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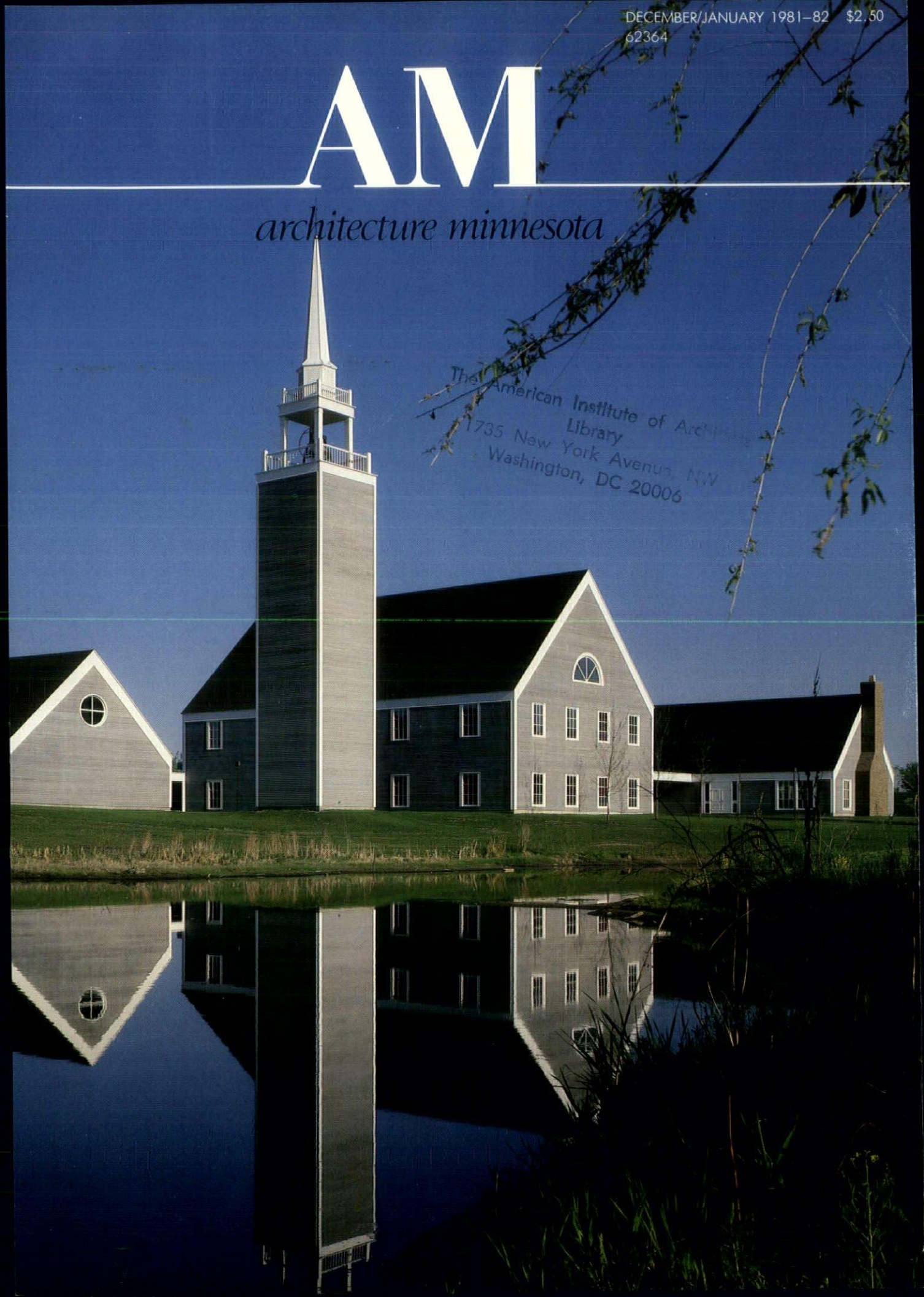

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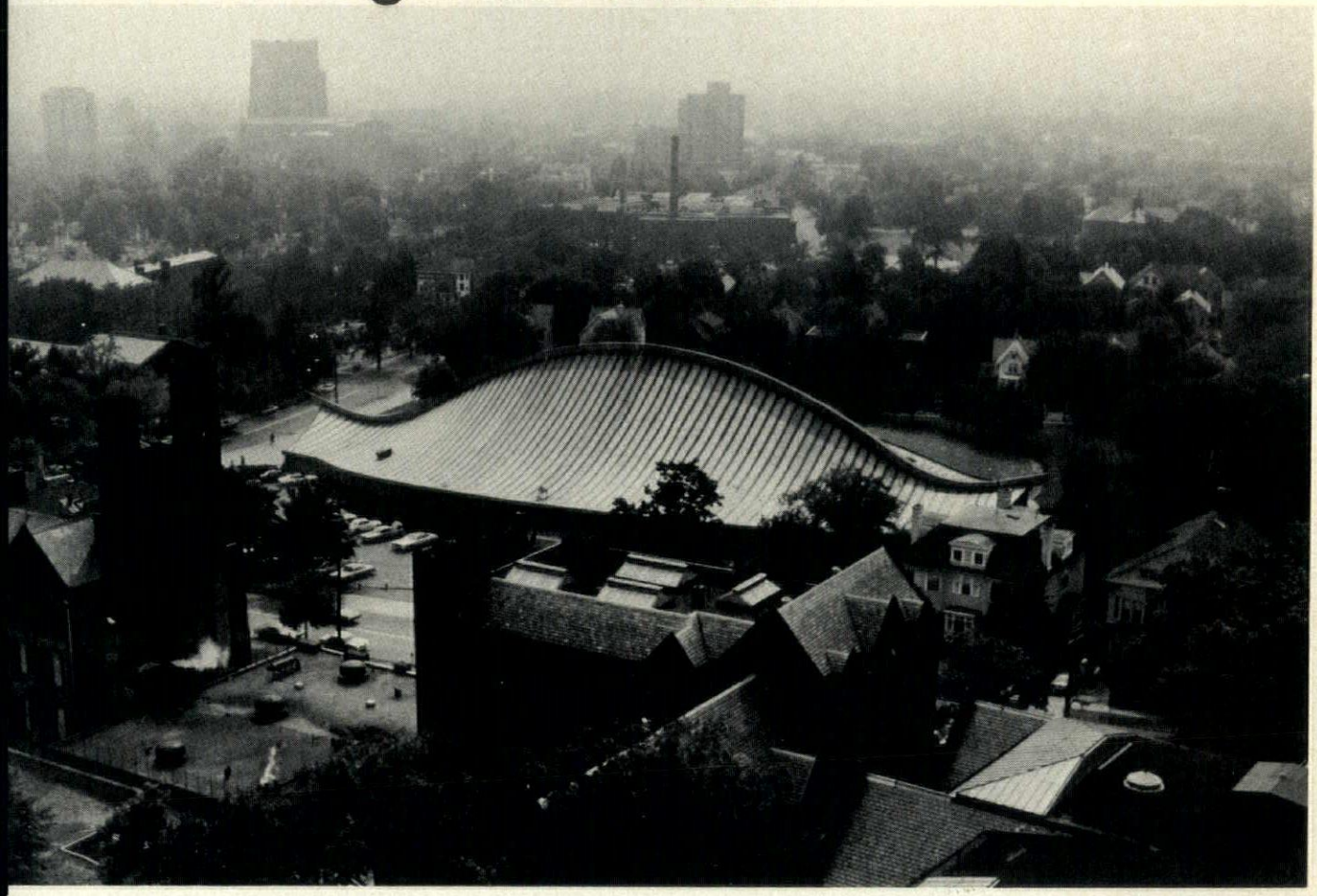
Carlisle membrane solves problem of "reskinning" Yale "Whale"



NEW HAVEN, CT—Four steel cables suspended from a center concrete arch give the intricate 5,500-square foot roof of Yale University's David S. Ingalls Hockey Rink the appearance of a colossal whale swimming across the campus.

Unfortunately, for the last three years, the "whale" wasn't the only one doing the swimming. Because of a leaky roof, Yale Hockey team members many times had to battle water puddles as well as their opponents.

F.J. Dahill Co., Inc., a local roofing, structural remodeling contractor, was chosen to roof the whale with an EPDM membrane manufactured by the Carlisle Tire & Rubber Co., Carlisle, PA.

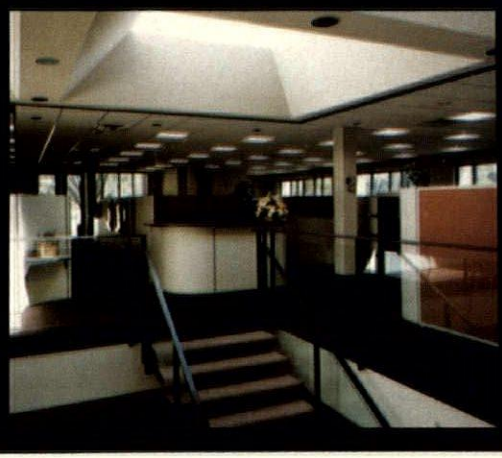
The most difficult phase of the job was to develop a staging system of ladders which would conform to the roof's irregular shape and allow the crews to work.

To support the ladders, Dahill crews nailed off 2 x 4 boards between the 23,000 lineal feet of battens covering the roof's surface. Two ladders were placed so that approximately 170 rolls of Carlisle EPDM, ranging from 10 to 103 feet long, could be placed in the 4½-foot gap between battens.

The EPDM sheets were loose laid over the old neoprene material and nailed at six-inch intervals at the base of each batten. A 12-inch piece of elastoform was then secured over the battens. When a row was finished, one of the ladders was moved and the process started all over.

Flashing was secured by inserting a metal band in the large reglet joints at the top arch and bottom wall and covering it with a sealant.

Old neoprene on the 6-foot x 360-foot concrete deck at the roof's bottom was stripped and replaced with EPDM that was completely sealed with Carlisle adhesive.



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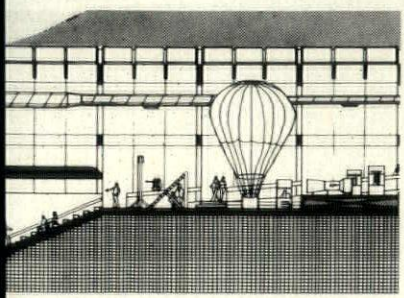

8 Refreshing new underground signs.

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A JOURNAL OF DESIGN AND CREATIVE LIVING

December/January, 1981–82 Vol. 7 No. 6

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On the cover: The award-winning Colonial Church of Edina, Minnesota (see page 42). Architects: Hammel Green and Abrahamson, Inc. Photograph by Lea Babcock.

EDITORIAL OFFICES: ARCHITECTURE MINNESOTA, 314 Clifton Avenue, Minneapolis, MN 55403. (612) 874-8771. NOTE TO SUBSCRIBERS: When changing address, please send address label from recent issue and your new address. Allow four weeks for change of address. SUBSCRIPTION RATE: $12 for one year, $2.50 for single issue. POSTMASTER: Send Form 3579 to ARCHITECTURE MINNESOTA, 314 Clifton Avenue, Minneapolis, MN 55403. Second class postage paid at New Richmond, WI 54017. ADVERTISING AND CIRCULATION: ARCHITECTURE MINNESOTA, 314 Clifton Avenue, Minneapolis, MN 55403. (612) 874-8771. ARCHITECTURE MINNESOTA is published bimonthly.

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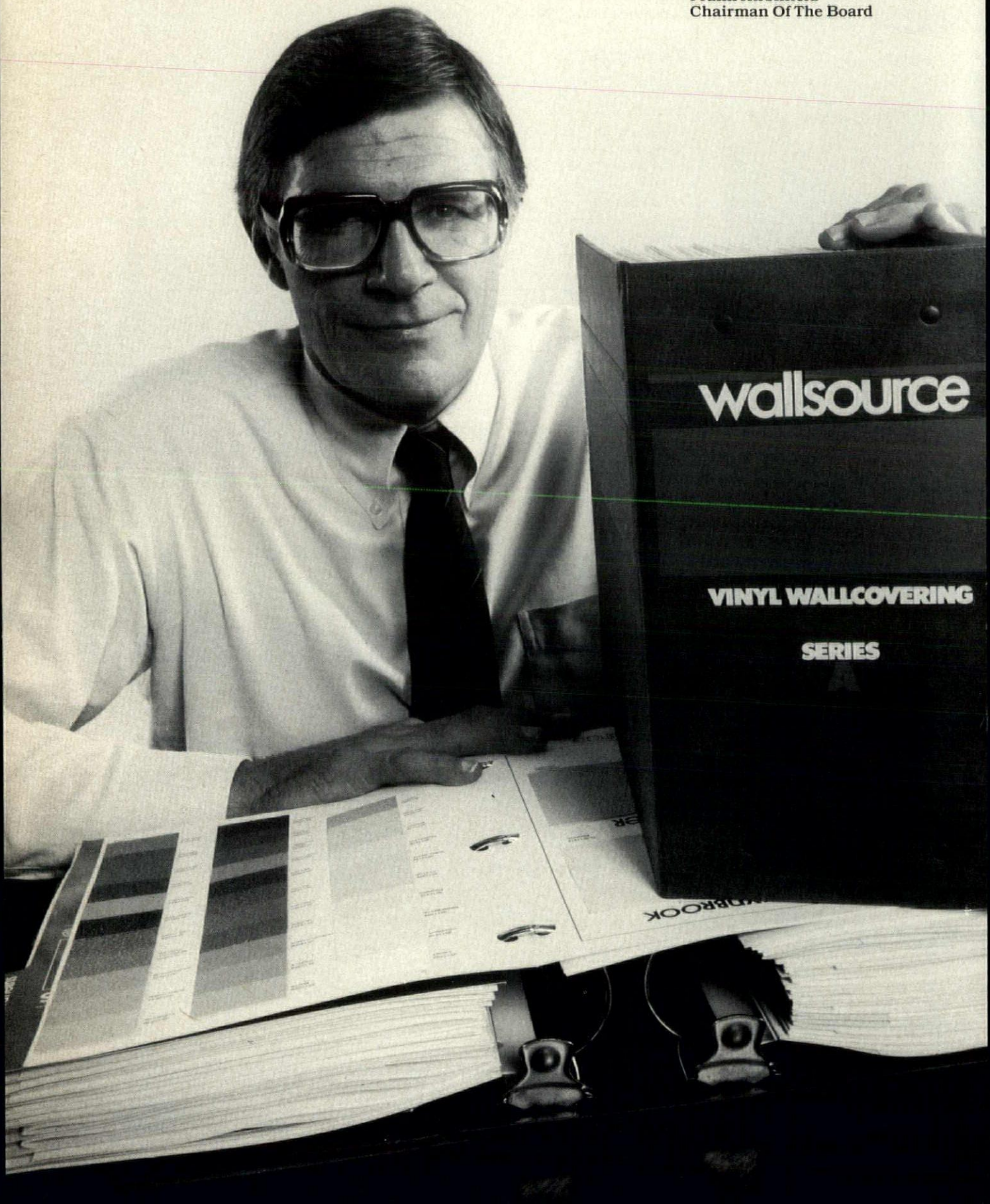

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It's impossible to convey the vast array of colorways in the Wallsource book. So, we'll just give you a sampling: "New Snow," Hoarfrost," "Silver Frost," "Buckskin," "Flaxen," "Haystack," and "Sage;" "Zinnia," "Mango," "Persimmon," "Flamingo," "Garnet," "Heather," and "Slate."

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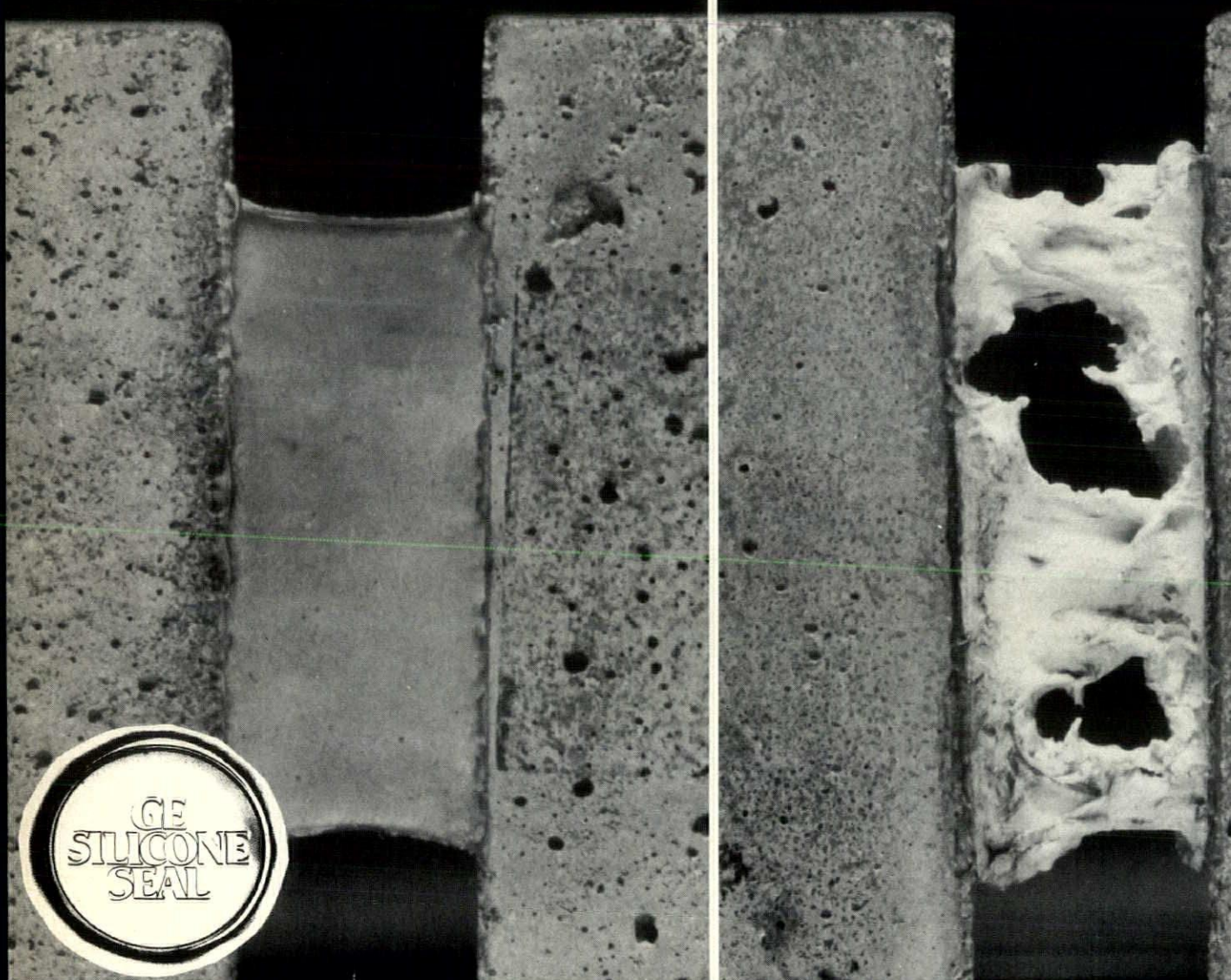

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news, notes & opinions

ll the stage is a orld at WCCO-TV's ew building

You won't have to turn on your TV watch WCCO news in action in the ring of 1983. That's when the CBS-filiate will move into a new building the most public of Minneapolis eets: Nicollet Mall. A prominent ndow facing Nicollet will allow destrians to see directly into the wsroom and studio where the porters will gather, write and even liver the news.

WCCO-TV's present location on 9th ar LaSalle is far different. There are windows into work areas except the ss in the double front doors and the ilding can almost be mistaken for ighboring parking garages. In the w building, the news operation will on stage, so to speak, all the time.

