpatient clinic, and the department of internal medicine offices are all on level four of the building. This allows for easy access on the part of staff who must move from inpatient to outpatient to office activities throughout the day.

The sameness of the cytoïd structure has caused difficulties to visitors and patients in terms of spatial orientation. Those unfamiliar with the layout often need assistance getting around the building. The original directional sign system was inadequate to the task, and redesign has been undertaken.

The horizontal design also necessitated multiple fire exits to fulfill building code requirements. Necessary security surveillance for these multiple exits was provided by installation of additional electronic hardware.

Modern construction materials chosen primarily for their efficiency and functional properties sometimes perform at the expense of the "human" spaces in the hospital. Some of these spaces have been decorated to provide a warmer, friendlier atmosphere for friends and relatives of patients in the critical care areas of the hospital.

As expected, the hospital's capability to respond to change was tested rather early, and two major remodeling projects were undertaken within the first three years of operation. The Burn Unit was remodeled to accommodate new concepts in the treatment of burn victims, and the dentistry department was remodeled to accommodate new equipment and facilitate changes in the practice of dentistry. These projects were successfully completed without any interruption in clinic activity in areas above, below, or adjacent to the areas being remodeled. There was no inconvenience to patients and no reduction
in patient scheduling as a result of the remodeling projects.

Also, during this period the interstitial space facilitated installation of computer hardware and associated CRTs. The ease of wiring hardware connections between CRTs and the central computer accelerated the installation process.

The interstitial spaces have allowed for improved maintenance access to the mechanical and electrical systems. At seven and a half feet high and outfitted with catwalks, they enable personnel to reach most areas unhindered. Further improvement could be made, however, by replacing the present catwalks with lightweight concrete decking which would give complete access to every square foot of the service levels. This approach was rejected in the original plans because it is considerably more expensive than the present system of catwalks.

An anticipated problem before occupancy was that heavy traffic in the neighborhood would create unacceptable noise levels within the building, a concern that failed to materialize.

The hospital was designed and construction completed before the energy crisis arose. As a result, the hospital is not as energy efficient as it needs to be. Planning to adjust the energy delivery systems for greater efficiency is currently underway; implementation is planned for the early 1980s.

Requests for such minor adjustments have been made only recently. Normally, the bugs are worked out of a building within the first two years. HCMC officials suggest that the surfacing of minor complaints at this later stage is most likely because the initial contrast between the inadequate old hospital and the new building was so dramatic that no one thought in terms of additional improvements. Now that the early euphoria has lifted, staff is beginning to see that minor adjustments in certain areas might improve both work spaces and ability to respond to patient needs.
Hospital officials and architects agree that, on balance, the building is functioning as planned. The most glaring deficiency at present was nothing to do with basic design concepts; it is rather a result of hospital people's occupational tendency to look after patient needs first—the program provided very well for the hospital's clinical areas, less well for administrative. For a variety of reasons concerning increasing regulations, planning, and the addition of non-clinical and support programs, there is a critical demand for additional office space.

The success of the shared services concept with MMC is obvious in the steady growth of the program. From an initial 20, the number of shared services has increased to 30. The most recent addition—a natural outgrowth of physical proximity—is the shared echocardiography lab. As the area's major provider of echocardiography service, HCMC's program quickly outgrew its space in HCMC and it became necessary to rent larger available space in MMC. After a year of occupancy during which MMC cardiologists began to use the service, a contractual shared services agreement was effected with HCMC as provider.

HCMC administrators envision further sharing as the hospitals continue to respond to the needs of the community. It has been suggested that even though the two hospitals are now physically joined overhead in Center Building, the union will be complete only by joining also at street level through the closing of Chicago Avenue and the creation at that site of a joint emergency facility. With the hospitals' cooperative spirit and the flexibility of the physical structures, such a dream might well become a reality.

Joel Glotter, AIA, is a principal in the Minneapolis firm, Smiley Glotter Associates, which designed Hennepin County Medical Center.

Thomas Mattison is an Administrator at HCMC.
Charles Richards is an Associate Administrator at HCMC.
Fundamental changes have taken place in the past fifteen years in the health care industry.

Health care has become a national economic and political problem. Hospitals are faced with contradictory and conflicting pressures and demands. Congress, federal and state agencies are pressuring hospitals to contain costs, to ration the delivery of care, to reduce unnecessary duplication of facilities and services, to increase availability of services and to improve quality.

The industry has responded to these demands through the development of systems of hospitals and institutions operated under single corporate management. The configurations of hospital systems are varied and often complex, but can generally be categorized in terms of the degree of their physical or organizational integration.

Recently Robert P. DeVries of the Kellogg Foundation developed a scheme to categorize multi-hospital arrangements. He suggests seven types of hospital systems, moving from the less formal to the more highly structured system.

The first is formal affiliation. In this model there are usually written agreements for medical referrals, the transfer of patients and in-house officer affiliations between institutions. Examples of such formal affiliations have existed in great numbers for many years between community teaching hospitals and academic health centers for purposes of graduate medical education. Formal affiliations have many advantages for patients, students, health profession education programs and health care providers. This arrangement does not change the ownership of the participating institutions.
**Shared or cooperative services** is the second arrangement. Here the institutions have long-term or short-term financial agreements for selected services, especially administrative support services such as purchasing, billing, credits and collections. Also included are clinical support services such as diagnostic laboratory procedures and method engineering. There is no change in either the corporate ownership or individual management of participating institutions.

A **consortium for clinical service planning or health professions education** is the third category. This was developed partly in response to federal demands for comprehensive health planning. Groups of hospitals agree to plan which institution will provide which clinical service. Also, there is no change in corporate ownership of participating hospitals. These formal community-wide clinical service planning consortiums have influenced major policy decisions for these hospitals.

**Contract management** is the fourth configuration. In this model, several hospitals are operated by a group of corporate managers. The contract management model stresses full management without ownership. There is a major change in top management and these is a systems influence on major policy decisions for the served institutions.

The fifth type of organization is **the lease**. The policy-making as well as the full management is provided by a corporate board or agency that is separate from the ownership of the served institutions. There is no change in ownership, but both board policy and management decisions are made on behalf of the benefiting institutions by the serving agency.

**Corporate ownership with separate management** is the sixth model. Here the corporation owns a system of several hospitals but contracts for the administration of each of them with individual, independent managers. Examples of this arrangement are found among the chains of hospitals operated by religious orders.

The seventh and most highly structured arrangement is **complete ownership**. Four types fall into this category: hospital chains or authorities . . . hospital holding companies . . . consolidations or mergers . . . and satellite or branch operations. Benefits of multi-hospital systems are primarily economic, manpower, organization and quality of care.
Hospital systems can achieve economies of scale. Increased size allows the system to meet the same level of demand with less capacity. Economies result from joint purchasing of high volume laboratory equipment, highly specialized therapeutic equipment, computer technology and other sophisticated systems. All of them demand large scale operations to make their acquisition economical. Multi-hospital systems have more resources for dealing with the problem of raising and appropriately using capital than do autonomous hospitals. Systems are viewed as lower credit risks by lending institutions because the financial risk of individual hospitals is spread over a larger operating base. Recruitment and retention of personnel, both clinical and administrative, is much easier for a system than for an autonomous hospital. The reason is that a broader range of services and programs, different levels of care and access to specialized personnel and equipment and the availability of specialists, allow for consultation and continuing education. Systems that consist of different types and sizes of institutions offer managers real mobility, while enabling them to remain within the system. In addition, a strong institution can provide the latest in facilities, service and equipment and thus it creates a favorable environment for physicians to practice and attract the best.

At the organizational level, the multi-hospital system, by coordinating the development of services and programs, can influence health planning at the community or regional level. This rationalization of the planning process can improve the allocation of resources, reduce duplication and excess capacity.

Minnesota, and the Twin Cities in particular, are in the forefront of hospital systems organization, boasting many examples of multi-hospital arrangements in various degrees of involvement. The Health Central System and Fairview Community Hospitals of Minneapolis are examples of the hospital holding company concept. Abbott Northwestern Hospital, Inc., in Minneapolis and United Hospitals, Inc. of St. Paul are examples of consolidations or mergers. A third example is St. Paul Childrens Hospital, which has a management contract plus shares services with United Hospitals. St. Paul-Ramsey Medical Center and Gillette Children’s Hospital is a physical consolidation that takes advantage of surplus beds.

Consolidation models can derive the most economies and efficiencies because organizational consolidation results in a new physical plant or a major expansion of one of the member hospitals. Inherent in the consolidation is the large size. In some instances, size approaches megastructure proportions. New institutions require imaginative planning to maintain desired adjacencies without overextending the communication links. Special segregation of types of traffic in the large institutions is also of the utmost importance.

Cost of energy becomes significant in the operating budget of a major medical center. All applicable conservation measures must be built in. Medical construction, with its demand for a high degree of environmental control and complex utilities, is a high energy user. Orientation of the building, construction of the envelope, and mechanical systems for heat recovery, must be considered.

Introduction of a major medical center into the urban pattern influences the character of the immediate surrounding area as well as urban systems. The new entity becomes a generator for related land use such as professional buildings, research and educational facilities, multi-unit residential and nursing homes. This rejuvenation of the neighborhood in turn influences and provides impetus for change. Such a renaissance was seen in Irvine Park near United and Childrens Hospitals in St. Paul.

The physical needs of an urban area are substantially impacted by the consolidation of hospitals. The architect is given the opportunity to favorably impact the entire scheme of transportation, land use, energy conservation and urban design. All this while working toward providing higher quality health care on a more cost efficient basis.

Oleg Gregoret is a Senior Project Designer Ellerbe Associates, Inc., Minneapolis, MN
United Children's Hospital

Photography: Shin Kayama
The hospital administrator leaned forward, elbows on the table, hands clasped, and began to describe his planned projects to his newly hired architects.

"I'm planning to add 16 ICU/CCU beds, a triage area in ER and a new trauma room, and redo pharmacy for the unit dose system. CSS should have a direct connection with surgery. Let's also plan an area for CAT scanning and special procedures. Last year our average patient day was 6.1 so we're looking at more singles as part of the answer. Got it?"

"Of course," the architect replied, and quickly left to seek a translation.

The administrator was speaking in a kind of verbal shorthand, a code which, once learned, is as clear to the architect as the symbols on blueprints. But learning does take time.

Like health care professionals, architects must listen closely to their clients to find out what ails them (or their facilities). The process requires more initiative on the part of the architect because sometimes the client doesn't know what's "wrong," or how to describe it to those outside of his or her own profession. Unlike patients, buildings don't present themselves and demand a cure for the common cold (although obsolete heating and ventilating systems may make a building uncommonly cold at times). But buildings, like patients, present—often indirectly—a host of symptoms which require attention and treatment. For the architect to conceive and implement a "cure," it's essential to understand the symptoms. To do so involves learning to understand and speak a new language, the client's language. We call it "Hospital Language."

Sometimes our terminology collides. For instance, when we as architects hear the word "pane," we think of window glass. In hospital language, "pain" is human discomfort. Or, we think of "energy" as a consumption of natural resources providing cooling and heating, and try to make energy use in our buildings more efficient by reducing waste and loss. But, "I don't seem to have any energy. Doctor," is a loss we don't see.

Ambiguity often exists when we assign different meanings to words which are a common part of our respective vocabularies. Is a "medicab" a built-in cabinet for medications, or is it the vehicle transporting people to and from the hospital? Is a "carrier" a patient carrying a disease, or staff carrying lab reports, or the mail, or is it a messenger rushing a set of blueprints to the contractor? It may be none of these, but instead a conduit carrying electrical wires, or the pipes carrying gases and liquids in the building's mechanical systems. And we'd better be certain that the drainage system we're discussing is not an open ditch or sewer carrying wastes if one of us means a urinary drainage system for the patient.