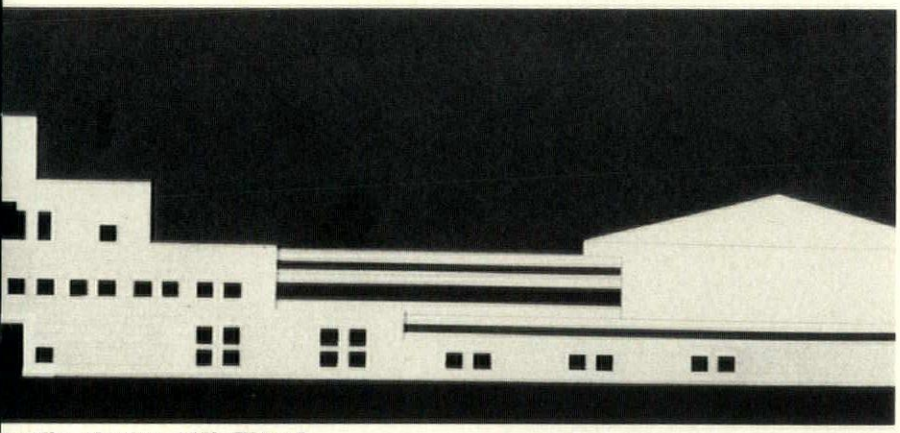
The architect for this new WCCO is ardy, Holzman, Pfeiffer and Associ-s of New York. The firm is familiar th the neighborhood, having designed chestra Hall across the street in asso-tion with Hammel Green and Abra-nson. Malcolm Holzman is the part- in charge.

Clad with cream-colored Minnesota ne, the two-story concrete structure l extend from Nicollet to Marquette 11th Street and cover half the block. 100,000 square feet will house the wsroom and production studios on the t floor and offices on the second. The gest production studio will be a sin- volume of space formed by a free-nding steel structure. This structural parture from the rest of the building l be visible from the outside as a copper-clad pyramidal roof. The rest of the roof is flat.

A mini-tower supporting the microwave antenna will stand atop a two-step parapet at the corner of 11th and Nicollet which will house a conference room at the third-floor level and microwave equipment on the fourth. The public entrance will be directly below it facing 11th. WCCO plans to bring tour groups through a glass-lined corridor to a skylit second lobby in the center of the building where people will be able to see several activities at once.

A small plaza is planned for the corner of 11th and Marquette. A trellis in the shape of a barrel vault will shield it from a driveway to underground parking for minicam trucks. The underground space is also reserved for future expansion.

Hardy Holzman Pfeiffer estimates the cost of the project at $10 million. The excavation is nearly complete and construction is scheduled to begin in early February.



evation facing 11th Street.

Nothing Mickey Mouse about this award

Walt Disney World/Reedy Creek Improvement District (RCID), in Orlando, Florida, will receive the third annual Urban-Land Institute (ULI) Award of Excellence.

Owned by WED Enterprises, Inc., Walt Disney World is a 28,000 acre multi-use complex containing an amusement park, vacation resort and planned model city. It is the only complex of its kind with the incorporation of a mass-transit system and infrastructure.

The awards jury, which included architects Jacquelin Robertson, FAIA, AICP, and Walter H. Lewis, professor of Architecture at the University of Illinois at Urbana, stated that their final decision was based upon Walt Disney World's excellence in advance land use planning, sophisticated utilization of resources and superior designs and techniques that have and will be used by members of the land use community all over the world.

The award was presented November 14, 1981, during ULI's fall meeting in Philadelphia.

Just saying the worst's over helps

The Dodge Index for construction contracts remained steady for the three months ending in October, which has lead the chief economist of the F. W. Dodge Division of McGraw-Hill Information Systems Company, George A. Christie, to predict that "For construction, the worst of the recession may soon be over."

The seasonally-adjusted Dodge Index (1972 = 100) held at 157 in the latest month, little changed from September's 159.

"Stabilization in the 150's began in July, following the 20 percent collapse in the rate of contracting through 1981's first half from a January high of 192," Christie said.

In October (the latest month reported) modest improvement in nonresidential building activity offset shrinkage in homebuilding and public works construction. Contracts for nonresidential building were up 4 percent, due to an 11 percent gain in commercial and industrial building while institutional building lagged. Office construction showed renewed strength.

"It is widely believed that a large backlog of demand exists for smaller office buildings which, until now, have been denied financing," Christie said. "If true, funding of this submarket could sustain the office building boom through the months ahead as interest rates soften."

October contracts for residential building revealed only a worsening of the depressed housing market. The month's $4.9 billion of new residential starts was down a seasonally adjusted 3 percent from September's weak rate of building, and was 28 percent below the

total for October, 1980.

At the end of ten months, the cumulative value of all construction started i 1980 was $127.6 billion, a 4 percent gain over last year's total for the same period. According to Christie, the current year's lead was established in the early months of 1981 and has been shrinking since midyear.

PaperArchitecture opens on mall

What seemed like an army of well-wishers jammed PaperArchitecture Thursday evening, November 5th to celebrate the opening of this unique bookstore and gallery at 910 Nicollet Mall. Amidst glossy architecture book magazines, toys and fancy pens, people delicately balanced their wine glasses and their hors d'oeuvres' as they admired the beautiful wares. The first ga lery exhibit of photographs by Phillip MacMillan James, Wade Lawrence, Saari & Forrai, Anthony Thompson, Craig Hinrichs and Peter Rand was more easily appreciated as there was n temptation to touch.

PaperArchitecture, owned by the Minnesota Society American Institute Architects, is the first store of its kind in Minneapolis. Its interior was designed by the Design Consortium, Inc chosen through a design competition open to all member firms.

The architects gutted the old storefront and created an open, three-level facility. A broad staircase invites customers to the mezzanine level which wraps around the store interior and en with the third-level piano-shaped balcony. All shelving and walls are white thus allowing the books and many oth items to display themselves to their m colorful advantage. The gallery is a se arate one-story room beyond the book store portion of PaperArchitecture. T walls are painted matte gray to best ex hibit artwork.

continued on p.

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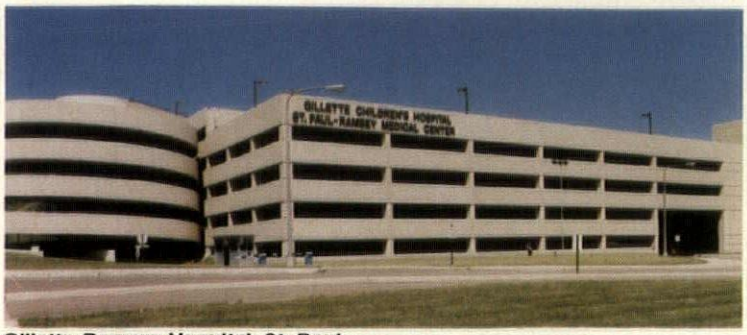

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scanning the media

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or the love of peat

MINNESOTA MOVES A STEP OSER TOWARD UNBOGGING A ND-BOGGLING 4 MILLION ACRES PEAT. With the price of coal and shooting ever upward, the time has ne, according to *Minnesota Monthly* cember), to see if the state's bounti- peat bogs can be tapped as a com- cially feasible alternative. The city Virginia has recently joined with the nnesota Energy Agency and the Iron nge Resources and Rehabilitation rd to burn peat experimentally in city's municipal power plant. Says Idzorek, of the Energy Agency, ne object is to see if we can substitute for coal, and whether a boiler de- ned to burn coal can technically ac- mmodate peat." If the researchers find an, a significant environmental bonus also be realized: peat releases far er pollutants than coal.

he uncluttering Exxon

WHAT A COMMISSION—CLEANING THE GRAPHICS AT 65,000 GAS ATIONS. To dispel the visual goop accrued over the years at its gas sta- ns all over the world, Exxon hired design firm of Saul Bass/Herb Ya- . The task, as described in *Industrial sign* (November/December), has been r years in the doing. The project was by an Exxon steering committee interviewed "all of the well-known igners around the world"—all told, r 100. The resulting graphics done Bass/Yager have been called "really onal" by the client and are now ng applied to untold numbers of xon products, signs and objects of ual attention. *Incredible statistic:* In course of their travels researching job, the designers shot 19,000 color es of gas stations.

zoo's serious side

THE MINNESOTA ZOOLOGICAL RDEN IS, BY DESIGN, KEEN ON HANCING THE GENETIC WELL NG OF MANY SPECIES. In a major to and text feature, *Smithsonian* (De- mber) pays tribute to the Minnesota Zoo as an innovative "theater of the wild." *Item:* This four-season zoo has joined with the Smithsonian's National Zoo to breed Bactrian camels and Przewalski's horse without resorting, thanks to the animals they'll borrow from still other zoos, to inbreeding. *Item:* The woodland caribou that once thrived in the forests of Minnesota and nearby states is at the point of being reintroduced by the Minnesota DNR. An intermediate step will be the establishment of a caribou nursery herd at the Minnesota Zoo; mature animals captured from the wild in Canada will provide the experimental offspring.

Making solar compatible

PRESERVATIONISTS FIND THAT ADDING SOLAR TO OLD BUILDINGS IS FORMIDABLE BUT DO-ABLE. Solar retrofitting can make hash of a historically important structure or neighborhood. But a status report in *Historic Preservation* (November–December) indicates that guidelines now being developed for retrofitting old buildings "will ease the tension between saving old structures and saving energy." One pacesetting study of how best to accommodate solar energy is nearing completion in St. Paul's $170-million Lowertown redevelopment project. Planners there have defined solar "envelopes" around most of the development sites to make sure the sun will not be shut out.

The big city dilemma

URBAN MEDICINE MAY HELP JUST ENOUGH TO KEEP A CITY LIKE CLEVELAND IN CHRONIC POOR HEALTH. So goes a simulation developed by Anthony Downs, a respected scholar-pragmatist, and reported in the *Ford Foundation Letter* (December). Given "an all-out revitilization package" of job stimulus, housing rehab, better transit, and a city-county merger to equalize taxes, the Downs simulation for the troubled city of Cleveland cuts job loss by 50% over ten years; which may be merely good enough to stem the city's decline without reversing it. Downs, a Brookings Institute fellow, will publish his full findings next year.

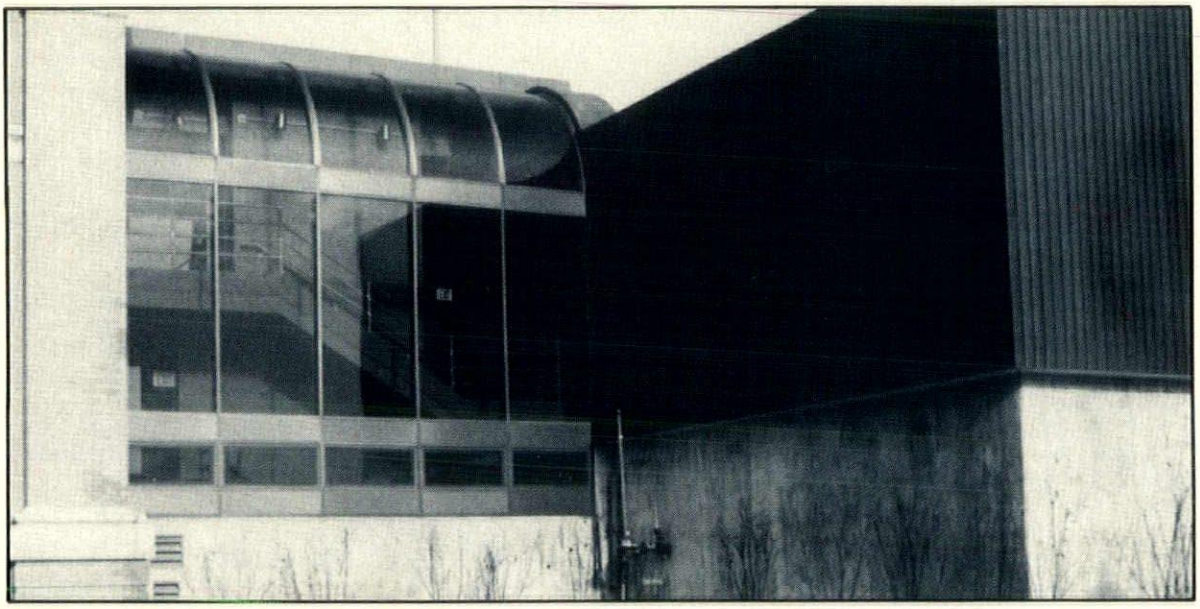
Courting high tech

ARCHITECTS, AMONG MOST OTHERS, STAND TO BENEFIT FROM HAVING A HIGH TECH INDUSTRY COME TO TOWN. As the "information age" swirls into focus, local boosters have discovered that high-technology industries may bring the greatest good (and the least damage) to a growth-minded community. Write Patrick Mason and Donald Skinner in *Planning* (November): "High-technology plants are physically attractive. In their efforts to recruit the best scientists . . . competing firms must offer such fringe benefits as attractive work environments. They often build modern, campus-like plants embellished with landscaping and recreational facilities."

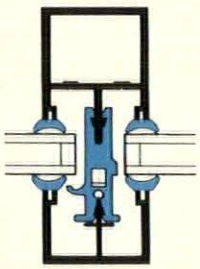
Underground Aussies

OPAL MINERS' FAMILIES LIVE NICELY IN "DUGOUTS" CARVED BY MINING EQUIPMENT. The Urban Land Institute's *Environmental Comment* (September) reports on the admirable economy of means employed by miners of the precious opal stone in South Australia to create homes for themselves. The three Aussie co-authors describe the ambiance found in the underground quarters of a family named Davidson whose "dugout," as they term these abodes, was mined by hand: "The Davidsons have taken advantage of the underground environment to create an attractive living area with many unique architectural features. The living area is set a few steps below the rest of the house, which gives a high-ceilinged and expansive feeling. Lounge sofas have been constructed by leaving rock benches along walls and covering them with cushions. An arched opening has been cut between the living and dining areas. Alcoves and cupboards are readily recessed into rock walls . . . The Davidson dugout lies under three to five meters of sloping ground. Interior temperatures reportedly vary between 21 degrees Celsius in winter and 28 degrees in summer." Typically, say the reporters, an underground house at the opal-mining center of Coober Pedy can be 20 degrees below the hot outdoors in summer, with low humidity.

Go Straight To Cronstroms When Your Designs Call For Curves



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

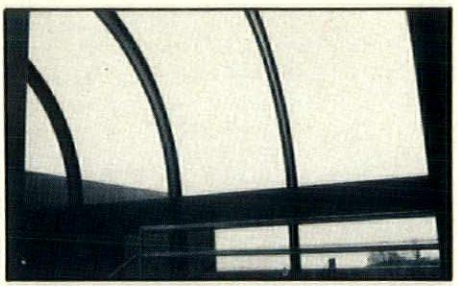


Even though energy efficiency is the watchword in public buildings today, that doesn't mean you have to shackle yourself to time worn designs. Instead, consider the benefits of Cronstroms CTS thermal barrier system. Its energy-saving design eliminates metal-to-metal contact in curved or straight designs. And that means no frost or condensation, even at temperatures of -30°F. Of course, that's something you'd expect from Cronstroms. Cronstroms was the **first** to develop this thermal break system 14 years ago.

You'd also expect to find unusual applications of the CTS system. You will.

At the Lake Superior Maritime Museum located on Minnesota's waterfront in Duluth, a location buffeted by winter's bone-chilling gale force winds, the architect specified Cronstroms CTS thermal barrier energy saving walls and windows for a new addition linking two sections. Notice the bent mullions of the upper section.

You'll find another distinctive CTS design at First Federal Savings and Loan where curved mullions frame the glass entry doors.



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

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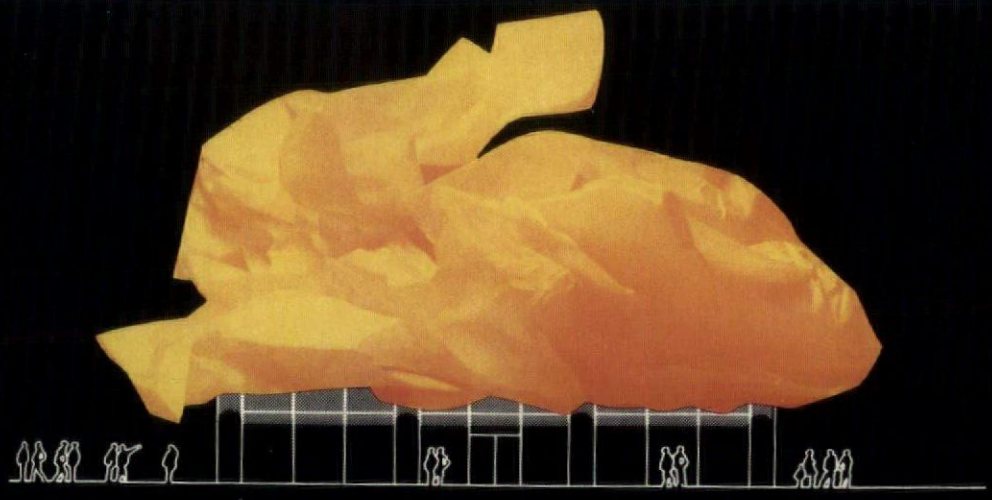

THE 1ST ANNUAL PAPER ARCHITECTURE AWARDS PROGRAM

e MSAIA announces the first annual Paper chitecture Competition to recognize signifi- nt ideas concerning the built environment. is competition is intended to provide MSAIA embers a forum for architectural thought and scussion. Submissions are solicited for any oject or idea whether or not it is intended for nstruction.

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lging: During the first week in March, 1982, jury will select projects based on merit and ability for recognition.

ards: At a Minneapolis/St. Paul Joint Chapter eting the MSAIA will award certificates of rec- ition to all winners. A traveling trophy will be arded each year to the "idea of the year". s trophy is intended to stimulate a spirit of icipation. It will be engraved with the names ie yearly recipients, and any three-time win- will be awarded the trophy permanently. In tion, selected projects will be published in a special section of ARCHITECTURE MINNESOTA and will become part of a traveling exhibition in the metropolitan area.

Submission Requirements: All submissions must be mounted on one side of a 20″ × 20″ foam core board. No models will be accepted. There is no limit to the number of submissions per individual, the number of boards per submission or the number of illustrations per board. All submissions become the property of the MSAIA for a period of one year. Each submission must be accompanied by the entry form found on this page. Insert the entry form together with the entry fee into an unmarked and unsealed envelope attached to the back of one of the boards of each submission. Multiple board submissions should be numbered consecutively on the back—1 of 2, 2 of 2, etc.

No identification of the entrant may appear on any part of the submission except the entry form.

Entry Fee: $15.00 per 20″ × 20″ board must accompany each submission.

Deadline for Submission: Friday, February 26, 1982, 4:00 p.m. at the MSAIA Headquarters.

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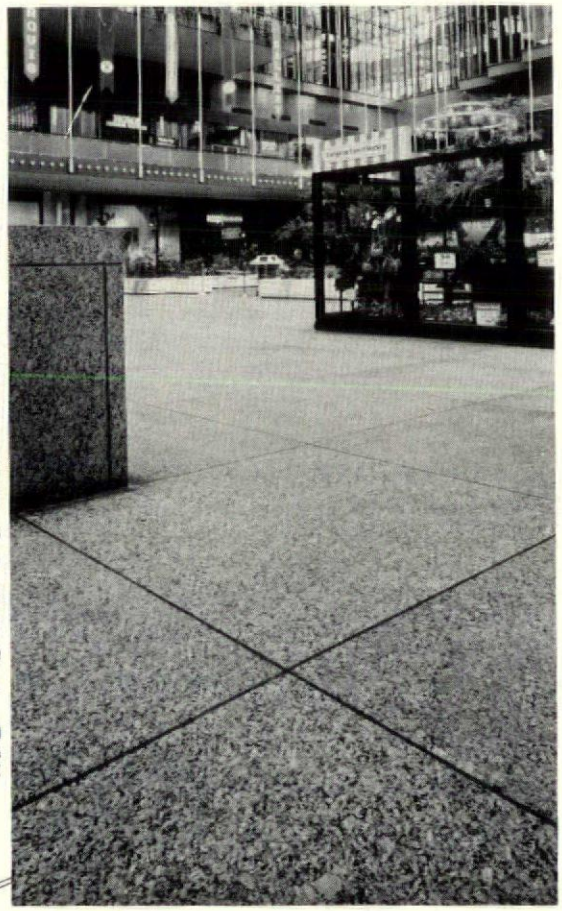
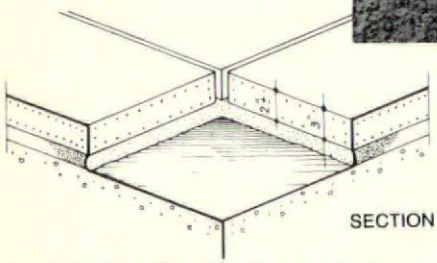


I.D.S. Center, Minneapolis, MN
Architect: Philip Johnson & John Burgee, New York, N.Y.



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FAST FOOD: SACRELIGIOUS BY DESIGN

y Joe Frank

When you walk in the door the first ng you notice are huge pictures of mburgers and french fries illuminated d glowing—3-D, fantastic, giant pic- res of burgers on buns. They're like urals, like Guernica lit up from be- nd, vibrating: two great big white ame buns, and at each end and going ward the center are giant curled green d white lettuce shavings, then thin ces of bright red disks of tomato sec- ns, and melted cheese. It's clear the eese was once flat, but now it's envel- ing the meat, hugging and embracing You can see the rim of meat. It's ry brown, it looks very thick and the ole thing is imbued with a glisten- g, liquid shininess. It looks warm and ist but it's like clone food since each mburger is made in the image of an ginal archetypal model. They're all ntical.

The atmosphere is that of a public ce that is being continuously manned park attendants. The waste is enor- us. A hamburger is made; 30 sec- ds later it's been wrapped in paper, ich is put in a box; 15 seconds later t box has been put in a bag with a kin, and ten minutes after that, the g, the box, and the paper are all in garbage. Now reflect on that. If y remove the burger from the pro- s, then you would be paying people clean up and throw away paper. It's ost a death wish for the planet. eryone seems driven to consume the h of dead animals and trees.

The uniforms of the people who rk there are a cross between gas sta- n attendant and cheerleader squad. ey all behave in a stylized, good na- ed way; there's a sort of standardized endliness.

It's my impression that the Kentucky icken chain is more of a Third rld enterprise than the burger places that in any given town in the coun- if there's a McDonald's and a Ken- ky Fried Chicken outlet, the blacks m more likely to congregate at the ntucky Fried Chicken than at the Donald's. This is interesting because onel Sanders, who is a symbol for ntucky Fried Chicken, projects the ge of your generic white Southern ntation slave owner.

ask you, what does this mean? They call the food "finger lickin' d," and there is something about eat- with your fingers which I think is portant. As you know, there is no sil- ware in these places. At the Mc- Donald's the burgers are always drip- ping with dressing and juice; and at the Kentucky Fried Chicken outlet the chickens are covered with batter and grease. In spite of this, the napkins, of course, are the cheapest, lowest quality napkins you can get. They dissolve at once. You can see people gnawing at bones, holding meat and french fries in their fingers, which reminds me of the movie "One Million B.C.," a 1950s Hollywood caveman epic. Maybe you remember it. In it, when the clan gath- ered around to eat their food, they grabbed pieces of meat and ravenously devoured them. In a way, it does look barbarous. Maybe there's something in

> McDonald's subliminal appeal: its church-like golden arches.

the collective unconscious that appeals to people about eating with their fingers, even though it doesn't seem primitive when it takes place. Everyone looks blank and bland, but maybe there's a private pleasure.

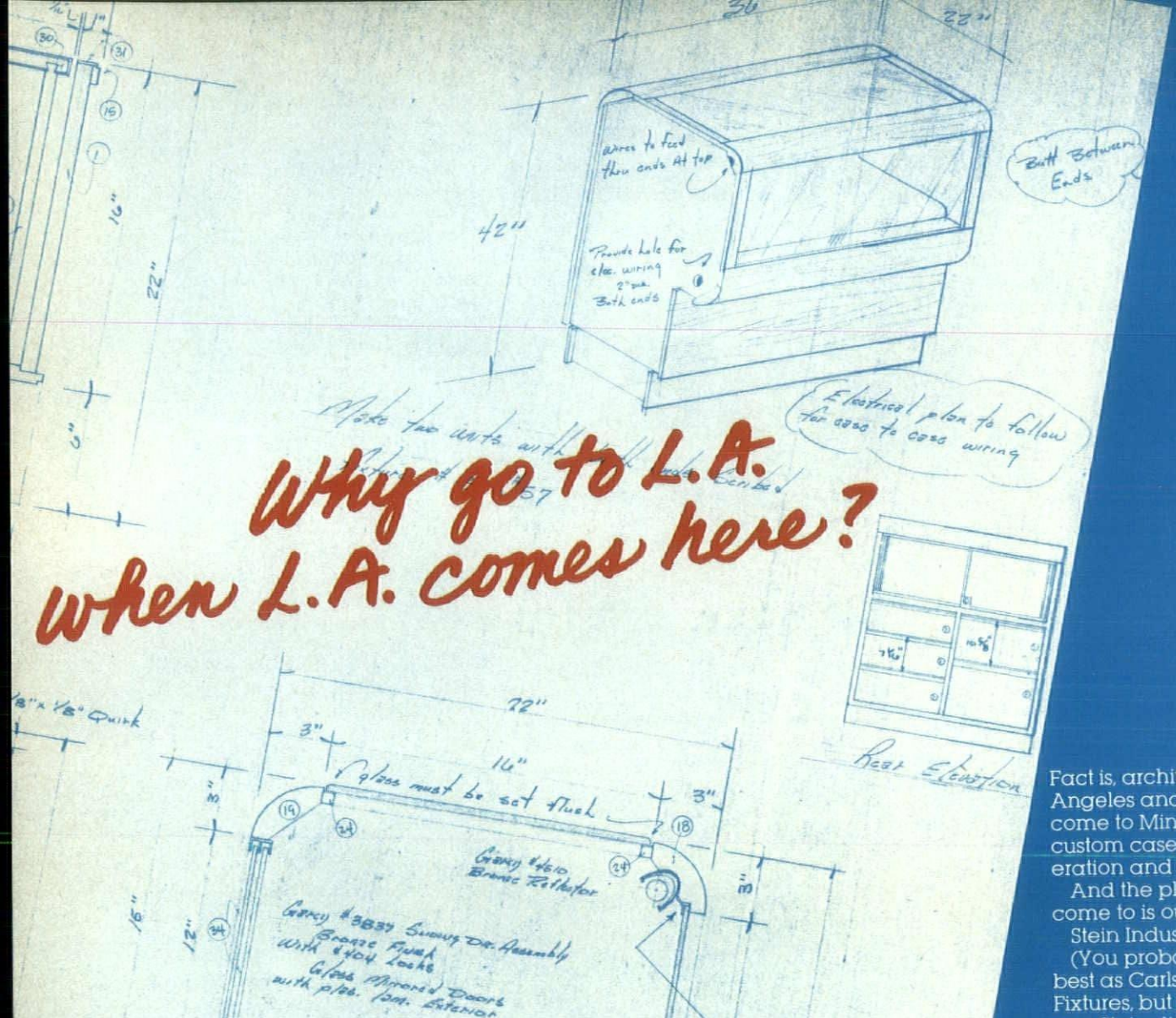
Now I ask you, does the fact that the taste of most of these fast foods seems to have deteriorated since we first tried them, and that the prices have gone up continuously and rapidly, and that these places seem to be doing better and bet- ter business every year suggest any- thing? What conclusions, if any, are to be drawn? The people who run these places talk as if they are doing *you* a service. There's almost a religious tone to it, as if they are prophets or servants to all of us. They say, "We want to give you things . . . Here's what we're doing for you . . . Have it your way." The cynicism of that last statement is as- tounding because all the selections at a Burger King are almost completely identical. It's like a dictatorship in a Communist country. You can vote for him, him, him, or him, but they're all the same. You have your choice of can- didates but they all run on the same platform, belong to the same party, are cut from the same mold. The result is that you have a very small palette with which to work (no pun intended). You're given the impression that you can get what you want, but it's within extremely limited parameters.

How do these places ever become so popular in the first place? Well, for one thing, you know what you're going to get when you go to them. When you're traveling on the road with your family and you're in a strange place, you want an anchor. You want to go somewhere where you're comfortable, reassured, and where you know what's going to happen. That's how Howard Johnsons originally prospered and why Holiday Inns and most fast food chains have also become so successful. As for Mc- Donald's, it is my theory that they have an added subliminal appeal in that they strongly resemble churches with their golden arches. As a matter of fact, when you really think about it, you realize that the people portrayed in the Mc- Donald's commercials are very much like the young Christians you see on re- ligious variety shows on television: blond, bright-eyed, pert girls with straight hair singing square folk-pop songs about Jesus. The young people who work in the McDonald's have the same bouncy, clean-cut, positive, social, churchy feeling. In fact, the hamburg- ers on the other side of the counter re- semble, in some respects, the wafers one might receive at communion.

Speaking of communion, in the old days—in the good old days—the family joined together during meal times for nourishment, both physical and spirit- ual. You'd say grace over the food and thank nature and God for providing. There was a whole sense of having found a bounteous land in America. The family would gather at the table and talk. There was the ritual of every- one starting at the same time. The point was that you had to wait until everyone had been served before you could start eating. You developed the faculty of pa- tience, of deferred gratification, which lead to maturity. But now, the emphasis is on getting the period of time for eat- ing over as soon as possible. It is dia- metrically opposed to the old way. You have no relationship to the food whatso- ever—to where it comes from, what it means, or what it has to do with you. You also have very little relation to each other. There is no savoring of food, nor of conversation.

In addition to the inability to defer gratification is the erosion of the ability to make decisions. Fast foods are like heroin. They make you happy, stupid, dull your senses, your sense of taste, your ability to think, to discriminate, and they encourage you to feel comfort- able in a sterile, blank and vacuous en- vironment. In a way, they're a lot like television. They pacify you but they don't nourish you. Yet these fast food chains are as universally American as you get. They're interracial; they cut across class lines. Black families, white families, businessmen, laborers, kids, old people all go to them. They are the real melting pot of America.

Joe Frank is a radio writer whose Movie *and* A Call in the Night *are the two most popular shows in National Public Radio's history.*



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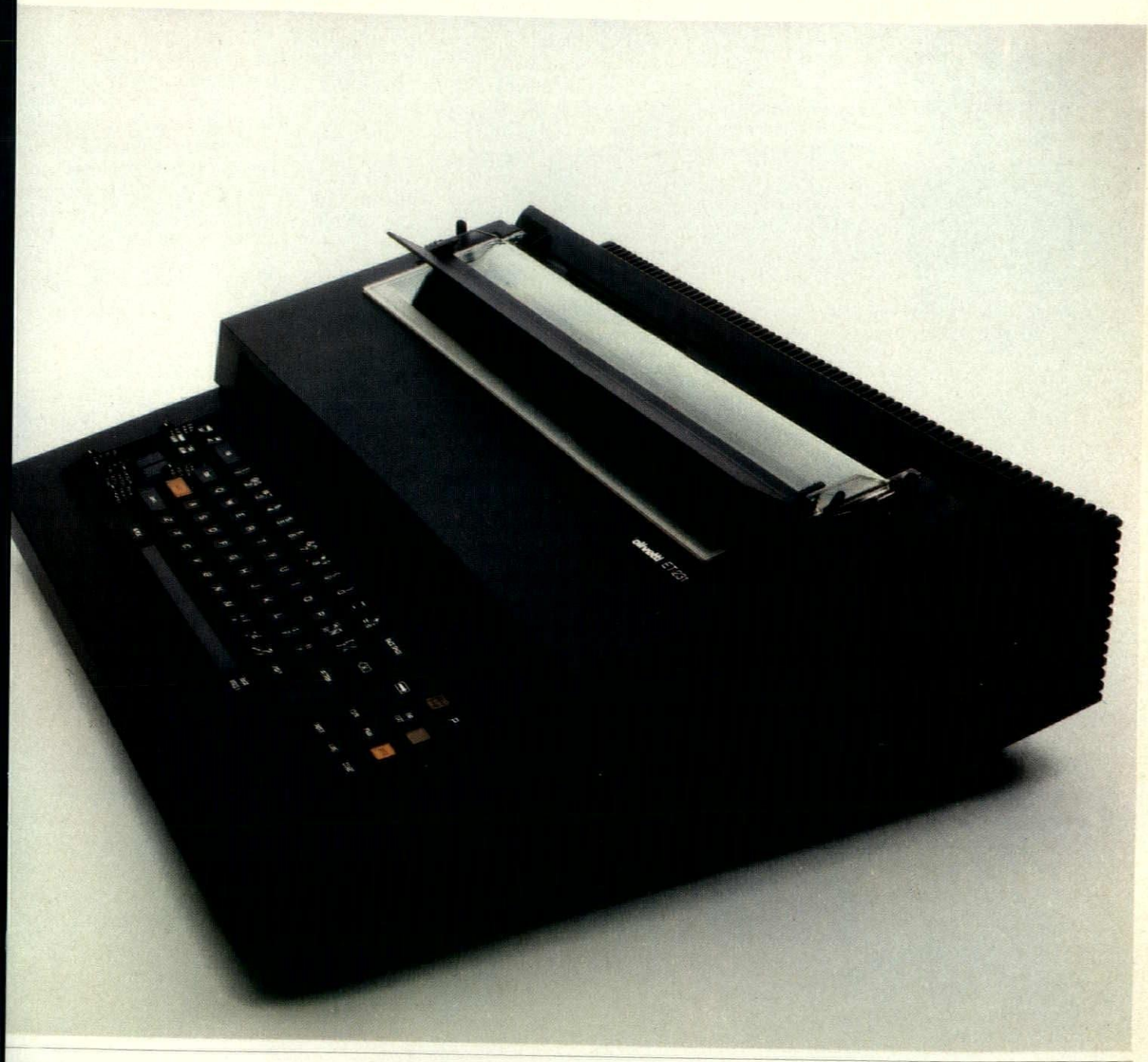

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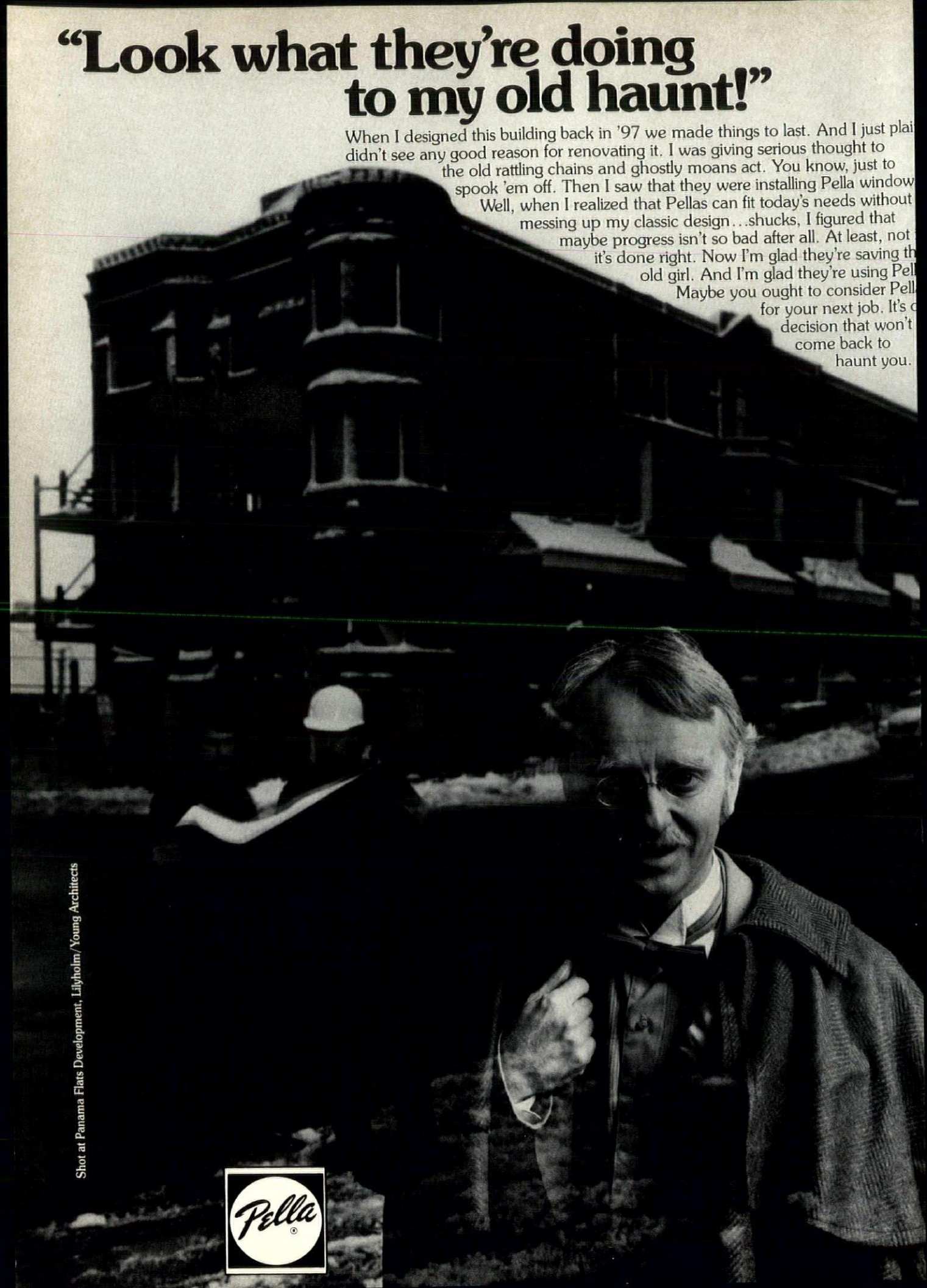

Shot at Panama Flats Development, Lilyholm/Young Architects

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editorial

Thanks but no thanks

I wish to thank Don Canty, the estimable editor of the increasingly impressive *AIA Journal*, for paying us a recent compliment. He has singled out *AM* and several other magazines as worthy exemplars of the "regional" publication that stresses architecture editorially as its main dish. He sees our collective struggle to be serious and successful as an encouraging sign.

So, of course, do I. For who can argue that something is not better than nothing? Yet I am moved by Don Canty's plaudits to enter a demurrer. His best intentions have not dispelled a malaise I have felt for a long time that architecture in the United States has been badly served by my profession of journalism.

Today in Milan, no less than eleven architecture magazines are being published. I am told, and can well believe, that the editors of these magazines scratch and claw like bobcats to win favorable consideration from Italy's architects, industrial and interior designers whenever they produce something provocative.

Here, in this country, we have in architectural publishing the same curious "big threeism" that pervades so many other American industries. We have roughly 60,000 registered architects and 230 million users of architecture, yet we cannot support a fourth, much less a fifth or eleventh, nationally circulated magazine on this subject. Why?

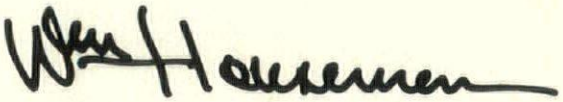
An even less answerable question may be asked of the nation's daily newspapers, which for the most part treat architects as non-persons. What architect hasn't experienced the exasperation of seeing a presentation drawing for some fine project printed in the real estate pages—with fulsome credit for the developer and none for the architect? It happens all the time, and my freshman journalism professor years ago had an easy and still operative explanation for it: the developer buys ad space, the architect doesn't.

At all events, the real estate pages are not, in the current barbarism, where it's at. Where architecture ought to be, but isn't, is in the prime sections that deal with public and cultural affairs. Small wonder, considering the short shrift given this profession, that you can count the number of critics whose names are nationally recognized by architects (never mind anybody else) on the fingers of one hand.

It is in the realm of intelligent criticism that journalism could profitably use the services of architects themselves. They, of all people, are least susceptible to the often-heard charge that Americans are brought up to be visual illiterates. Moreover, they are trained not merely to "like" architecture but to understand it.

During the good old days of rising expectations at the National Endowment for the Arts, a small effort was made to develop an interdisciplinary curriculum at a top school of journalism for young architects with a bent for writing, editing and the practice of photojournalism. I thought it was a great idea, having personally met numerous young people in the profession who had the bent but lacked the training. The project never got off the ground; but had it, we might very well be seeing *a whole flock* of regional, state and even local architecture magazines launched today.

The idea of architecture-trained journalists is worth resurrecting. Maybe AIA is the place to drop the challenge. I daresay its resident editor would approve. And assuredly, so would I.



William Houseman
Editor

One Great Architec

Wouldn't it be propitious, while the late Marcel Breuer's life and work remain vivid in our minds, to sound a salute to perhaps his finest building—the St. John's Abbey-University Church? Yes, it would.

It began with a letter to twelve famous architects. St. John's Abbey, nearing the centenary of its founding by pioneering monks of the Benedictine Order, badly needed to expand and improve its facilities at Lake Sagatagan, some 80 miles west of Minneapolis. So Abbott Baldwin Dworschak—counseled by a building committee of monks who had, or very quickly acquired, an affinity for architecture—wrote his letter dated March 7, 1953:

"I am writing to ask whether you would be interested in preparing a comprehensive building plan and report for St. John's Abbey." Abbott Baldwin's letter explained the client's interests and needs, then concluded: "The Benedictine tradition at its best challenges us to think boldly and to cast our ideals in forms which will be valid for centuries to come, shaping them with all the genius of present-day materials and techniques. We feel that the modern architect with his orientation toward functionalism and honest use of materials is uniquely qualified to produce a Catholic work. In our position it would, we think, be deplorable to build anything less, particularly since our age and our country have thus far produced so little truly significant religious architecture."