If these typical "language barriers" sound familiar, it may be that many of us as architects have been there. We recognize that an effective architect-client relationship is based on mutual understanding. Much like a doctor-patient relationship, both must work together to resolve problems. The health care professional's goal is a healthy human organism; the architect's is a healthy physical plant which comfortably, attractively, and functionally houses health care professionals and their patients.

Like doctors, architects are diagnosticians. We perceive and treat symptoms. The doctor takes a "case history" but so does the architect. We examine the physical plant, "take its pulse" to see how sound the existing structure is. With the engineer, we look at the building's support systems,
its counterparts of tissues and bones, arteries and veins. We identify all the departments and their relationships to one another to determine which are functioning at full capacity, which are "ill." Some may need to be transplanted, sometimes with delicate surgery, so as to not disturb the delicate web of existing functions. Sometimes the problem may be to eliminate a small malfunction without basically altering the structure. Sometimes, more radical surgery is required.

After a diagnosis, the next step is to probe the specific symptoms to find a "cure" that is the most effective. As is frequently the case in medicine, the root of the problem may be quite different than that which the symptoms disclose. The cause may be remote from the location of the pain, as in the instance where a malfunctioning mechanical pump may cause physical discomfort two blocks away in an operating room. The architect's approach can mean systematically meeting with department heads, medical staff members, administration, plant maintenance and engineering personnel, and with health care "consumers" to gather information and track down the cause of the pain or discomfort.

Where the diagnosis uncovers major problems the architect may concentrate observation and tests more closely and probe in depth the actual operations of a department by becoming part of it for a few days.

At the final stage, with the results in, the architect may confront his or her "patient" with the knowns and perhaps some unknowns and offer our best professional judgment about the treatment process, the timetable, and the long term prognosis. We try to offer those judgments based on a thorough knowledge and understanding of the unique requirements of health care facilities in general, and the specific needs of this patient, or building, in particular.

Today's health care facilities, whether needing additions, remodeling, or entirely new physical plants, present numerous design challenges to architects and engineers—even more so existing buildings which need to be updated and their antique or outdated systems rejuvenated or replaced. These are complicated constructions, not unlike human beings, needing quality care. Perhaps it is because preventative care of buildings has not always been very good that our curative efforts must be. We may well suffer in our buildings what we suffer in our lives—giving the short term life style priority over the long term values of living.

So, if we can communicate and understand, we can diagnose, treat, and effect a cure. Because now we understand each other, right?

Let's see...a "corner guard" watches the street intersections at schools...and "cardiac arrest" is just another day in the life of the police squad...and "drills" are for bones and teeth, or was it for wood and steel? A "linear accelerator" makes our automobiles pick up speed and "trusses" can tie you up in knots (or keep you from being tied up in knots)...or are they those things holding up the roof?

Of course we understand your language, or at least we try. But even though we may stumble a bit in the translation, remember, we still make house calls.

John C. Anderson, AIA, FCSI, is a health care facilities specialist with Hammel Green and Abrahamson, Inc., Architects/Engineers of St. Paul and Minneapolis. A practicing architect for 30 years, he has been "in and out of health care institutions" throughout his career. He speaks hospital language fluently.
Design Development is the First Remodeling

Alan C. Balhorn

Inflation has been the primary reason for the increased utilization of fast-track scheduling in the design and construction of hospital facilities in the last decade. Fast-track scheduling overlaps design and construction activities to allow construction of a project to start months earlier than is conventionally the case. Thus inflationary cost increases are avoided and completion of the facility is considerably advanced. Under extreme fast-track scheduling, construction starts even before the preliminary design is completed. Such was the case for example with United Hospitals, Inc./Children's Hospital, Inc., St. Paul, Minnesota and the Mayo Guggenheim/Hilton Building, Rochester, Minnesota, both designed by Ellerbe.

Realistically, fast-track scheduling will remain the significant means of containing construction costs in the 80's. It has, however, had a detrimental impact on the business of architecture. It has upset the architect's traditional step-by-step design process, which is a logical sequence of decisions without the fourth dimension of time. It has introduced the importance of time, and its cost, and has progressed from a slight overlapping of phases to the extreme of constructing on the heels of design decisions. Figures 1 and 2 show a conventional schedule and an extreme fast-track schedule. In Figure 2, construction is shown starting prior to completion of the preliminary design, which is indicative of the schedule pressures that develop when concerns for winter construction conditions, delivery problems, material shortages and high financing costs are added to the typical escalation pressures.

Secondly, fast-track scheduling does not recognize that the information and documentation needed for the first stages of construction are traditionally the last steps in the design process. Thirdly, although the typical presentation of schedules (as in Figures 1 and 2) shows the same length of time allotted for each phase of design, proving early construction documents shorts the design time. The major concern, however, is that research and innovative design require unconstrained freedom and appear to be unproductive against the urgency for decisions. With forced decisions, the project will be completed and the process will get by, but the design will be compromised.

Several procedures have emerged to respond to an early construction start—some work better than others. Of those that get by, the most common procedure is to design and issue the project in multiple packages to provide the contractor with plans and specifications for the building components in the sequence needed for construction: excavation, foundations, frame, etc. This procedure presumes that the architects and engineers have had adequate time to conceive the total project and are sufficiently experienced to avoid errors and minimize changes.

One completed project has, however, demonstrated that a structured process can successfully respond to the needs of an extreme fast-track schedule. It is documented in "Healing the Hospital," by Eberhard H. Zeidler, Principal-in-Charge of design of McMaster Health Science Centre, Hamilton, Ontario. The book presents an extensive accounting of the design concepts, planning process and systems building. The design includes an interstitial structural system, modular mechanical and electrical systems, enclosure systems and materials handling systems that were researched, designed and implemented in the 1,380,000 gross square foot McMaster facility on a fast-track schedule.