Who got the letter? Breuer, of course, but also Neutra, Gropius, Eero Saarinen, Pietro Belluschi, Barry Byrne of Evanston, Joseph Murphy of St. Louis, and several European greats: Professor Rudolph Schwarz of Cologne, Hermann Baur of Switzerland, Robert Kramreiter of Vienna, A. Boslet of Wuerzburg, Germany, and W. Sharpe of Oxford.

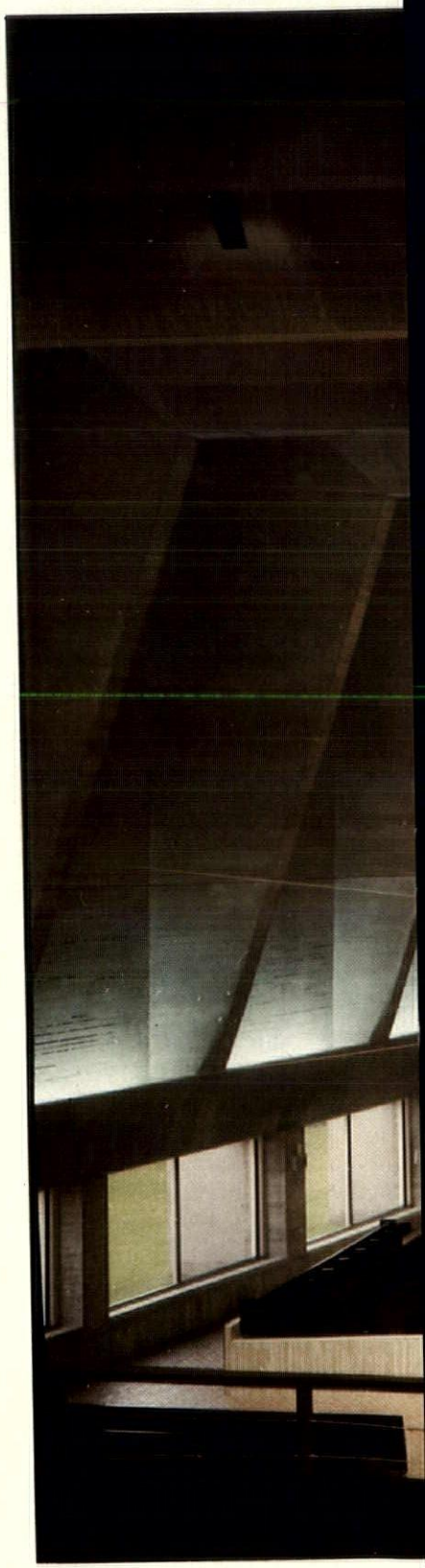
None of these notables wanted the job more than Richard Neutra. He was the first on the list to visit the Abbey, equally to judge and be judged. It happened that he fortuitously made the cover of *Time* that week, and he carried a copy wherever he went. A witness recalls that he laid the magazine on any available flat surface, cover up, at each gathering of new St. John's personages.

Neutra never had a chance. It was Marcel Breuer all the way, essentially because of a genial and self-effacing personality that Benedictine monks would find especially appealing. He had help, however, from Gropius and Saarinen. Neither felt himself in a position to undertake such a long-term commitment as this master planning venture required, and both put in a good word for the candidate who was already leading the field.

Abbott Baldwin, now retired but still a vigorous presence at the Abbey, remembers that Breuer was always willing to listen. "He said to us, 'You will have to tell me how you use the floor and I will put a sacred shell around that space.' "

Much as the new church was needed, the need for a new monastary was more urgent; so it was designed and built first. By way of developing a design vocabulary for use by the architect and client over the long pull ahead, Breuer designed a model monk's room. "The community was taken aback," says Abbott Baldwin. "He had made one whole wall glass. Many feared it would be like living in a fish bowl." Breuer cheerfully explained that because monks spend so much time alone in their rooms, they should enjoy the sun's warmth and light. He won them over, much to their ultimate pleasure, even today.

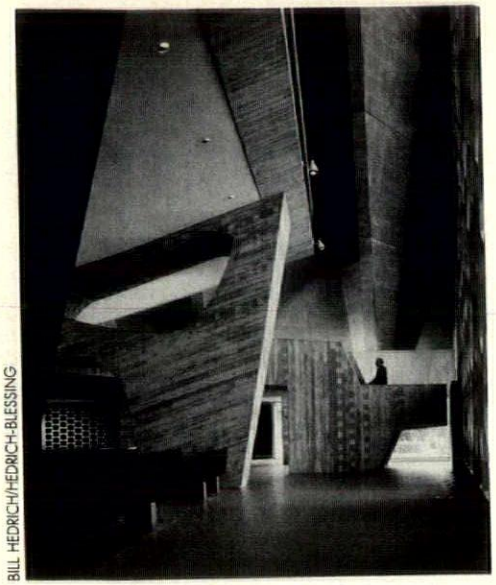
If the model room proved a shocker, Breuer's model of the church itself later on left the St. John's community utterly aghast. Breuer had actually lived at the abbey for a short time, in accordance



An intimacy is achieved in a power

Legacy to Minnesota

interior setting at St. John's by the positioning of the choir and altar forward, nearer the congregation.



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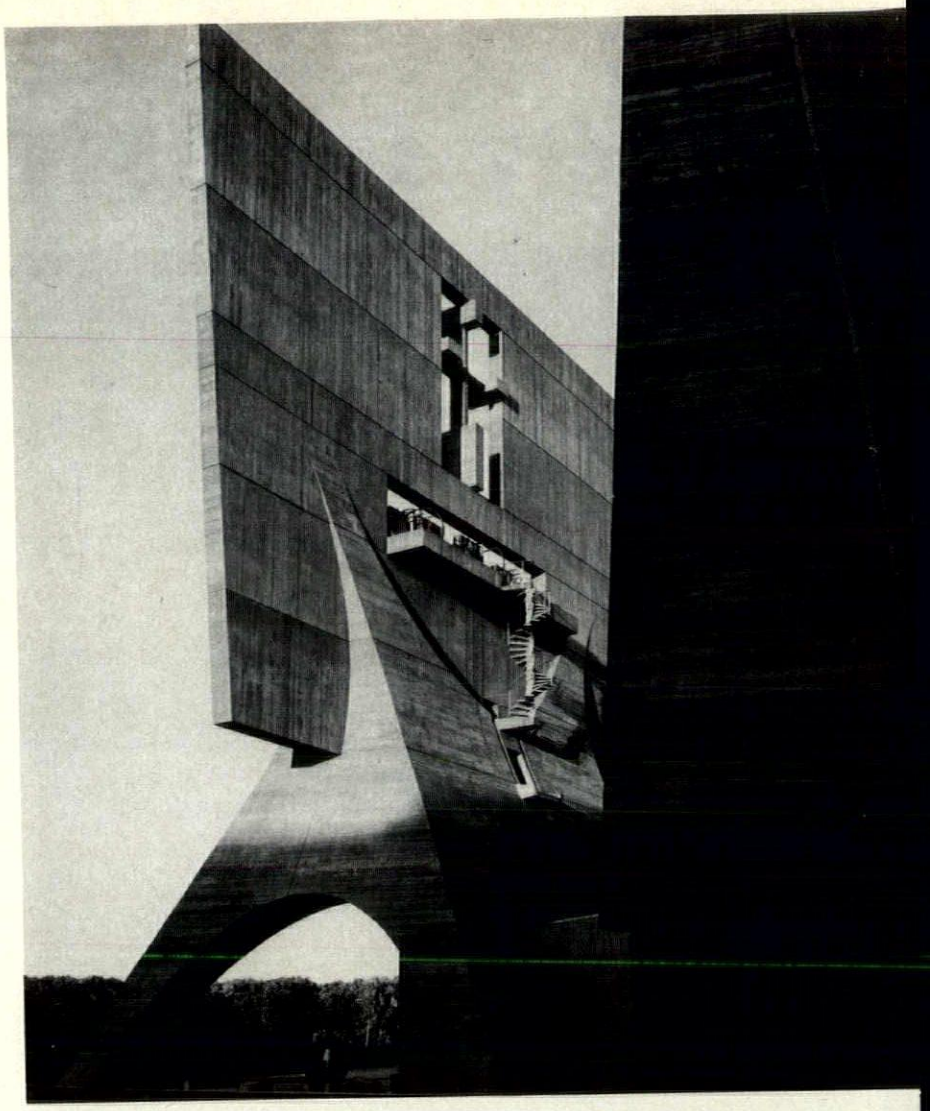
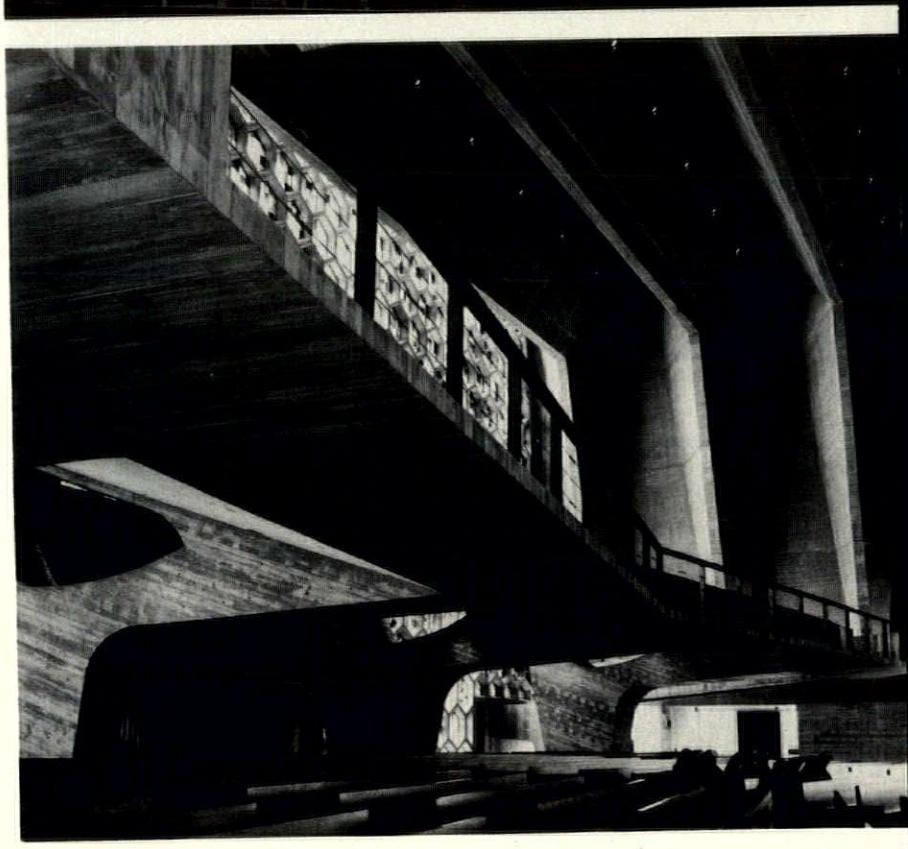


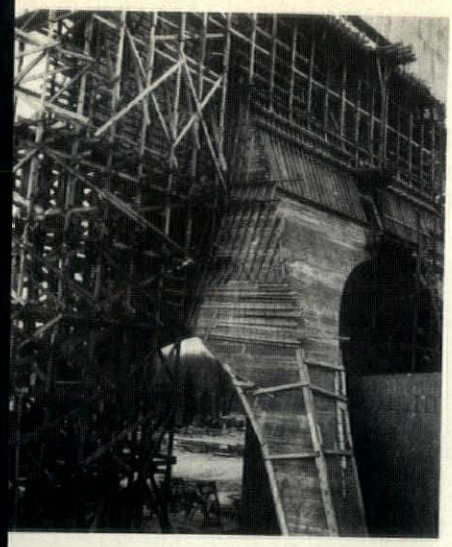
with his custom of moving in with the family who had commissioned him to design a house, the better to understand them. Such comraderie failed altogether, however, to prepare the Abbey for the kind of massive concrete, albeit "sacred", walls Breuer designed (with a bit of expert advice from Pier Luigi Nervi, his collaborator on the UNESCO world headquarters in Paris) to support a roof spanning 135 feet above a sanctuary that seats 2,000.

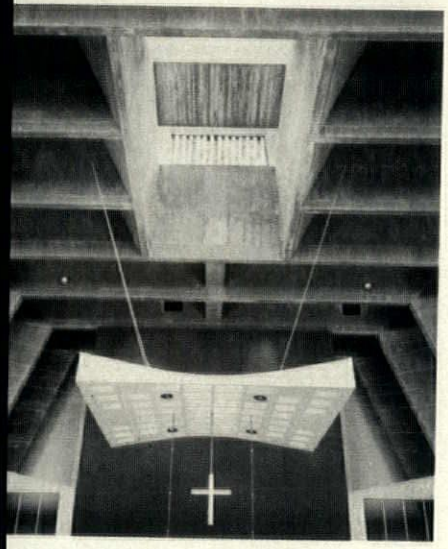
But the walls were not the worst of it. Most irreconcilable of all, as the building committee first viewed the church model, was the incredible "banner." This towering, tilted slab of concrete was designed to perform as a bell tower, even a campanile. But to the unforewarned, the bell banner at first seemed a surrealistic monster.

No longer. Today, as with all works of inspired creative energy, the Abbey and University Church of St. John the Baptist, to give it its proper name, has overwhelmed the early skitterishness by its sheer power to persuade. This structure, together with the eight other buildings at St. John's subsequently designed by Breuer, form an architectural legacy that will appreciate exponentially in its historic value to the Upper Midwest from this day forward. Equally, these buildings stand as a tribute to a "Benedictine tradition to think boldly."



Arguably, Breuer may yet prove out over the other Bauhaus greats





reuer once said it was im- aterial to him whether a ing of beauty is produced y an artist or an engineer, y "speculative research r by intuition." In St. ohn's, he proved his point y employing all of these ethods. For example, en- neering and high craft ere both needed to form e sculptural bell banner op). And when the bids r the baldachin came in o high, the carpenters ho did the banner's form ork said, "We can do the ldachin, too." And they d (above). Similarily, hen he had to find a way getting enough strength the walls to support the of he went straight to his end Luigi Nervi for tech- cal hand-holding. The rength of the sculptural rms shown here are at- butable in some measure Breuer's overriding aes- etic consideration "to el at ease in a building."

When Marcel Breuer died at 79 last July, he was the last of the celebrated form-makers of the International School to go (LeCorbusier, Mies and Gropius being the others, of course). He was all designer, in the classic sense, and perhaps his body of works will estimably outlast that of all the others.

Peter Blake, the architect, critic and present dean of architecture at Catholic University, once wrote of his friend Breuer: "It is entirely possible that somebody, sooner or later, would have invented furniture constructed of continuous tubes of chromium-plated steel; but the fact is that it was Breuer who did it first . . . It is also probable that somebody, sooner or later, would have designed bent and molded laminated plywood chairs, or translated the American traditions of wood-and-stone building into an entirely modern idiom, or made modular, precast concrete into a building unit as flexible as brick. But the fact is that Breuer was really the first one to do it, and that his prototypes have often been copied but rarely improved upon over the decades."

Breuer's *curriculum vitae* are well-known. He was the youngest of the dominant teacher-theorists linked together through the Bauhaus at Weimar. Hungarian-born, he studied at the world-famous school and, at 22, became a "master" and head of its carpentry shop and interiors department. Not always appreciated is the fact that he was a furniture designer first and a designer of buildings later. It is fair to speculate, however, that given a few more generations for proper aging, a structure such as the church of St. John will enjoy far greater importance than the Wassily chair, thus invalidating the popular critical posture of the present moment.

Breuer was an ingratiating figure at St. John's. Though he belonged to no church (or possibly because he didn't?), his moral right to design religious buildings was never at issue. "We didn't set out to build this kind of church," says Abbott Baldwin today, "But when you hire a man like Breuer, you accept him wholeheartedly."

Seldom acknowledged and generally glossed over is the fact that great architects, like any other kind of architects, do not create in a vacuum. Breuer, certainly, had expert help at St. John's. He knew that such an important commission couldn't be managed moment by moment from his New York offices. So he sent a senior design associate named Valerius Michelson to supervise the job on the spot. Michelson literally lived on the grounds at Collegeville, and such was the mutual accord out there that the project man resettled in Minneapolis and later was commissioned to design a much-admired prep school at St. John's. He still lives and practices in the Twin Cities.

Another catalyst, serving both the institutional and aesthetic interests of the program, was Frank Kacmarcik. Alternately a St. John's student, staff member and professional consultant, Kacmarcik is a leading authority on liturgical design. He and Breuer shared a common goal to create a religious structure as free as practicable of obsolete and irrelevant trappings; and while St. John's was designed a decade ahead of Vatican Council II, the architect nevertheless contributed a clarity of form and structure that in many ways presaged the lifting of age-old structures a few years hence.

Kacmarcik enjoys a lasting personal reward accruing from his association with Breuer. He lives in the only Breuer-designed house built in the Twin Cities.

Besides being a great architect and teacher (Philip Johnson, I.M. Pei and Edward Larabee Barnes were among his students at Harvard), Breuer was also a poet. He once described his architecture in this verse:

"Colors that you can hear with ears;
Sounds to see with eyes;
The void you touch with you elbows;
The taste of space on your tongue;
The fragrance of dimensions;
The juice of stone."

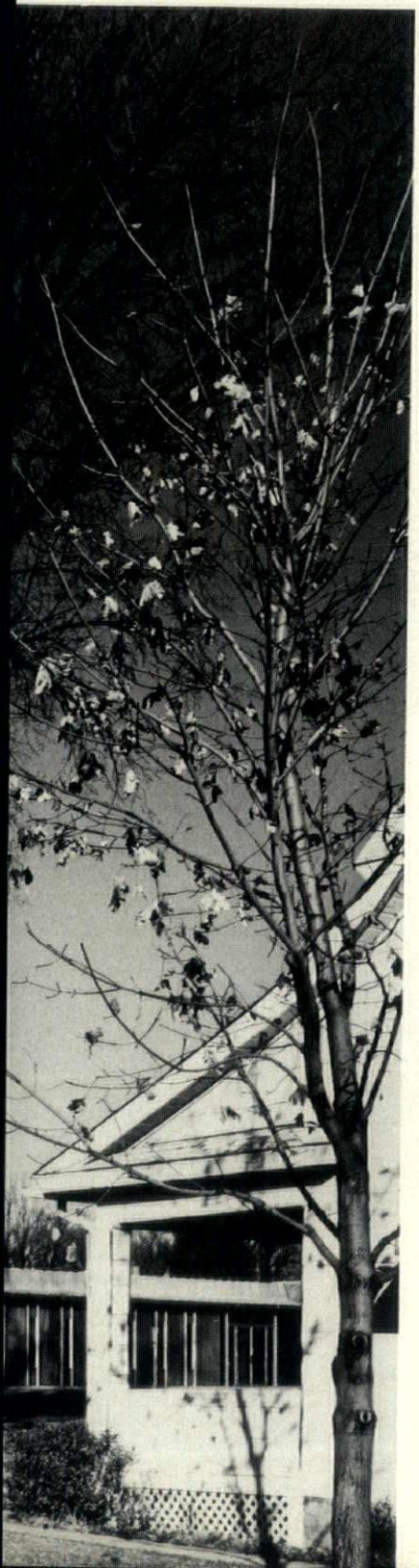
A Diffident Gem in a Homely Setting

Architecturally, if there is a finer modern church than Breuer's St. John's anywhere in the U.S., it could well be a Minnesota contender—Christ Church Lutheran, the last completed work of Eliel Saarinen

PHOTOGRAPHS BY GEORGE HEINRICH

he newer folks who live near Christ hurch in South Minneapolis may be rprised to know that their neighbor-od is graced with an ecclesiastical easure. Not so very long ago, Christ hurch was the most lionized church in is country. Architects from every-here made ritual visits to the Twin ties to see for themselves what they'd ard and read about in *Life*, *Architec-ral Forum*, *Newsweek*, and even the *utheran Standard*.

Indeed, such was the impression ade by this unassuming house of wor-



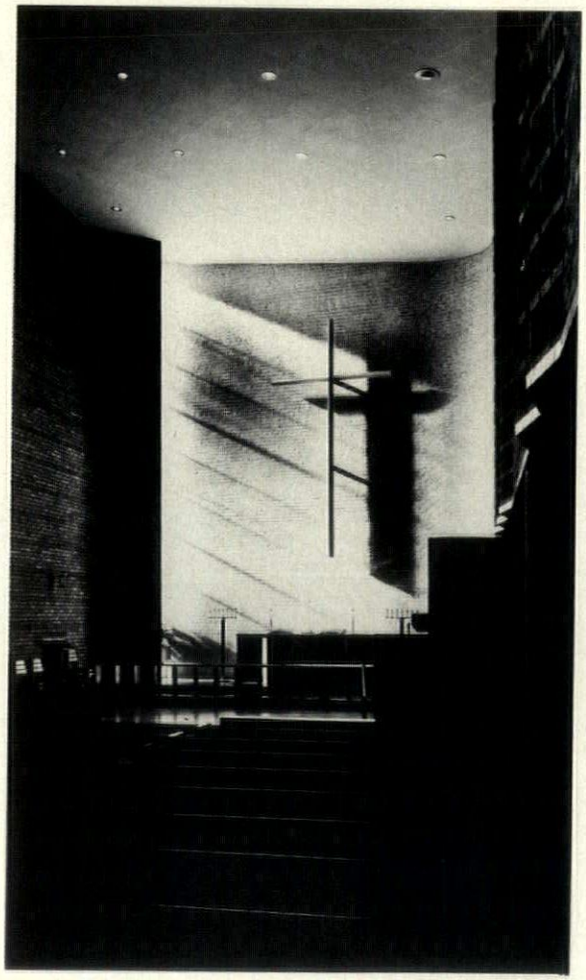
ship that a few years after its completion in 1949, a panel of 35 architects and church leaders named it their first choice for general architectural excellence among all churches built in the United States since 1930.

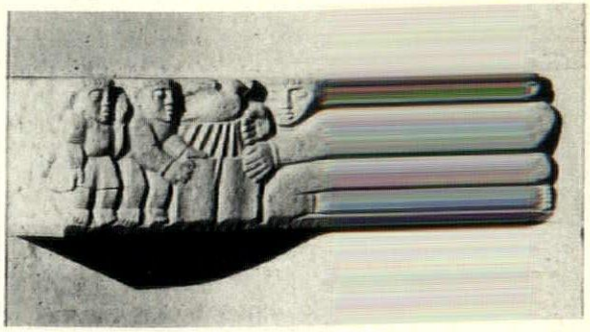
Save for an occasional touring group of European or Japanese architects, few people go out of their way to take even a cursory look at a work of art fully capable of inviting serious emotional engagement and intellectual appreciation. Moreover, Christ Church in recent years has offered a rare bargain in Saarinens, father and son. The church itself was designed, as most know, by a 75-year-old Eliel Saarinen in the last year of his life. Few may be aware, however, that his son and partner, Eero, at the age of 51 in 1961, designed and approved the working drawings for the church's education building that is now connected to it by an enclosed arcade. This he did during the last year of *his* life. (Hills, Gilbertson & Hayes was the Minneapolis firm associated with Eliel on the church itself.)

As with so many great buildings, Christ Church did not materialize easily. It needed the determination of a young pastor who had undergone an aesthetic conversion to modern architecture. The Rev. William A. Huege had been counseled by his superior in t he military chaplaincy as to the efficac y of the Finnish way of seeing architect ire. So successful was his mentor's shor t course that Huege not only risked his credibility by deflecting his congreg a-tion from its plan to build a mini-Gothic cathedral, but he also had to persuade them to forego a $4,000 f ee they'd already paid the architect.

Thus unencumbered, the pastor vent directly to Bloomfield Hills, Michi an, where the best-known Finnish archi tect in America presided as head of the Cranbrook Academy of Art. Huege had written Eliel Saarinen that he and h s flock were interested in having him de-sign them "an honest church." The r-chitect, himself the son of a ministe , questioned Huege closely on the spi it-ual and liturgical formulations of L -theranism, and at length he agreed t o design the South Minneapolis congr ga-tion a new church to stand on the co r-ner next to the old, obsolescing one.

The site is unexceptional in every way; if ever something notable were to be done with it, the product would n ec-essarily be a triumph of pure design. Then as now, the neighborhood is ar che-typally American, upwardly mobile, single-family middle class. Yet the Sa ar-inens' design triumph has been achie ved





Christ Church is linked front and rear to its educ a-tion annex by arcades (o p-posite). Son Eero, not wishing to steal his father's show, kept the a n-nex to a single story abo ve ground but incorporated a two-story gym, dining an meeting facilties under-neath. Light on altar wall (left) is the decisive inte-rior design element. Scul p-tured reliefs on church fa cade depict worshipful little clusters.

Christ Church: a rare bargain in Saarinens, father and son

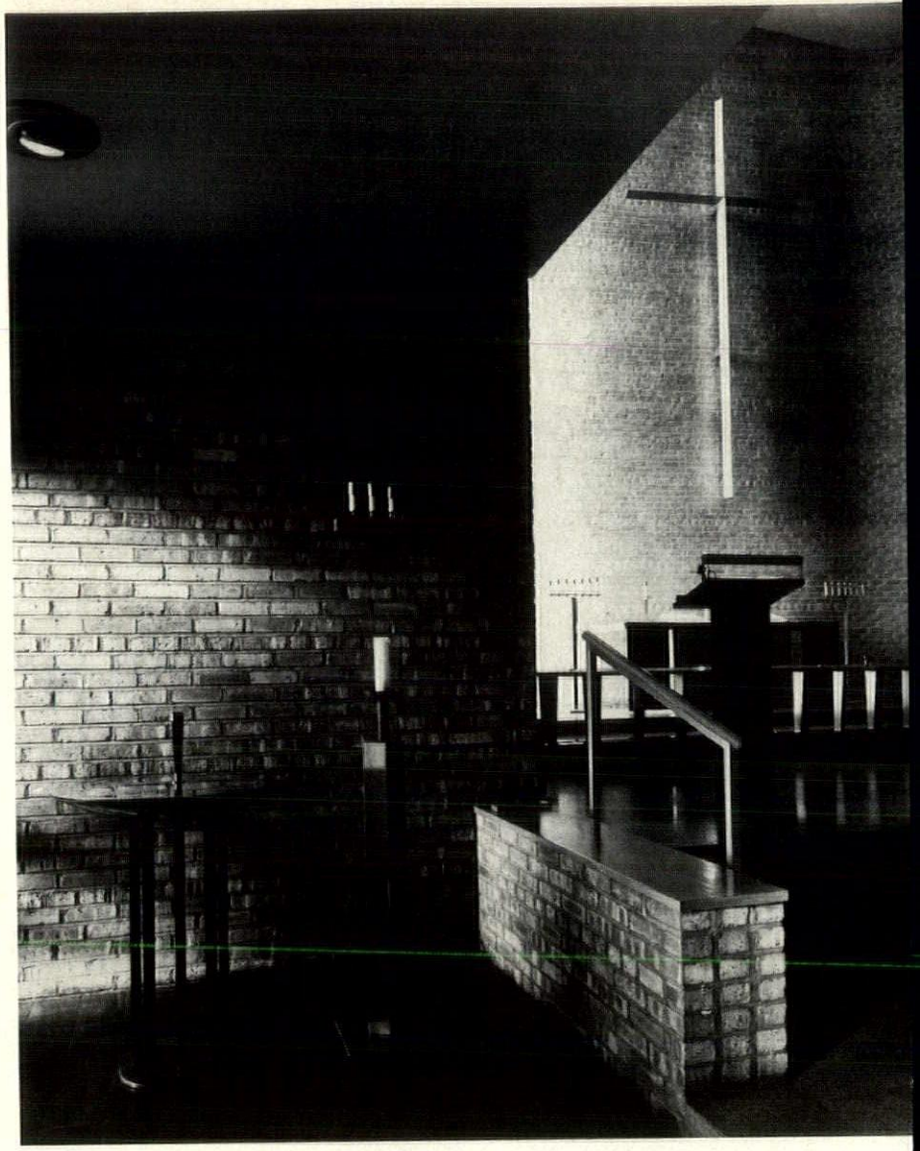
at no social or psychic expense to the surrounding residential scene. In the way that folks who lived on the same block in Independence, Missouri, with a President took for granted his corner, aspiring-to-be-Victorian house, Christ Church's neighbors pay it little heed, as architecture, whether passersby or parishioners.

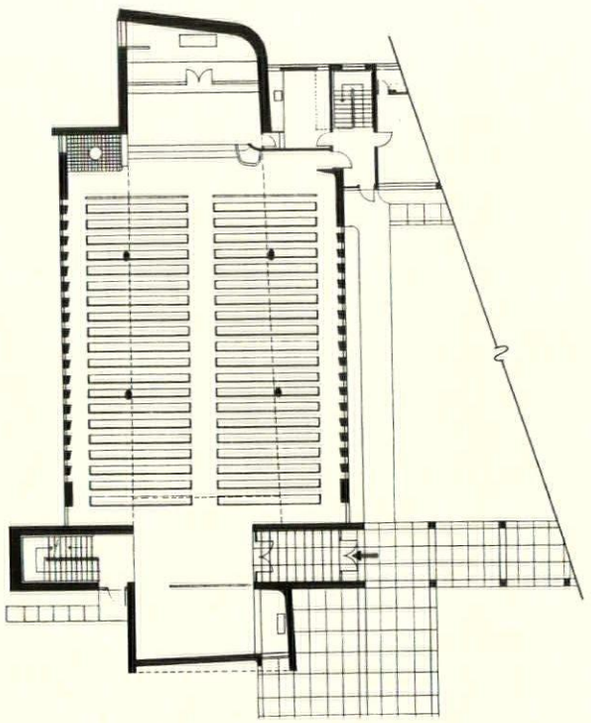
The explanation, of course, is that Eliel Saarinen shaped his building to be quietly congenial. He did so mainly by using a few materials well and his ideas for spatial effects unambiguously. It may be hard to ignore an 88-foot bell tower in the midst of bungalows, but if, as here, its lines are clean, its proportions strong, and its tan brick walls succeed in expressing both the art of the architect and the craft of the artisan, then you have an almost *indigenous* local landmark. Similarly, if you enter the church by way of a peristyle through doors at a right angle to the passing auto and pedestrian traffic, you are apt to appreciate the modesty of a street facade of grey Mankato stone, unbroken except for four small sculptured reliefs.

Much has been made of the economy of means used by the elder Saarinen to build an interior which the old *Forum* characterized as "a serene harmony" of art, science and faith. A lay guide likes to spring the surprising fact that none of the walls within the church are parallel but rather *almost* parallel; and also that the ceiling slants. These digressions from the square were devised by the architect to realize acoustical excellence, a property generally recognized by most visitors.

Above all, Christ Church basks in soft but glorious light, largely admitted surreptitiously through a screened window wall, that intensifies the form and texture of the curved brick altar wall and the brushed aluminum cross centered on it.

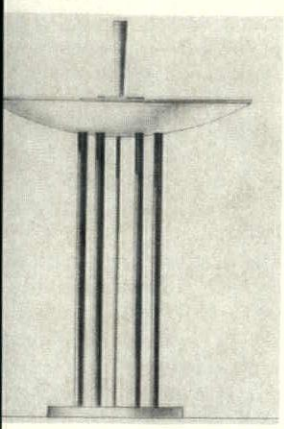
To visit Christ Church today—something anyone living in, or stopping off in, the Twin Cities ought to do—is to experience modern architecture as a consummate design performance. People were startled, even shocked, by its unadorned clarity in 1949. They had few literary references or visual experiences to assist them in their understanding of such an unrhetorical structure. It is now possible to place this building in a historical context, which is to say you may now appreciate how profoundly well Eliel Saarinen evoked an unconditional sense of spirituality through architecture. He did as he was asked: he gave his client an honest church.





Seen together, the plan and interior shot (opposit above) make clear Saarinen's strategy for accommodating both practical and aesthetic considerations. Just four interior c umns are so placed as to permit pews to extend in low-ceilinged side-aisle space, thus providing sea ing for 600 in a nave of li ited floor area but memor ble spaciousness. Natura light floods the chancel, i window-wall source screened floor-to-ceiling a wood screen, and the soaring brick walls of the nave "borrow" from this source to dispell any pos ble gloominess. Acoustic largely determined the de sign: to prevent the boun ing of sound between par allel surfaces, the north clerestory wall is slightly splayed and the ceiling canted. Waves of open-jointed brickwork are backed by sound-absorbi insulation; and the ceilin which is suspended from

roof by metal hangers,
acoustic tile with in-
ting material above it.
baptistry at one side
he chancel (above left)
ides low-ceilinged inti-
y yet affords the entire
gregation a sense of
icipation. A quiet court-
is formed by church,
cation building and con-
ing arcades.



TWIN CITIES' VITAL ORGANS

When in Minneapolis or St. Paul, you may do as all accomplished organists do—and that's enjoy the nation's greatest concentration of distinguished church organs

By John Ferguson

I was browsing about in 1976 when I was general chairman of the National Convention of the American Guild of Organists, and I discovered an advertisement for a National AGO convention to be held in the Twin Cities in the late 1920s. The text went something like this: "Come to the Twin Cities, a place where four manual Skinners abound." To organists of that generation, the Skinner organ was a Lincoln, Rolls, Mercedes and Cadillac all rolled into one; and Twin Cities churches did house many fine instruments built by Skinner and his peers.

Today the world of the organist is much changed, but, as any organist who came to last year's AGO convention here would agree, the reputation of the Twin Cities as a place with an exceptional number of fine organs is intact. But the definition of what a fine organ is has changed radically. Skinner is out of business, and no one builder is given the universal acclaim that Skinner once enjoyed. Instead, we have something even better: it is the conviction that we now produce better organs than ever because the art of organ building has been reexamined and renewed in a renaissance now called the Organ Reform Movement.

This reform began in Europe, and especially Germany, between the World Wars. Organists and builders looked back to the repertoire and instruments of the Golden Age of the organ, an era culminating in the art of J. S. Bach. They realized that in making organs larger and larger, and in attempting to duplicate the range and scope of orchestral sounds, much of the true nature of the organs of Bach's time had been lost.

As a result of the reform, organs have again been placed in the rooms in which they are to be heard: not in chambers, closets, attics, or basements—a practice especially common in America—but back in the room itself. The organ builder can design and adjust the pipes to make sounds that are

gentler and more singing, and yet clearer. The lost art of building and voicing practiced in the great organs of the 16th and 17th centuries was rediscovered as the few remaining instruments from this era were carefully restored.

In addition, architects have been persuaded that church buildings need not be acoustically dead, and if they are not, organs of moderate size can still fill large spaces with sound.

In America, word of the European revolution was just beginning to influence a few builders, notably Walter Holtkamp in Cleveland, and G. Donald Harrison of Aeolian-Skinner in Boston, when World War II put a stop to all building of new organs in this country. After the war, the pent-up demand for instruments was such that many builders could continue in their former ways well into the fifties. Harrison and Holtkamp did make some converts in other builders and continued to enjoy an enviable reputation for their work.

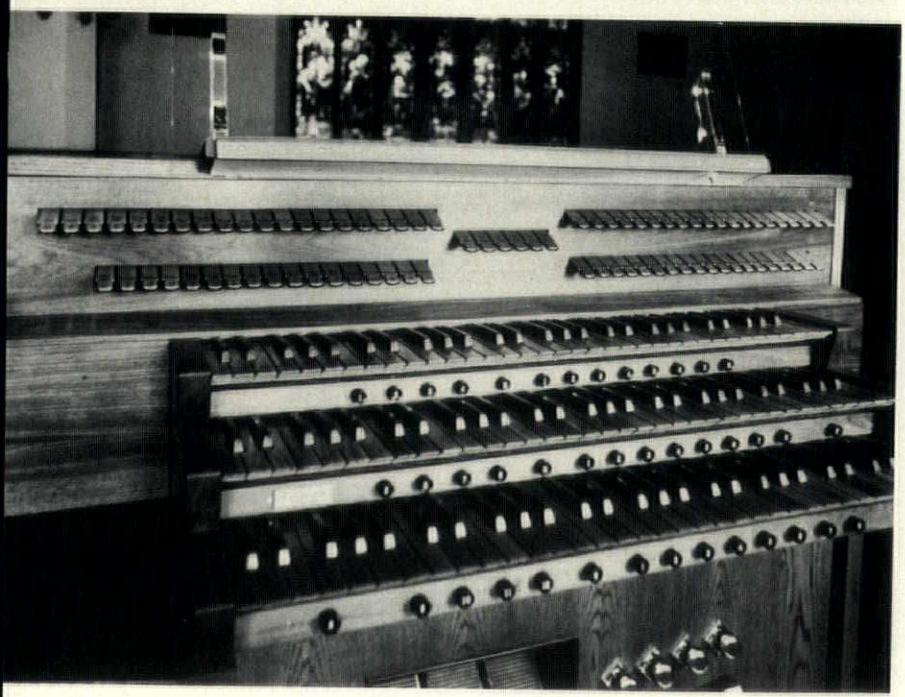
In the Twin Cities, many of the larger churches—those most likely to have enlightened musical leadership and therefore an interest in the new trends in organ building—had relatively new organs. Thus the reform movement did not touch things here for a while.

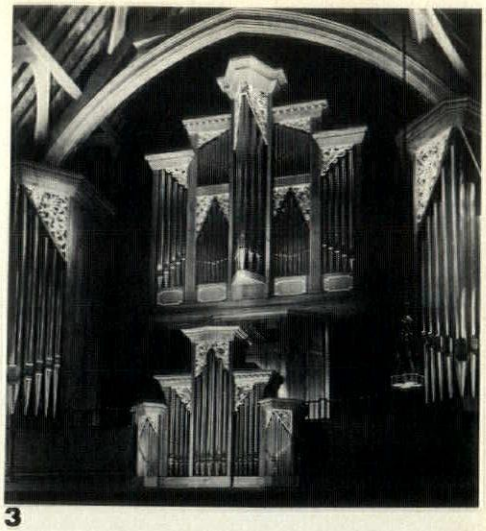
The breakthrough came in 1963. Simultaneously, the area's two largest churches in seating capacity—St. Paul's Cathedral in St. Paul, and Central Lutheran Church in Minneapolis—both installed completely new organs. St. Paul's Cathedral had a rather small three-manual Skinner in the chancel designed primarily for accompanying the singing of the choir. Aeolian-Skinner completed a rebuild of the chancel organ and installed a new three-manual instrument in the gallery, both organs controlled by identical consoles, front and rear. Although modest in size, thi instrument, located high and against th rear wall of an unusually resonant room, proves that a good organ properly located can be a marvelously excit ing thing.

In Minneapolis, Central Lutheran Church replaced its existing organ wit a new instrument by Casavant Freres Quebec, Canada. Built under the direc supervision of Lawrence Phelps, another significant name in mid-twentiet century American organ building, this four-manual, 107-rank organ is the largest church organ in the Upper Midwest and is placed in a commandi position behind and above the central altar. Its design was remarkably enlightened for an organ of its size and year, and the instrument still attracts many organ crawlers from across the country.

In the fifties, Walter Holtkamp had built two major organs in outstate loca tions (Trinity Lutheran in Moorhead, and St. John's new Abbey Church). Then, in 1964, the Holtkamp name came to the Twin City area when Wal ter Holtkamp, Jr. completed a modest three-manual organ for Westwood Lu theran Church in St. Louis Park. Thi instrument, completely free-standing i the rear gallery of a lovely sanctuary signed by a Northfield architectural firm, again demonstrated for all to see and hear that visual and aural beauty indeed possible, especially when archi tect and organ builder cooperate and a engaged by a musically enlightened co gregation.

Westwood is in many ways typical the many suburban churches founded shortly after World War II in the Tw Cities: a new congregation established serve a growing suburb. But inherent in the new church is a love of music, which explains why a fine instrument





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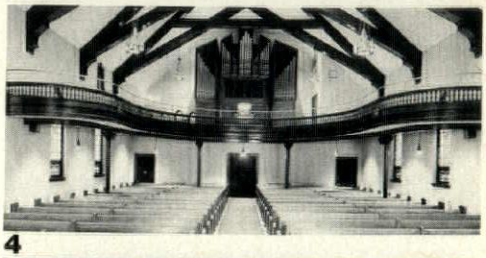

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5

The Hennepin Avenue Methodist Church organ (1) is the largest mechanical action organ in Minneapolis. It has four manuals (keyboards) and 78 ranks of pipes.