Most importantly, however, the process responded to the fast-track schedule needs by providing for the early issue of the building enclosure in the sequence needed for construction. It successfully deferred the research, design and issue of the internal functional areas to allow sufficient time for their development. The schedule shown in Figure 3 is similar to Zeidler's Schedule of Staged Completion, from his book "Healing the Hospital," wherein the frame, enclosure and basic systems

Mayo Guggenheim/Hilton, Ellerbe Associates

Photography: Shin Koyama
are on a fast-track schedule that responds to the importance of time and its cost. The development of the internal functional areas follows a schedule that allows for the logical sequence of decisions. In reality, this is the process that is utilized for speculative office buildings where a majority of the tenant space is not leased until the design is completed and construction is underway. The frame, enclosure and basic systems are designed around expected demands of the tenant spaces. Tenant spaces, then, are developed on a separate time schedule.

Zeidler separated basic building needs from tenant space needs in a large, complex medical facility, researched the potential tenant space demands and designed a systems building to satisfy the fast-track schedule and the follow-on tenant space demands. Similarly, the Veterans Administration is pursuing the Veterans Administration Hospital Building System on numerous replacement facilities. The VA system was developed in the early 1970's by combined efforts of Building Systems Development and Stone, Marraccini and Patterson, and is based on a highly systematized design with an interstitial frame, modular planning and systems development. Inherent in the design is a remodeling flexibility that allows the basic building needs to be constructed prior to completion of the design of the internal functional areas.

The advantage of these systems buildings is that the design approach can be adapted to the fast-track scheduling needs of a conventional hospital design. By deferring the development of the internal functional areas, efforts can be concentrated on the building enclosure and selected building systems. The shell provided by the committed enclosure and basic systems would not be unlike the gutted interior of a structure being remodeled. The design development for the first use would be like the first remodeling.

It has been stated that the advantage of systems buildings to fast-track scheduling is that the design approach can be adapted to the needs of a conventional hospital design. By adding area as a contingency, deferring the development of the internal functional areas, and by selectively evaluating the building systems in a time/capacity manner, construction can start on an extreme fast-track schedule without the problems of procedures utilized to date, and without the unacceptable aspects of systems buildings.

With design efforts concentrated only on the building enclosure and the selection of major systems, architects and engineers regain the time needed for research and innovation that is essential if the design of complex hospital facilities is to keep abreast of the rapid changes in the health care system. Designing the internal functional areas later in the process reduces obsolescence because the design develops from more current input and owners realize additional time to comprehend, contribute and decide. Designing the building enclosure and major systems earlier in the process increases the flexibility because the design must respond to a wider range of potential demands.

Clients, architects and contractors should establish immediately the extent of fast-track scheduling that is intended, and if it reaches the extreme, development of the internal functional areas should be deferred and be designed as the first remodeling.

Alan C. Balhorn, AIA, is Senior Project Manager Ellerbe Associates, Inc., Minneapolis, Minnesota.
Recent research has shown that many diseases are self-perpetuated. Our major health problems come from eating, drinking and smoking too much, lack of exercise, and job-related pressures. In addition, we often live and die in a sea of man-made pathogens—the air we breathe, the preservatives we consume, the chemicals we use. All of these elements combine to increase our stress and lower our immunological defense mechanisms.

To counter the consequences of these influences, we have developed a magnificent health care delivery system that treats the diseases resulting from these underlying causes. In a sense, the system treats the symptom, not the cause. The irony is that it was the health sector itself which taught us the crucial differences between treating the symptom and treating the cause.

To ensure that matters don't change, the economic structure of the sector has been tailored in such a way that the sicker the patient gets, the wealthier the physicians and hospitals get. It is an incentive system in perfect harmony and in perfect opposition to the ideal: optimal health at minimal cost.
Against this backdrop, we are confronted with the problem of visualizing what a true health care structure should be like. What if we built an institution devoted to fostering health, not curing disease? What if we tailor this institution to those among us who are least able to maintain health, the handicapped citizens of this country?

Vinland National Center, to be built in Minnesota, is a national healthsports center for people with disabilities. It will be partially based on the experience of the Beitostlen Health Sports Center in Norway.

Vinland was started with a bicentennial gift of one million kroner ($200,000) from Norway to the American people on July 2, 1976. This was later matched by $200,000 from the Minnesota Legislature in 1977. In 1978, a planning and design grant in the amount of $600,000 was appropriated by the U.S. Congress.

Its primary purpose is to use healthsports to counteract the effects of physical inactivity and negative psychological reaction associated with disabilities. It will aid the development of the physical, personal and social potential in the individuals who come to Vinland.

The building design concept embodies the closest possible interaction between the man-made and the natural environment and the interior with the exterior. The concept incorporates the dynamics of climatic change into the architectural design that will adjust and change with the seasons. The site, located on the north edge of Lake Independence, consists of 175 acres of rolling open spaces contrasted by wooded areas of intimate scale.

The design provides for the construction of the center into the south slope of the major site “bowl”, with the roofs covered with turf. Major social spaces and the residential component orient towards Lake Independence with the larger sports areas into the hill. The various building functions have been organized around an interior “main street” with a “town square” as the major focal point. The town square incorporates a four-story greenhouse, and the street will provide year-round climate controlled connection between the various functions.

Closely studied and watched by the best minds in the field of health promotion (the International Conference of Life Style and Health is its intellectual progenitor), based on the successful Beitostlen Health Sports Center in Norway (its institutional model), supported by a national outreach organization called HEALTHsports, Inc., the Vinland National Center should succeed in a completely new field. And what is more important, it should affect the way we think about and approach health care in this country.

The reasons for building Vinland are rooted in the hard facts of health economics: that the way we choose to live may affect our life expectancy from birth by as much as 15 years; that largely self-induced diseases such as heart disease and cancer cost this country more than $90 billion dollars annually; that the largest return to our invested dollars in health is likely to come from the groups that have received the least investment in health from society in the past.

Strong forces have been mobilized to defeat the Vinland proposal in Congress. There is always a threat to vested
interests when something as promising and interesting and new as Vinland comes along. For our own sake, we should allow Vinland to come into existence. And from then on, we should draw from the Vinland experience in the way we think about shelter, about health care structures, about the places we work and sleep and play. We look to architecture for functional harmony, for spiritual lift, for aesthetic delight. Should we not look to it for the very basis for our existence?

Tor Dahl is an Associate Professor in the program of Hospital and Health Care Administration at the University of Minnesota.

Duane Thorbeck, AIA, is an Associate Professor at the School of Architecture, University of Minnesota and Design Architect for the joint venture of InterDesign Inc. and Thorsen and Thorshov, Inc.
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ARCHITECTURE MINNESOTA / June 1980
Health Care Costs
James I. Lammers

Our health care delivery system is fraught with built-in impediments to competition which result in inflationary pressures. The prime example, of course, is third-party payments which make it difficult for the consumer to make cost conscious decisions in purchasing health care.

Although construction and other capital expenditures account for less than three percent of the total health care dollar, they have seen marked cost increases. Ten years ago the square foot cost for new hospital construction was $35 per square foot; today it is nearly $100.

Government regulation of health care costs has been touted in the Congress and in the press as a means of putting a lid on the increasing health care costs. Before we jump on this bandwagon, let us look at the results of present government intervention in the health care system.

The Hill-Burton Act of 1946, through favorable loan treatment, set the stage for massive hospital expansion after World War II. It can be argued that this government stimulation led to overbuilding of hospital facilities. Indeed, some say the closing of entire “extra” hospitals could save up to eight percent in overall annual hospital expenditures. The cost of construction is not the concern here. Rather, it’s the operating expense, which equals the cost of construction within 18 months. Also, the availability of excess hospital facilities tends to lead to overuse.

Since 1971 the federally mandated Certificate of Need (CON) process presumably limits unwarranted medical facility expansion by requiring that a Certificate of Need be granted before a building program can begin. The planning for reasonable growth over a broad geographical area is undoubtedly beneficial. However, the CON system itself has some attendant costs which are ultimately added to the cost of health care.

Discounting the costs of the agencies, boards, and staff required to manage the CON process, the procedure itself takes time, which can be a significant cost. For example, a $20 million proposed expansion could conservatively require six months for documentation of need, projection of use, costs, and agency review. At current levels of inflation, this approximates $1.2 million. When the costs of hospital consultants are added, the total is closer to $1.5 million. This must be built into the cost estimate for the total project.

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A further problem with CON is that it does not provide for thorough architectural planning to occur before approval. Since the facility risks all expenditures prior to approval, these expenditures are kept to a minimum. Also, the CON process frowns on building for future needs such as “shelled” space built now for future expansion, even though this procedure can result in significant dollar savings when the shelled space is filled in.

There are numerous regulations which are necessary as minimum standards for design of health care facilities. However, superimposition of state and national codes enforced by a battery of agencies and private commissions has led to conflict and confusion and often a costly “belt and suspenders” approach. Within the past few years we have seen a slackening in the trend toward more and more life safety requirements. However, this has been offset by additional handicapped accessibility requirements. The net result is that medical facility construction costs are at least ten percent higher due to code requirements.

Let us look at how health care costs are paid. Typically, almost half of a facility’s costs are reimbursed through Medicare/Medicaid. This reimbursement is on the basis of documented operational costs and thus there is no incentive on the part of the medical facility to reduce costs. A hospital which is innovative and cuts costs is rewarded by having its reimbursement reduced. Thus, government influence works to drive health care costs upward.

Furthermore, Medicare/Medicaid and many private insurances do not normally cover the costs of home-care, hospice, or education required to enable patients to care for themselves. Preventative medicine education does not fit into the reimbursement system. Therefore expensive hospitalization results because it is “covered”.

One controversial New York study recently indicated that regulation of health care facilities results in a 25 percent cost increase. Without doubt, medical facilities are regulated more than any other institution in our economy. Perhaps before we look at increasing regulations to control health care costs, we should examine the possibility of reducing regulations to reduce health care costs.

James I. Lammas, AIA, is a principal in the Minneapolis based firm of Hills Gilbertson Fisher/Centrum Architects Inc. which specializes in design for health care.
ospice is a Latin word meaning both host and guest. The Oxford English Dictionary defines hospice as "a house of rest for pilgrims, travelers or strangers, for the destitute or the sick." Webster defines the term as "... a place of refuge for the travelers ... a home for the sick or poor."

In October 1978, the First Annual National Hospice Organization met in Washington D.C. The group anticipated 200 persons. More than 1,000 persons attended this milestone event. They gathered for one purpose: to organize and establish the hospice concept in America.

Hospice is a program, a type of care or a facility that cares for the terminally ill and their families. Hospice care, wherever it may be provided, seeks to ease the pain and treat the symptoms of dying patients. It enables the dying patient to spend much of the time in comfort with a clear mind and to help the patient's family cope with the patient's illness and subsequent death.

The concept is not new. In fact it is very old. In the Middle Ages, European monks operated hospice units for terminally ill patients. During the Crusades, hospice units were operated in the Holy Lands. Anyone who was in need of help whether poor, pilgrims, travelers, the ill or the dying, could all obtain needed assistance.

In 1842 a Catholic order in Lyon, France, established a hospice for poor women who had incurable cancer. In subsequent years, hospice units were developed in England and other countries in Europe. The United States hospice movement has looked for direction to St. Christopher's Hospice in the London area and to its founder, Dr. Cecily Saunders.

An average of 5,500 people die each day in the United States. Approximately 70 per cent of these people die in an institution—either a hospital or

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a nursing home. By and large, our institutions are ill-equipped to deal with death.