Plumwood manuals and palisander wood sharps control the 89 ranks of the Plymouth Congregational Church organ (2). The largest church organ built by Walter Holtkamp, Jr., it is designed for French as well as German music.

The organ in House of Hope Presbyterian Church (3) built in 1979 by Charles Fisk is considered the most significant in the Twin Cities. Its 97 ranks are controlled mechanically by four manuals.

A two-manual, 28 rank tracker organ (4) built by Casavant Freres of Quebec stands in the gallery of St. Stephanus Lutheran Church, Minneapolis.

In 1973, Concordia College in St. Paul installed a three manual Schlicker organ (5). It is a 44 rank concert organ designed for Baroque and early classical music.

a fine acoustical environment was a high priority from the outset. Many other suburban churches are now discovering that their electronic substitutes, which never sounded quite right, haven't worn well either; or that their bargain—quality pipe organs should and could be better. Thus they are now considering new instruments. Organ crawlers take note: the future looks interesting.

But it will be hard to do better than the recent past. At House of Hope Presbyterian Church in St. Paul, which has the distinction of being the only building in the Twin Cities designed by the most famous of American church architects, Ralph Adams Cram, a careful study of the organ was undertaken in the mid-seventies. It was decided not to rebuild but to secure a new mechanical action instrument for the rear gallery. An acoustical consultant was engaged and Charles Fisk of Gloucester, Massachusetts, was commissioned to build the organ. Fisk is a living legend in American organ building, and here he was given the opportunity to build what will surely be the largest instrument of his career. Completed in 1979, this four-manual, 97-rank organ was the first large tracker in the Twin Cities.

The House of Hope organ has generated enormous attention locally, nationally and internationally. For organists and organ enthusiasts, it is the single most significant instrument in the Twin Cities. Everyone has to see the Fisk and form a personal opinion. While some may argue about its sound, none can argue about its significance or about the marvelous quality of workmanship evident everywhere in the instrument. It is a visual and aural feast.

Such is the stature of the House of Hope Fisk that it just about dominates conversation among members of the St. Paul organ set. Minneapolis is another matter. Within a mile or so of the center of downtown Minneapolis are six large instruments. The Casavant at Central Lutheran is one; a block away in the Minneapolis Auditorium is a huge Kimbal organ completed late in the thirties. This is the largest organ in the Upper Midwest and, unlike most other municipal monsters, its 155-odd ranks are still playable, both from the five-manual "concert" console and the four-manual "theatre" console, thanks to the loving attention given it by members of the Twin Cities chapter of the American Theatre Organ Society. Another first—order organ is the Welte-Moller at St. Marks Episcopal Cathedral. It is already a large instrument of 60 ranks, but in celebration of the cathedral's 125th anniversary, it will soon grow by another 20 ranks.

The other three of the "Big Six" are new—or rebuilt. The Moller at Westminster Presbyterian, dedicated this year, is a substantial rebuild and enlargement of the existing organ which resulted in an instrument of 85 ranks. The other two, Hennepin Methodist and Plymouth Congregational, are essentially new instruments although both retain a few pipes and the facades from the previous organs.

The Hennepin Methodist instrument, dedicated 1980, was constructed by Robert Sipe of Dallas. This instrument of four manuals and 78 ranks is of tracker action, the largest mechanical action organ in Minneapolis. The lovely case that surrounds the pipes was reworked from the existing case.

The "Big Six" make the Twin Cities a mecca for organ crawlers

The Holtkamp in Plymouth Church has three manuals and 89 ranks and was dedicated September, 1981, making it the newest of the downtown Big Six. Like Hennepin Methodist, it is housed in pipe screens retained from the earlier Skinner; and like House of Hope, it enjoys an improved environment thanks to a major acoustical renovation.

By now you may have gathered that the Twin Cities are an organ crawler's delight, and such a remarkable concentration of large, fine instruments as are in abundance here is hard to match anywhere else in the country. But size alone is no measure of quality or guarantee of success in an organ. If the organ builder and organist have learned anything in the fifty years since the beginning of the Organ Reform Movement in America, it is that quality, combined with proper placement in a room with a good acoustical environment, results in a successful organ—no matter how large or small. In fact, the smaller, more intimate the instrument, while seeming less glamorous than its bigger cousins, is the ideal for most fine organists because it is easier to hear and control. With such concepts in mind, let us continue our Twin Cities organ crawl with some comments on the smaller instruments, and in particular two of them.

In the 1950s and '60s, quite a large number of very fine organs were imported from Europe, especially from Germany and Holland. This was reasonable, partly because the Reform Movement had a head start there, and partly because there was then a financial advantage. For one reason or another, our communities didn't import organs. But one of the builders did come, in the person of Jan Van Daalen. He now is a builder of national prominence, and through him the Dutch art is well represented because his organs, though de signed here, are still largely made in Holland.

Van Daalen specializes in small to medium sized organs, usually of mechanical action. His instruments are simple, straightforward and of high quality. The organ at St. Patrick's Catholic Church in Edina might be se lected as exemplary. Finished just this year, it has sixteen stops and three ma ual keyboards, the third having no pipes of its own but serving as a perm nent coupler for the other two. An ea lier example is the organ at St. Stephen's Lutheran Church in Bloomington.

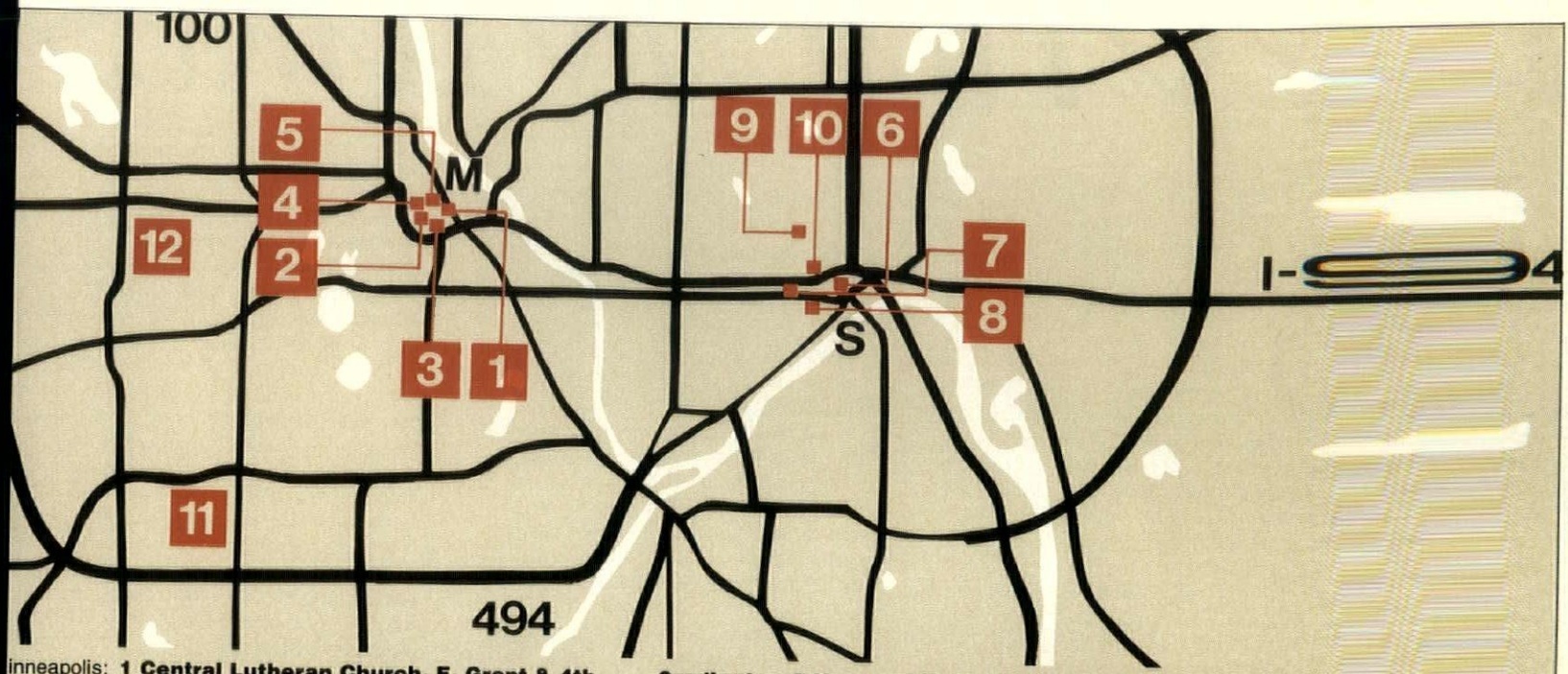
Another especially distinguished sm instrument is at the Maternity of Mar Church in St. Paul. Completed by Ca savant in the late 1970s, this small or gan of 18 stops, 22 ranks, proves aga that a good instrument in a space with fine resonant acoustics is a source of jo both for player and listener.

Our organ crawl could go on and o The more one looks, the more one di covers other instruments which deserv mention. The three manual Schlicker organ at Mount Olive Lutheran in Minneapolis comes quickly to mind, perhaps as much because of the excep tionally gifted musician, Paul Manz, who presides at it as much as for the strument itself. Casavant built anothe interesting small instrument for Nort western Lutheran Seminary in St. Pa which is unusual for its visual assymm try. Dobson, a young builder from Iowa pleased many organists a few ye ago with an installation at Congrega tional Church in St. Paul. A tiny in strument in St. John the Evangelist Church in Hopkins demonstrates that the liturgy can be well led by a very small instrument even in a large spac It was built by the late John Theiss.

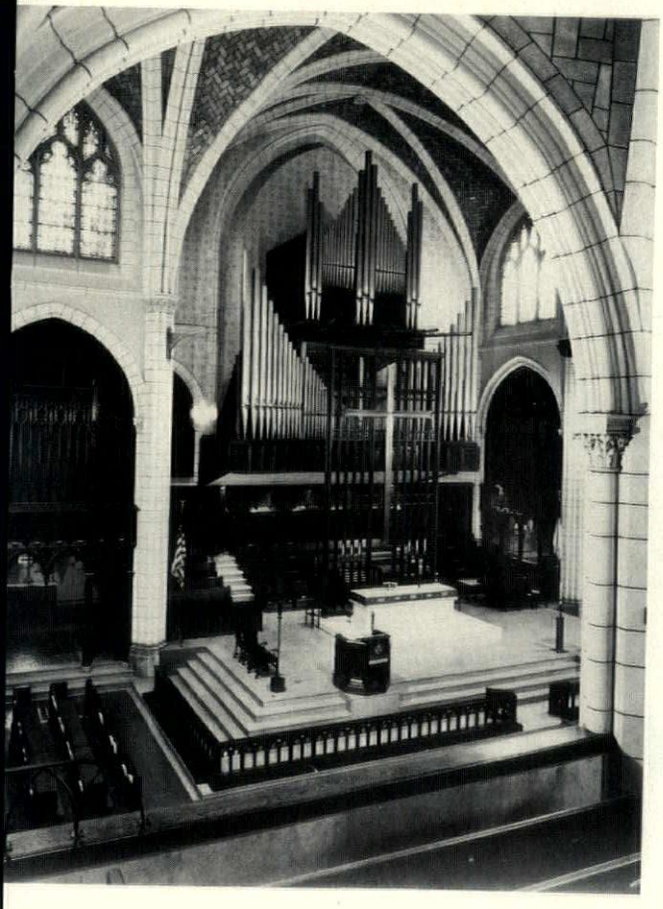
So our armchair organ crawl come to an end. If by now organ crawling seems like an interesting new way to e perience yet another of the treasures t make this area such a delightful place stay or to visit, be advised that one crawl seems to lead to another. Such the wealth of fine instruments in the Twin Cities that one could be crawlin for a good long while to come.

John Ferguson is one of the foremost au thorities on organs and organ building. built his own pipe organ as a teenager, wrote his doctoral dissertation on the su ject, served as full Professor of Organ Kent State University before joining the staff of Central Lutheran Church in M neapolis (shown opposite) as music dire and organist in 1978. He is author of A Musician's Guide to Church Musi *(Pilgrim Press, 1981) and* Walter Ho kamp—American Organ Builder *(K State University Press, 1979).*

rgan-crawling in the Twin Cities can be an easy weekend
bby to pursue, as this map confirms



inneapolis: **1 Central Lutheran Church, E. Grant & 4th ve. S. 2 Hennepin Avenue United Methodist Church, roveland Ave. & Lyndale Ave. S. 3 Plymouth Congrega- onal, 1900 Nicollet Ave. 4 St. Mark's Episcopal Cathe- ral, 519 Oak Grove 5 Westminster Presbyterian hurch, Nicollet Mall & 12th St.** St. Paul: **6 Cathedral of t. Paul, 239 Selby Ave. 7 Concordia College, 275 N. Syndicate 8 House of Hope Presbyterian Church, 797 Summit Ave. 9 Maternity of Mary Church, 1414 N. Dale 10 St. Stephanus Lutheran Church, 739 Lafond Ave.** Sub- urbs: **11 St. Patrick's Catholic Church of Edina, 6779 Val- ley View Rd. 12 Westwood Lutheran Church of St. Louis Park, 9001 S. Cedar Lake Rd.**



What is an organ, anyhow?

Simply stated, the organ is a large collection of whistles. Each whistle or pipe is made to play (voiced) and is adjusted (finished) to sound its best in its eventual location. The pipes are arranged in rows (ranks) of like-sounding pipes, and each rank is activated by a control called a stop. Normally, each stop has one pipe per manual key or pedal key. In early organs all the pipes controlled by a key sounded simultaneously when that key was depressed. An early improvement was the stop, which silenced or stopped selected pipes. Various stops are usually identified by pitch length, e.g., 16′, 8′, 4′, 2′. The pitch designation in feet refers to the approximate length required for an open pipe to sound the lowest pitch on the manual or pedal keyboard. For instance, when using an 8′ stop and playing middle C on the organ, the pitch is the same as middle C on the piano keyboard; the 4′ stop sounds one octave higher and the 2′ stop, two octaves higher. Conversely, the 16′ stop sounds one octave below middle C.

The heart of the pipe organ is the wind chest where the wind is admitted into the pipes by opening and closing valves placed inside the chest below the pipes. There is more than one process by which the organist controls the opening of the valves when depressing a key. The oldest and still the best method involves a direct mechanical linkage from keyboard to pipes; it is called mechanical, or more commonly "tracker" action. Other systems use electricity or a combination of electric and pneumatic action. (An "electric" action should not be confused with instruments whose sound source is electronic.) While simple in basic concept, most organs have at least two keyboards (manuals) and a pedalboard controlling many pipes. Larger instruments can become remarkably complex very quickly because their multi-manuals control many ranks of pipes.—J.F.

What Makes "Religious?"

By E. A. Sövik, FAIA

Once I visited Ise, the oldest of Japanese shrines, where the Emperor journeys annually to hallow the new year. You cross first a rushing river on a fine wooden bridge and enter a small park of groomed fruit and flowering trees. Then you move on a soft pathway into dense forest of ancient cryptomerias, the Japanese cedar that grows straight and very tall. The walk brings you to the precincts of the elemental but elegant wooden buildings that are reconstructed every 20 years on megalithic platforms. You can't enter, but proceed farther in a loop, to emerge again at the entrance park. When I came out of the great forest, I took a deep breath and suddenly realized that for a long time I hadn't done so; I had been so laden with the experiences that even by my breathing was affected.

I suppose that all of us have had, and do have, experiences where our surroundings urge themselves upon us in similar ways, where the sense of profundity, mystery, and elemental reality are such that we have intimations of Ultimate Being. And we think of these often, as religious moments. They come in many, many ways—sometimes in nature, on the ocean or in the mountains, sometimes in art, in music, or in poetry. Sometimes they are triggered by little things too—the loveliness of a flower, or a baby's hand, or the moment when we reflect on the marvel of our own hearts' beatings. Sometimes it is a painting that moves us. And sometimes architecture.

Consider only the architecture of religion. The first concern here, I should think, is to build a place that breathes to life those institutions which affirm that there is above all a Divinity "in whom we live, and move, and have our being." But what kind of architecture does this? What is the formula, if there is one, that can make architecture a metaphor of faith?

A German theologian named Rudolf Otto, who wrote during the early years of this century, made a study called "The Idea of the Holy" in which he tried to identify the basic elements of religion. His book continues to be admired. He suggested that all religions have in common three concerns. One is the search for, or openness to reality, to truth. You might identify this as the philosopher's goal, and it is of course; but it is equally that of the man of faith. The philosopher tries to discover truth by rational processes; the religionist usually admits to the possibility of non-rational or suprarational perceptions as well. But both seek truth.

And if an architect intends in the spaces and places he builds to reflect the search for reality, and by reflecting it to encourage it, it seems almost axiomatic that the architecture should be utterly candid, without illusions, artificialities or dissimulations. Examples of this sort of work—of living without masks and beyond conventions—are not uncommon. Cistercian monasteries, puritan buildings like the "Old Ship" Meeting House, and almost any of Mies van der Rohe's buildings qualify. The Japanese tea house is another example, consciously calculated to bring people into a serious, open and forthright kind of interaction.

A second basic factor in the life of religious people is the ethical. All religions speak to the issues of behavior, the distinctions between good and evil, right actions and wrong actions. People, even the most religious people, don't agree on what is right and wrong; but the commitment to what is right is earnest, and institutional religion always aims to be on the side of the good.

The architecture of religion reflects a variety of definitions of the good. For people of the Judeo-Christian tradition, the good is generally defined as that kind of behavior which honors every human, which values life and seeks the welfare of all—the ethic of love. This is something different from an ethic of order, for instance, which implies power, and whose architectural symbol may be monumental and static. It is also something different perhaps from the ethic of justice, or an ethic that places liberty at the pinnacle of values. These are political ethics, but I think not religious ones. They also have their architectural expressions.

The architecture that issues from the ethic of love, if I may speculate briefly, would be gracious, hospitable, generous, humane. One might again call up as an example the Japanese tea house; but more familiar images might come from the domestic scene, because almost all our homes aim to be expressions of hospitality. All architecture cannot be and should not be domestic, in all respects, of course. But it is clear that even large buildings can be, like a good host, companionable rather than oratorical, gracious rather than manipulative, courteous rather than peremptory.

Buildings that are the expressions of love don't overwhelm even when they are big; they don't aim to dominate, but to serve; they are habitations not monuments; they are not likely to be understood as

a Building

rge scale *objects d'art* to be looked at ut not touched. The word "haptic", hich implies that a building invites a ort of continuous sensual interaction or iendly dialog, describes an appropriate uality.

The third quality, and surely the ost important, of "religious architecure" is what Otto calls the "numinous". is the quality that brings us to a sense f wonder, to the consciousness that our xistence is finally suspended in a magificent Mystery, a Mystery that is paradoxically fascinating and awesome, ose at hand, yet beyond comprehenon.

Architects have often ventured to ggest the presence of this Mystery by rchitectural artifices, by tricks of lightg, or by exotic and surprising forms d spaces, by darkness, or by extraornary opulence. This is to misunderand. For like the mystery of a detecve story, that which is at first ysterious because it is strange, bemes familiar. The tricks can be relved, the darkness penetrated. But the al Mystery is permanent; its magnificce and wonder do not pall nor does its ow grow dim. So artifices are a poor etaphor.

It is possible, as I have suggested, for chitecture to be the architecture of uth, to be a symbol, an evocation, an ho of the commitment of religion to ality. It becomes such a thing, an apropriate place for religious people, by ing itself a truthful and ingenuous ork. It is also possible for a building be an affecting symbol of goodness, supplying a humane, gracious and spitable environment.

But how does architecture come to be image of the Ultimate Mystery? I ink both history and experience teach us that there is only one way. That is by being beautiful. For beauty is also a mystery. The beautiful thing, like the Ultimate Mystery, presents itself not discursively through reason, but directly. Like the Ultimate Mystery, it is ineffable, unfactorable. We cannot synthesize or analyze beauty; it is of infinite variety, innumerable forms. But when we perceive it we are moved to a sense of wonder. And this wonder, when we reflect on it—this lesser wonder, whether it be the beauty of nature or of art—invites us, when we are open, into the presence of the Greater Wonder, whom we call God. So beauty, not a particular beauty, but simply beauty, is the image we seek.