In most cases, modern medical technology is able to predetermine when a person has reached the state whereby his condition is terminal, and death inevitable. Americans have been undergoing a basic change in attitudes towards death and dying...accepting the once unthinkable alternative of programming our own death. We are rebelling against the idea of keeping the incurable patient alive with tubes, medications, respirators and monitors.

The National Hospice Organization has adopted the following philosophy statement: Death is a universal fact of life and, whether or not it is accompanied by disease, dying is a normal process. We believe that every person is entitled to participate fully in this part of life in order to prepare for death in a way that is personally satisfactory.

Hospice, as an option in the medical care system, exists not to postpone death but, with special skills and therapies, to help the patient and family live as fully as possible. Death is not denied, but life is affirmed and lived until death comes.

We believe that we are all dependent on one another. Therefore, it is crucial, in the last few months of life, to help develop a caring community that can provide comprehensive services to patients and their families.

Currently, there are approximately 300 hospice programs operating in this country. Because the hospice concept is new in the United States, these units operate in physical facilities, constructed originally for other purposes, most of which are unsuited for the specific needs of a hospice program.

The following are a few characteristics of a good hospice environment:
1. A home-like setting where patients are encouraged to and are free to furnish their room to their liking—family pictures, furniture, spreads, lamps, plants, a pet bird, etc.
2. Where all family members, including children, feel free to come and go in a very natural family-like manner.
3. Social areas where family members feel free to bring food and dine together, where they can enjoy music, games or other activities common to the family unit.

Recently the Department of Health, Education and Welfare recognized the fact that the hospice movement in the United States has merit. It carefully selected and funded a number of programs which appear promising. The only program selected in our five state area was the hospice program at Bethesda Lutheran Medical Center in St. Paul. The unit presently operates in the original hospital structure built in 1930. Ellerbe Associates is presently engaged in architectural studies to replace the unit with facilities more suitable to their needs.

There is only one building in the United States which has been designed and constructed expressly to meet the needs of a hospice program. It is the home of the Connecticut Hospice, located in rural New Haven, Connecticut. The facilities are scheduled to become operational sometime this year.
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4.6.1
General and Supplementary Conditions
October 1, 1978

RETAI NED PERCENTAGE

The use of retainage against progress payments has traditionally been recognized by all segments of the construction industry as a primary method of protecting the ability of the Owner to complete his project. Although some segments of the industry nation wide are suggesting zero (0) retainage, CICC of Minnesota recommends continued use of retainage; however, at a lower but uniform percentage rate throughout the project rather than a high starting rate and a reduced or zero (0) retainage rate as completion nears. It is recommended that the Article 9 of the AIA General Conditions be modified by adding the following supplementary condition:

Refer to Subparagraph 9.5.1 Add:

There shall be retained 5% from each progress payment until the work is substantially complete, at which time the Architect may recommend release of retained sums in accordance with paragraph 9.8, or final payment in full in accordance with paragraph 9.9.

It should be recognized that the retained percentages represents money that has actually been earned by the Contractor and the withholding results in a hardship for he is deprived of the use of funds. To alleviate this hardship, yet provide the protection the retention offers the Owner, it is recommended that the following paragraph be added:

Refer to Subparagraph 9.5.1 Add:

Prior to the start of construction the Owner and Contractor shall select an escrow agent to receive the retained percentage and enter into an escrow agreement. When each progress payment becomes due, the Owner shall issue two (2) checks. One, in the amount due the Contractor, shall be issued to the order of the Contractor. The other, in the amount of the retention, shall be issued to the order of the escrow agent. The interest and principle shall accrue to the Contractor. In accordance with the provisions of the contract the escrow account shall be released to the Contractor under the provisions of Article 9.7.

When the escrow provisions for retainage apply to a contract, it is recommended that sub-contract agreements provide for a distribution of accrued interest to all major subcontractors and suppliers according to their interests.

* Reprinted from the Construction Industry Cooperative Committee of Minnesota Bluebook by

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To the editor:

Your editorial putdown of the thousands of persons who voted out the state building code in many Minnesota counties reeked of self interest.

You speak of foresight. Where was your foresight on energy?

Amidst your falling stadiums, crumbling schools and other fully inspected to code dreams, lies a country inundated with the inept foresight of those who designed these energy inefficient buildings. When a few people start thinking they know what is best for the vast majority—they had better think again.

Norm Senstad
Carlos, Minnesota

Joseph M. Courteau, AIA, 37, died March 14th in St. Paul after an extended illness. A prominent architect, Mr. Courteau was a co-founder of McGuire Courteau Lucke Architects, Inc., and was a member of that firm until his death. He was responsible for the planning and design of many significant projects in Minnesota during the past twelve years, and was a member of the MSAIA. Survivors include his wife and four children, a sister, two brothers, and his parents. Memorials are preferred to his most recent client, Our Lady of Good Counsel Free Cancer Home, St. Paul, Minnesota.
News From the Architectural Center

Susan Davis

Hospitals and Health Care Facilities, 2nd edition. Louis G. Redstone, FAIA
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Twin Cities Perceived, Jean Ervin, University of Minnesota Press, $10.95


Minneapolis, Barbara Flanagan, Nodin Press, $4.95

Minneapolis-St. Paul Epicure, Pea­nut Butter Press, 1979, $3.95

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Minnesota Heritage Cookbook, American Cancer Society, (MN Chapter) $6.00

Our Minnesota, Les Blacklock photos, Fran Blacklock, text, Voyageur Press, $8.95 pb.

Duluth’s Legacy, Duluth City Council, $3.50.


Postcards of Early Duluth, Voyageur Press, $3.25 (32 cards) pb.

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Exploring the Twin Cities with Children, Elizabeth S. French, Nodin Press, $3.95, pb.

Whitman’s Travel Guide to Minnesota, Nodin Press, $2.95, pb.

St. Paul Omnibus: Images of a Changing City, Essays and Tours, edited by Bonnie Richter, Old Town Restoration, $6.00, pb.

Urban Dynamics in St. Paul: A Study of Neighborhood and Center City Interaction, David Laneagan, $5.95, pb.


St. Paul’s Historic Summit Avenue, Ernest Sandeen, Living Historical Museum, $7.95, pb.

Selby Avenue: Status of the Street, Old Town Restoration, $2.00, pb.

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The Lake District of Minneapolis: A History of the Calhoun-Isles Community, David A. Laneagan and Ernest R. Sandeen, Living Historical Museum, $8.95, pb.


Discover St. Paul, Ramsey County Historical Society, $1.00 pb.

The above books are available from The Architectural Center, 402 NW Skyway Bldg., St. Paul, MN 55101, 612/227-0761.

Susan Davis is the manager of the Architectural Center, a bookselling and information service of the MSAIA located in the Northwestern Skyway in St. Paul.
Timeless Way of Building, Christopher Alexander, Oxford University Press, $19.50. What was originally intended as the first volume in a trilogy from the Director of the Center for Environmental Structure has finally arrived as the last volume of the series. Described as the introductory volume, the book presents a new theory of architecture, building and planning. This theory states that no building can work in two different locations because no two places share the same qualities. The building must be free from inner contradictions. It is this quality of consistency which makes a building live. Alexander's theories stem from the fact that each person, no matter what his profession or specialty, feels the need to leave his mark on the landscape. It is this need for effect, coupled with the need for beauty, comfort, and peace which should guide the builder to the choices for any building. Places take their character from the pattern of events which occur there. It is the responsibility of the designer and builder to uncover these essential qualities and give life to a particular place through its buildings.

While this philosophy is neither new nor radical, it is expressed clearly and concisely. It serves as an excellent reminder to designers and a good introduction to those who would like to understand the organic processes of design. Volumes 2 and 3, A Pattern Language and The Oregon Experiment, further explain how to define the language of a particular site as well as its actual implementation. Further volumes in the series are anticipated.

—Ed Frenette, AIA
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Picasso's Picassos at Walker Art Center
Mary Helen Horty

Visitors to Walker Art Center walk through the Picasso Exhibition in hushed reverence. Opinion, particularly negative opinion, is rarely heard. Most viewers have never been in the presence of more than a few Picassos at one time. Here, they are surrounded with his works. Should they be inspired, laugh, or be outraged?

The situation was similar at the Grand Palais in Paris where 850 Picasso works were shown, from which 160 paintings, sculptures, collages, and drawings were selected for the Walker exhibition. A French woman spoke up one day while inspecting a portrait of a woman. "Look at that ugly woman! These (paintings) are monsters. Nobody dares say it because Picasso is sacred." A man who overheard replied, "Yes, a sacred monster." Is Picasso a monster or a sacred monster?

Collage was improvisational. It used found materials. It gave new dimension to Cubism and promoted freedom in artistic thought. Still Life with Chair Caning, 1912, is generally regarded as the first collage. It is a surprisingly diminutive work for its great importance. Picasso's first surrealist works were also small. Hung on walls with larger paintings, The Bathers and Two Women Running on the Beach have enormous impact and accentuate his change of style.

Whether or not you admire his work, its importance to fellow artists and to the art world is undeniable. He dared to be himself. His willingness to experiment and evolve led to Analytical Cubism, Synthetic Cubism (where the subject all but disappeared) and finally to collage, where he collaborated with his good friend, Georges Braque.

Picasso's work need not be admired for his love of work to be appreciated. Boundless enthusiasm and exuberance are evident. It is exhilarating to be surrounded by his energy. He gave us excitement, color, and controversy. His works emanate a joy of life, a sense of abandonment, and ultimately a sense of haste. The exhibition at Walker was selected initially from 45,000 works which Picasso had haphazardly stacked from sight. One doubts he was completely satisfied with all of them, at least in retrospect. But he did not revise. He plunged on, almost frantically. His works are often dated not just by the year, or even by the month, but by the day. So great was his energy and need to work that he often produced two paintings a day, particularly toward the end of his life. Work was life.
"And since cubism and what followed, it is master and critics and such as these that I have sought to please with whatever bizarre extravagances entered by head, and the less they understood, the more they admired me. By dint of amusing myself with such fun and games, I became a celebrity in no time. And fame for a painter means sales, gains, and fortune, riches. Today, I am, as you know, both famous and rich.

"But when I am alone, alone with myself, I haven’t the courage to consider myself an artist in the former grand sense of the term. Giotto, Titian, Rembrandt and Goya: These were great painters; I am only a public clown who has understood his period and has exploited as best he could the imbecility, the vanity and the cupidity of his contemporaries."

Picasso: Monster or sacred monster?

Mary Helen Hory is a freelance art reviewer.

---

Portrait of Dora Maar, 1937 may be the high point of his creativity. Beautiful clear colors and multiple shadings, particularly on the face, produced a portrait of great sensitivity, clearly defined on a subdued linear background.

Picasso’s work need not be admired for his humanity and emotional involvement to be appreciated. There are social statements, as in Guernica (unfortunately not in the Walker exhibit), and familial statements in portraits of the women and children in his life. The excellent photographs accompanying the exhibition are invaluable in augmenting a perception of his life. He is seen in his studio, with members of his family, and with friends. The photographs reveal his sense of humor. He donned false noses, moustaches, and paper bag masks. He danced for the camera. He is shown painting a female nude on his canvas although the model is a fully clothed male. Caricatures of famous friends demonstrate quick insight and flashes of humor.

Was he being humorous when he gave the following statement in a 1952 interview with the writer, Giovanni Papini? "In art, people no longer seek consolation and exaltation. But the nice people, the rich, the idle folk, those forever talking more and more about less and less: They seek after whatever is new, odd, original, extravagant or scandalous.