Two conclusions follow. The first is that if architecture intends to provide an appropriate place for the religious celebration or for the religious community, there is a basic and fundamental requirement; it must be a beautiful place. Ugliness is sacrilege; it is a rejection of the numinous. The dull, the banal, the run of the mill, the commonplace, the prosaic, the merely useful and efficient, even the clever or ingenious—these are unacceptable. Beauty, that elusive thing, that butterfly, that product of imagination and sensibility, of patience and labor and trouble—beauty is the touchstone. And no architecture that is less than a work of art is close to being the appropriate architecture of religion.

The second conclusion presents architects and their clients with a broader challenge. People in our society who admit to being religious agree that their faith is a continuous thing. It engages not only their cultic experience, the times when they are in church or synagog, but all of their lives. And if all of life is thus a religious life, then all of architecture, all of our environment ought properly to be numinous. All of our architecture should be real and hospitable and beautiful, so that wherever we are, at work or at home or at play, we may be surrounded by those qualities that recall us from time to time to live authentically, to live humanely, and to live in the consciousness of God.

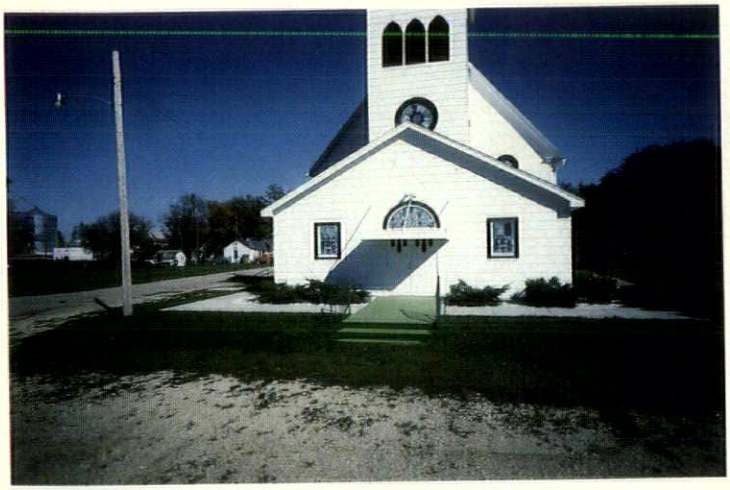
There is, if one takes this position seriously, no difference of basic values in the way an architect approaches the design of a church building and the design of a factory or of any so-called secular work of architecture. The differences are differences of function, of technology, of artifacts, and in the symbolic devices that accrue to, but do not belong to architecture (like the cross on a church and the flag on City Hall).

If you wish to take what I have said seriously, you may reflect that much church architecture is not appropriately religious at all, and that many so-called secular buildings are. And if you look around, you will discover that, indeed, this is true. And you may speculate that all the greatest architecture in the human heritage can be called religious, although it is not necessarily cultic. I think this is a fair assumption. What this says is not so much about the architecture as about the people who accomplished it and the people who cherish it. What it says is that we humans, at our best, grope with uncertain hands for the treasures of truth and goodness, and listen for those distant trumpets that call from "the hid battlements of eternity."

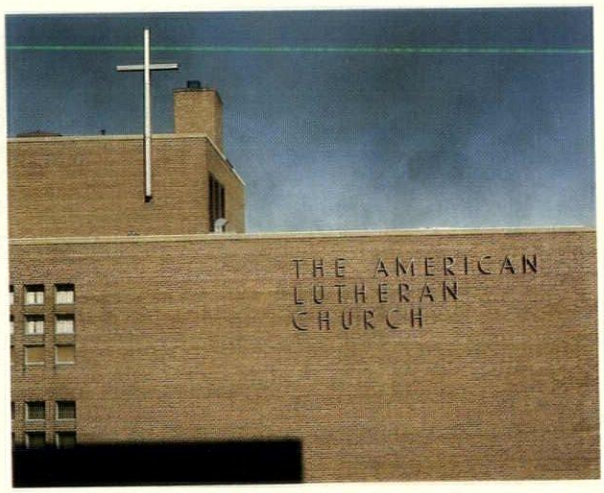
E. A. Sövik, FAIA, is a principal in the firm SMSQ, Inc., Northfield, Minnesota.

Minnesota Worships...

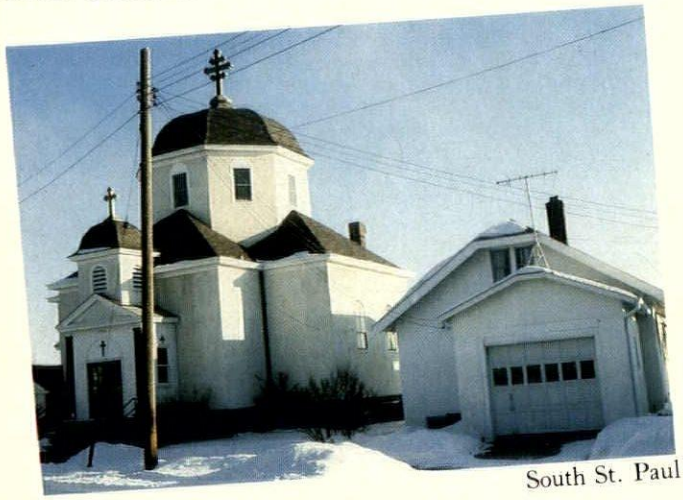
in almost every conceivable setting. In the celebrated sanctuaries of a Breuer or Saarinen, but also, as these and the following pages graphically attest, Minnesota worships in buildings that bespeak a catholicity of architectural attitudes. All of them—the brick behemoths, the minimal country churches with their punctuating steeples, the domed cathedrals and urban storefronts—all have been built to accomodate the religious predilections of a pluralistic people. Some, such as St. Paul's PRINCE OF PEACE LUTHERAN CHURCH FOR THE DEAF, satisfy an overriding concern. Others, such as ST. JOHN'S THE EVANGELIST in Hopkins and OUR SAVIOR'S LUTHERAN in Jackson, seek by architectural means to stretch both the point and purpose of a religious building. And in St. Paul's MOUNT ZION TEMPLE and the COLONIAL CHURCH OF EDINA, not to overlook many other structures, congregations have opted above all for an achievement in three-dimensional aesthetics.



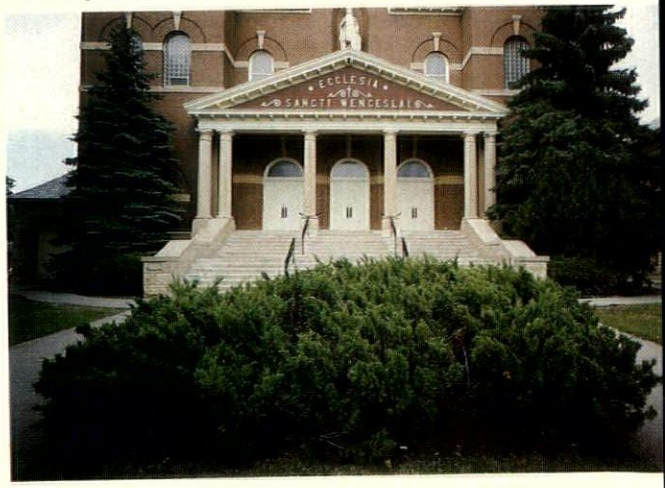
Southern Minnesota



Minneapolis



South St. Paul



New Prague

Minneapolis

Photographs by Stuart Klipper

kewood Cemetery

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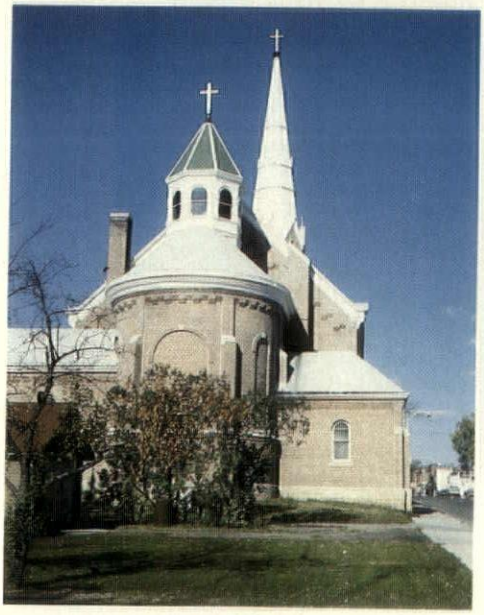
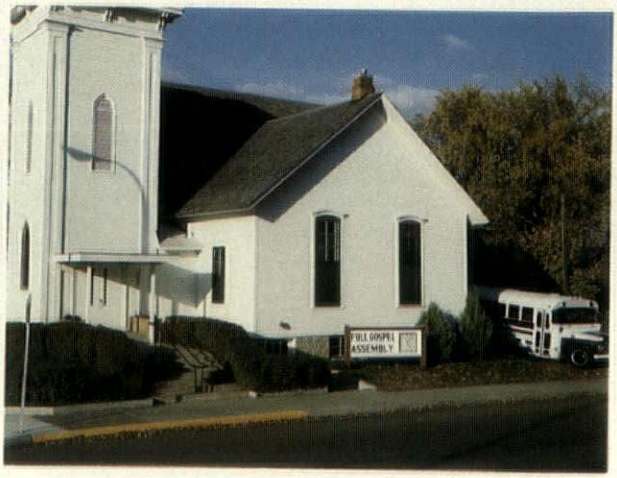
Bear Creek



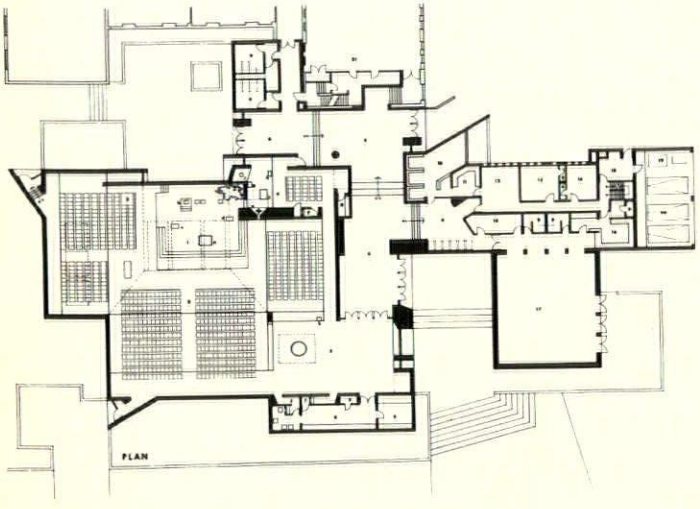
Winona



Hastings

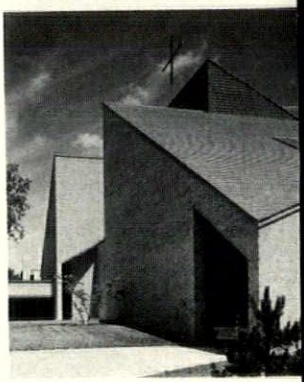
St. John the Evangelist of Hopkins

It owes much of its architectural character to the liturgically liberalizing influence of Vatican Council II



AM **cannot be sure, but we accept it as fact that St. John the Evangelist was the first Roman Catholic church to be designed and completed in accordance with the new and architecturally helpful liturgy modifications produced by Vatican Council II. Yea or nay, it is surely one of the handsomest religious buildings to be found in the Upper Midwest today. The architects, Rafferty Rafferty Mikutowski and Associates, together with liturgical consultant Frank Kacmarcik, have created a sanctuary of great dramatic substance from the sparest of elements: brick and wood, a play of light and the leanest of decorative objects. It is, in fact, reminiscent of the Finnish character found in Eliel Saarinen's Christ Church (page 28). Not least of the aesthetic attractions is an organ that stands free and proud as an unexpected sculptural element.**

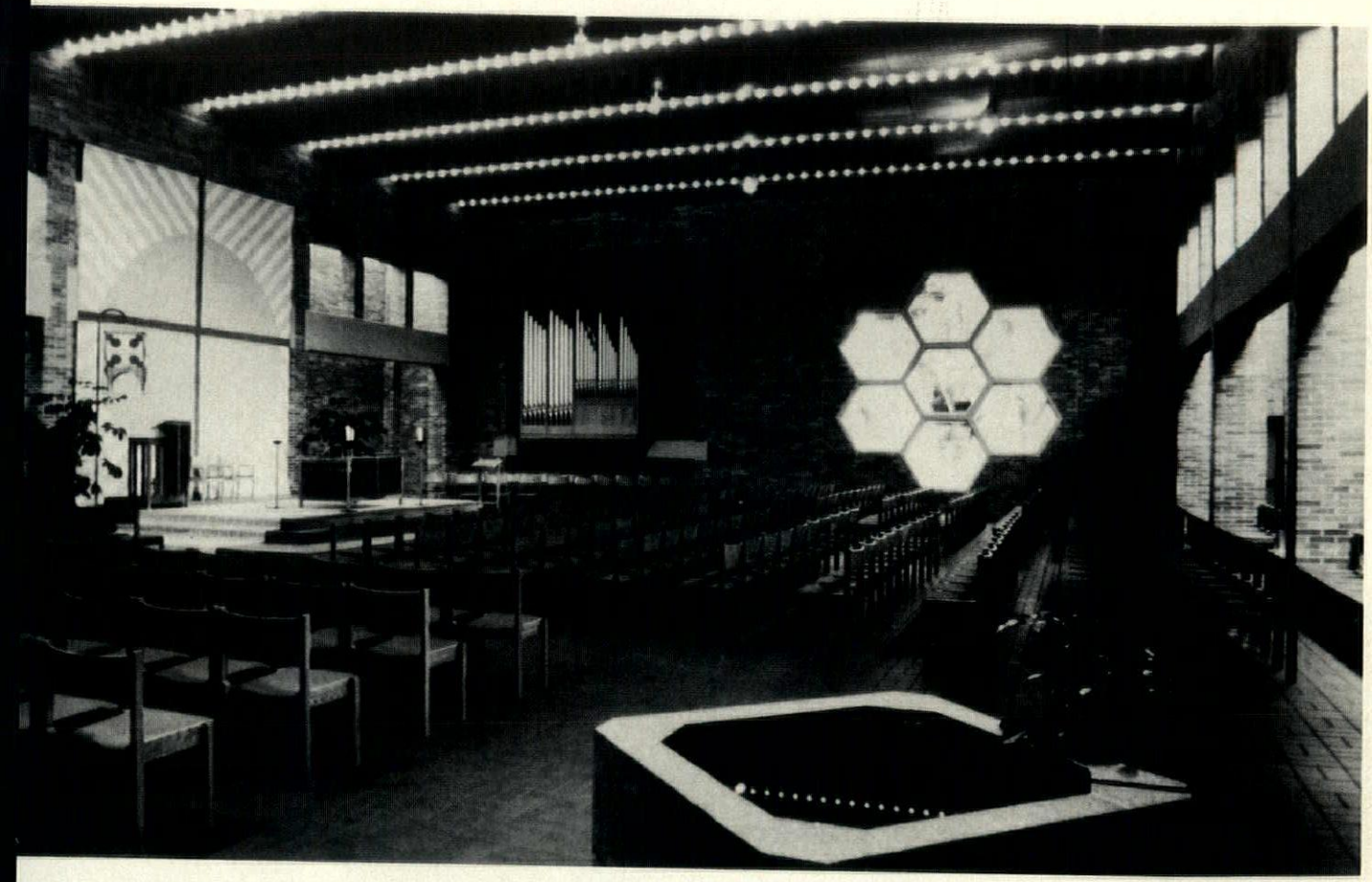
The nave seats 700, and does so in an almost in-



the-round fashion; not un like Our Saviour's "centrum" (opposite), St. Joh the Evangelist enables a of its worshippers to see each other and the altar equally well. Worth notin is the generous circulati system that connects church proper, a parochi school and the church offices in an arcade-like configuration. It affords ease of movement, of course, but also encourages parishioners to pau and visit among themselves.

Our Saviour's Church of Jackson

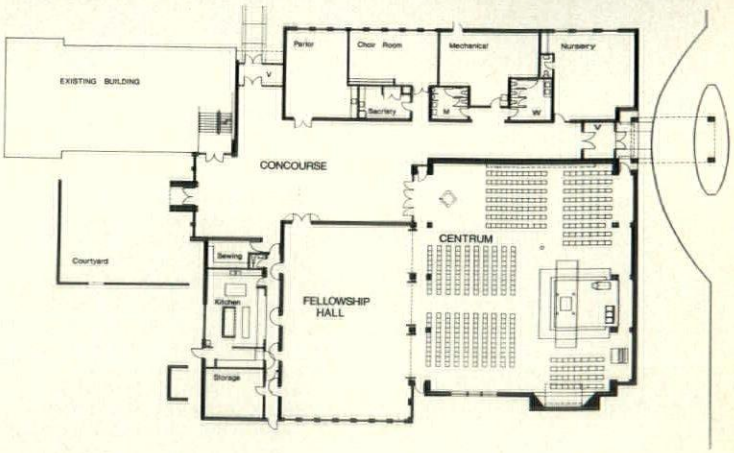
It is consciously designed to sweep away obsolete liturgical ideas and make churchgoing a delightful family reunion



More than most architects, the Northfield firm of Ovik Mathre Sathrum Quanbeck designs religious buildings as if they were meant to be worn out in honest everyday use. Our Saviour's exemplifies the unfettered SMSQ approach. The principal worship space is called the "centrum," (top) where the movable seating enables the congregation to see each other face to face. No distinction is made here between the chancel and nave. Says SMSQ, "It is *all* chancel." The object is to encourage people-participation, rather than hewing to the conventional setting in which the minister is the performer and all others spectators.

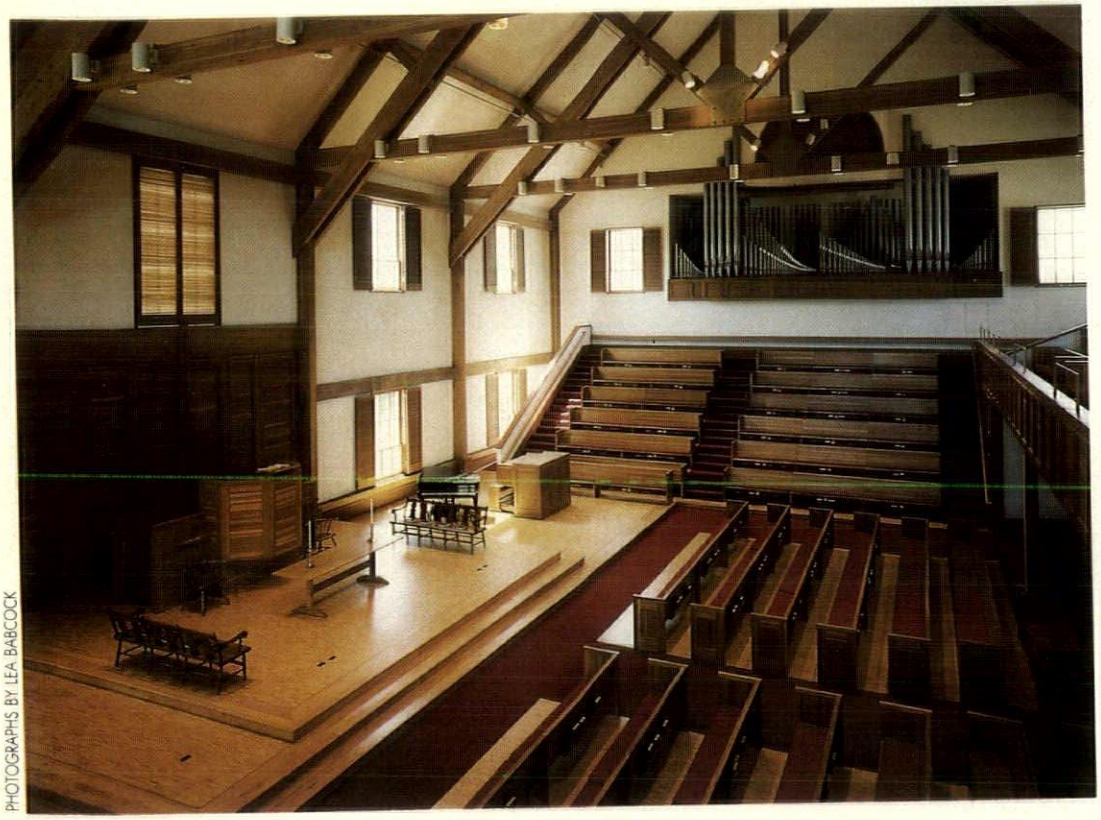
That every church gathering should be a family reunion is expressed at Our Saviour's through a plan (right) that takes its cue from ordinary family behavior at home: the fellowship hall is immediately accessible from the centrum, just as living and dining rooms are related. Similarly, the "concourse" at this church can be likened to a family porch; unlike the typical narthex, there is plenty of room here for the congregation to split into small conversation groups and pass the time of day.