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The Minnesota Society American Institute of Architects will hold its 46th Annual Convention and Upper Midwest Regional Building and Design Exhibition in Minneapolis, October 1-3, 1980. Over 3,000 design professionals will be coming together to hear stimulating speakers, and attend seminars on design, energy, management and other topics. Over 160 exhibit booths will provide them the opportunity to become familiar with new products and services in the building industry. Special features this year will include two Guest Nights when all related design and construction professionals as well as clients may attend the convention. A special invitation to attend will be extended to architects in neighboring states. We encourage you to mark your calendars—October 1-3—for this important convention, the nation's largest state AIA convention.

The 1981 National AIA Convention will be held in Minneapolis May 17-21. The MSAIA is looking forward to hosting architects from around the nation at this exciting convention.
New Interiors Products
Guide Announced for 1981


In an increasing effort to communicate new product ideas to design professionals Architecture Minnesota will publish a 1981 New Products Guide in two volumes. The first volume, which will be available August 1, 1980, will include the interiors marketplace and the second volume, published in the spring of 1981, will deal with building construction products. The intent is to seek out and promote the newest, most innovative design trends in product development.

Vol. 1, Products for Designing Interiors, will cover the following categories from Sweets Catalogue System: office equipment and supplies; finishes; furnishings; specialties; wood and plastics; and lighting.

This New Products Guide promises to be a valuable resource tool for all architects and design professionals in the Upper Midwest market area: Minnesota, North Dakota, South Dakota, Montana, Iowa, Wisconsin and Nebraska.

We need your cooperation to make this New Products Guide the most complete resource for specifying interior products in this region. For your free company and product listing contact Pam Obando at MSAIA, 612/874-8771 for a Product Profile and other important information. The deadline to submit product information is May 26, so act immediately!

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Ken Kline, formerly Vice President/Sales Manager of Snow-Larson, Inc. has formed a new firm, Kline Associates. They have been appointed as the architectural representatives for the four-state area for the following companies: Euclid Chemical Company: concrete and masonry chemicals; CMI Polystyrene Division: roof insulation manufacturers; VCP Roofing Systems: a single ply roofing made in Minn.; Ball Metals: architectural sheet metal and custom made roofing systems; and MODAC: specialty coatings for concrete, masonry, wood and steel. For more detailed information contact: Ken Kline, Kline Associates, 13951 Galway Court, Apple Valley, MN 55124, tel. 612/432-3566.

The Carl W. Fogelberg Company has been appointed by the Sierracin/Sylmar Division of Sierracin Corporation of California to be their Sales Representatives for the states of Minnesota, North and South Dakota, for OmniLite Security Glazing and OmniArmor Bullet Resistant Glazing. A high technology company, Sierracin started marketing these products for the building field as a result of their development of windshields for the aircraft and aerospace industry. OmniLite Security Glazing is a virtually impenetrable transparent sandwich composed of a tough core layer of polycarbonate laminated between two outer layers of glass. Sierracin is the only company making a product of this type at the present time and also the only company approved by the Federal Bureau of Prisons. For more information contact: Carl W. Fogelberg Co., 276 No. Snelling Ave., P.O. Box 4067, St. Paul, MN 55104, tel. 612/646-7306.

A technologically advanced zoom lens is the heart of a remarkable new copier now on duty at Rogers Reprographics, Minneapolis. The copier, a Xerox 2080, is the first copier capable of reductions and enlargements and is one of the first installations in Minneapolis. The 2080 offers the ability to alter the proportions of drawings or illustrations, changing horizontal or vertical... on the minds of energy users everywhere!

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BRE Enterprise is a new contract-carpet representative firm in this region recently established by Ray Edquist, formerly of Carson Pirie Scott. BRE Enterprise will represent the following carpet lines: Kemos, Inc., regular carpet line plus their carpet-module line; United Mills, Inc. carpet line consisting of six geometric patterns and a custom-color program; Wilton Royal line featuring Axminster carpet woven in England and stocked in Boston. For further information on these carpet lines contact: Ray Edquist, BRE Enterprise, 6433 Maloney Ave., Edina, MN 55343, 612/933-7777.

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"You might say our plan is to rise above the competition," joked Lackens, who is a member of the St. Paul based Red Barons Balloon Club.

Although the Red Barons participate in many events in other parts of the Midwest, Lackens can be found hovering over Architectural Alliance's offices in Minneapolis and St. Paul.

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Carlton Celebrity Room (Formerly Convention Center — Features some of the longest prestressed roof beams ever fabricated off the job site). 8350 24th Avenue South, Minneapolis, Minnesota.

Minneapolis Housing Redevelopment Authority (Housing for the Elderly which became a model for future retirement facilities). 635 - 17th Avenue NE Minneapolis, Minnesota.

Northwest Orient Airlines, Inc. (Flight Services Facility demonstrated the wide applicability of Prestressed Concrete). Minneapolis International Airport, Minneapolis, Minnesota.

All three of these structures have many things in common, the most important of which is that they were built by Prestressed Concrete, Inc. All three are more than a decade-and-a-half old. All three have stood the ultimate test for any structure—the test of time.

The quality features of our prestressed systems fifteen years ago are even more desirable today. Such obvious benefits as: precasting concrete is faster, less expensive and more often than not, esthetically better than conventional on-site building methods. These ageless benefits continue to be proven by time. Prestressed Concrete, Inc. structures are more desirable, more practical and more efficient!

For over 25 years, Prestressed Concrete, Inc. has supplied its unique systems and materials for every imaginable type of structure, large and small throughout the Twin Cities area. Your future building plans should include a talk with a Prestressed Concrete, Inc. building consultant. There is no obligation.

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For the latter (plus vestibules, balconies and lounge areas) the "picky, picky" architects (North Architectronics, Inc.) picked distinctive, permanent, easily cleaned 4" x 8" Ceramic Paver Tile… 50,000 square feet of it!

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