Liturgically, this building is anything but doctrinaire. The altar-table is not "the pastor's buffet or some sort of shrine;" it is rather "the dining table of a family of believers." The cross is located not at some remote distance from the people; it is displayed smack in the midst of the congregation.

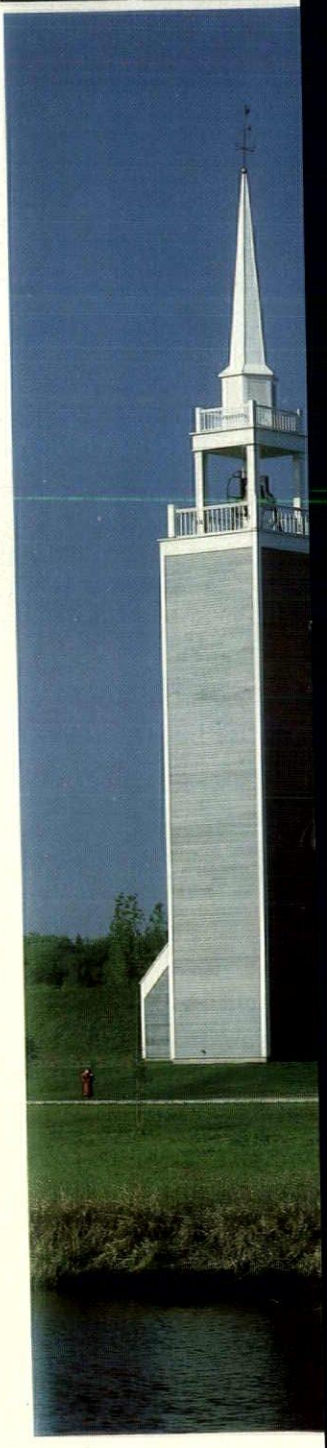


Colonial Church of Edina

New England overtones, to be sure, but this building's awards for design excellence are richly deserved: it introduces a suburban congregation to the spatial values and time-honored materials of quality architecture. And a happy result is that Colonial is one of the busiest churches in the Twin Cities area.



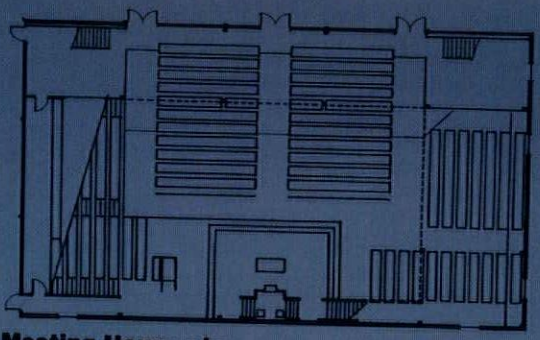
PHOTOGRAPHS BY LEA BABCOCK



If you had to pick a single piece of decent architecture that could rightfully be called post-modern, the Colonial Church of Edina might well be it. This "set of buildings," as they say in New England, clearly derives its character from the classic colonial village. Yet architects Hammel Green and Abrahamson, of Minneapolis, have demonstrated as keen a design ingenuity in creating this religious complex as any archly modern architect could ask for. Indeed, a jury of such architects bestowed a national AIA honor award on the Colonial Church in 1980.

The five gabled-roof components add up to much more than the conventional notion of what a church should be. This is a "meeting house" that seats 1,000 (above), a parlor-seminar room, "junior lounge" for younger church members, a "great hall" for social and education programs, and an administrative component that accommodates a staff of 11 full-time professionals. The interiors, designed to serve as few as a dozen or as many as a thousand, are open-ceilinged, their wood trusses, posts and beams visibly articulated, as in an early colonial barn. Traditional materials and details satisfy both practical and aesthetic needs: exteriors are gray-stained redwood clapboard with white painted trim; oversized windows are double glazed and operable.

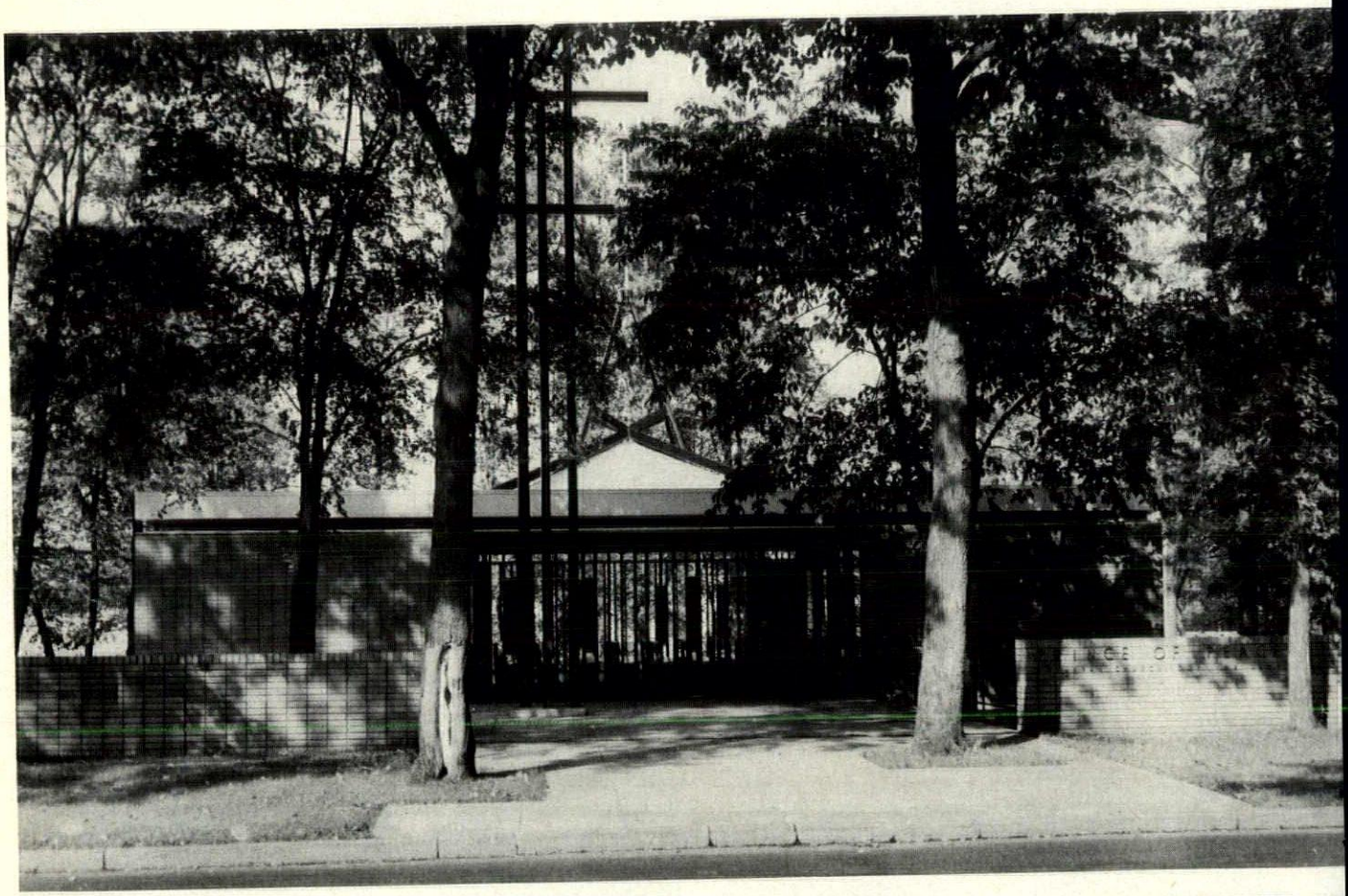
Sited as a mini-village, Colonial Church occupies a once-swampy, 22-acre parcel in a residential neighborhood. Outdoor spaces, including a large court for major events, are formed by the various building elements. The bell tower, 125 feet tall, stands alone, the symbol of not just a room where worship takes place, but of a religious "community." The parking lot has been burrowed into a slope and further bermed to shelter it from the neighborhood and a busy freeway.

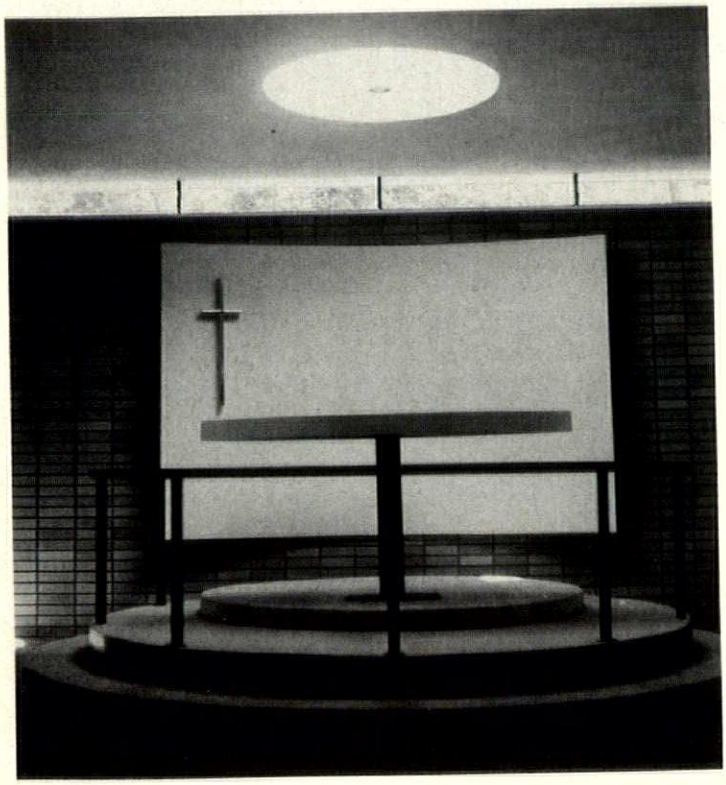


Meeting House plan

Prince of Peace Lutheran Church for the Deaf

Since visual perception was so important to this congregation, the design is straightforward, the light clear and strong





With a bare minimum of backdrop the Prince of Peace Lutheran Church for the Deaf, St. Paul, sets the stage for one of the Twin Cities' more singular houses of worship. Shadowless and brightly lit, the sanctuary spaces work to the cardinal purpose of affording the congregation a clear view of the services.

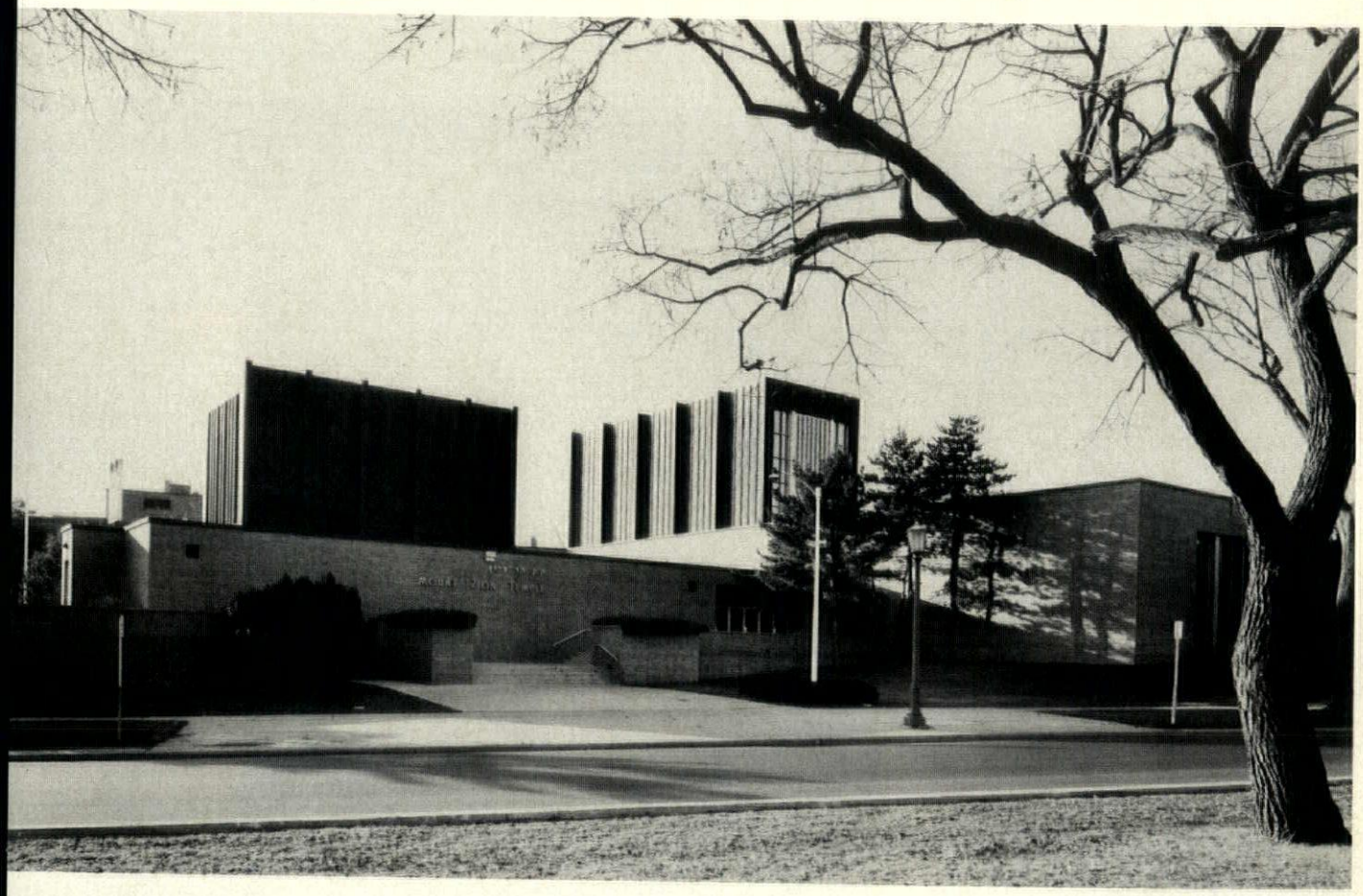
Plain finish materials, direct overhead lighting and a sparsity of decoration help to reduce visual distraction (left). The epistle, gospel and hymns are "signed" from a raised podium, and prayer is offered from a free-standing altar which permits the minister to face the congregation all times (above).

Though its interior design may be spare and its plan simple, Prince of Peace is, by all standards, nonetheless a truely religious space. By surrounding the nave and chapel with clerestory windows, architects Ralph Rapson and Associates have created a lid over the building which seems almost to float, suspended as it were, between the congregation and the heavens.

Located in a subdued residential setting, the church has been the model good neighbor—quiet yet urbane—since its completion in 1959.

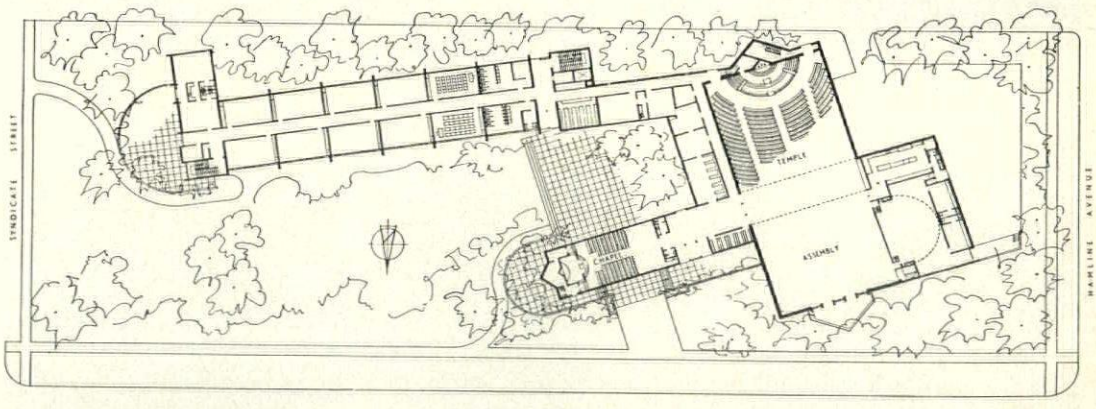
Mount Zion Temple of St. Paul

Since symbolic clarity was so important to this congregation, the design is innovative, the religious references unambiguous



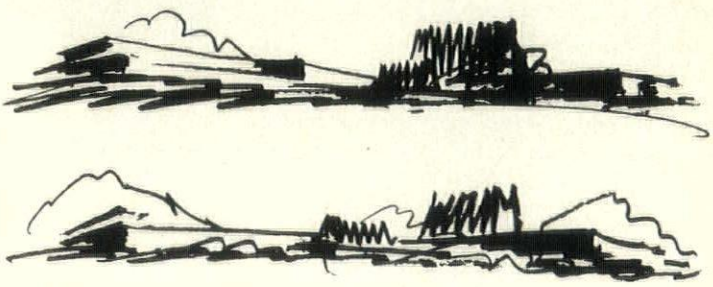
The Mount Zion Temple St. Paul, built in 1954, as one of the last works be designed by Eric ndelsohn, a world- mous architect most ten remembered for his gnificant Expressionist signs of the 1920s; the ost notable example ing the Einstein Tower Potsdam, 1928. A less cognized but equally im- rtant and influential ase to his work came er his emigration to the S. in 1942. Henceforth ndelsohn used forms d materials more akin to ose popularized by then erging International hool.

Thought to be one of ndelsohn's more sym- lic works, the Temple aves references of the wish faith into both plan d interior section. For ample: the upward pro- cting sanctuary and apel masses are divided o ten ribbed sections, e to a side, signifying e Ten Commandments. elve steps in the sanc- ry rise to the sacred



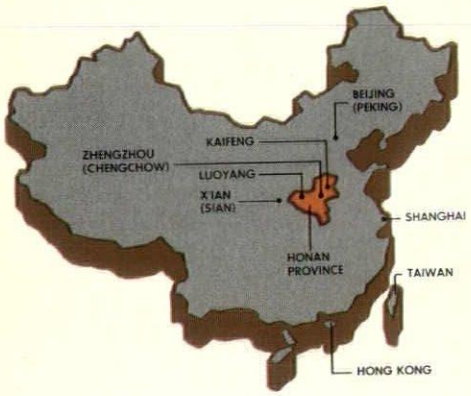
ark, connoting the 12 original Tribes of Israel. And in plan, the shapes of the sanctuary, chapel and assembly are almost square, a geometry the clients favored over the more typically Christian rectangle.

Mount Zion's interiors were designed and faithfully completed after Mendelsohn's death in 1953 by Bergstedt & Hirsch of St. Paul, maintaining the character and spirit of the architect's original sketches.



China Digs In

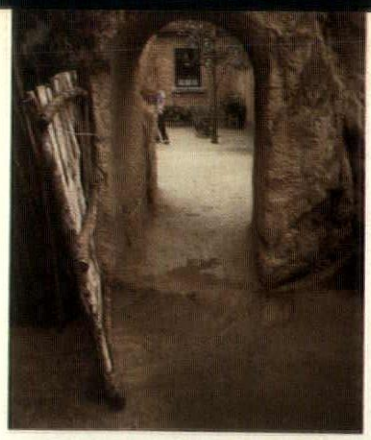
Much to the surprise of recent American visitors, the People's Republic is earth-sheltering itself on a prodigious scale. Here is a graphic sampler of this energetic enterprise.



Of the many wonders the Peoples Republic of China has revealed to the western eye since the historic cultural revolution in the late 1970s, none could be as surprising nor as opportune as the fact that mainland China is one of the world's foremost proponents of earth sheltering. With energy profligacy and use now a prime concern of all industrialized nations, it comes as a striking if not unexpected discovery to know that the Chinese have been digging down for energy and security reasons for a long time. In some sections of central China earth sheltering has been going on for as long as a thousand years. After a brief period of neglect and disdain, the concept of earth sheltering construction is now being enthusiastically embraced by the Chinese. In the Henan (formerly spelled Honan) province alone it is estimated that up to seven million people live in subsurface dwellings, and at least ten million overall in China are believed to live underground. In many urban areas the ubiquitous and once active air raid shelters are now being pressed into service as factories, restaurants, hotels, art museums, and other culturally directed functions.

It has been a well known fact that the Chinese built extensive systems of underground air raid shelters during the cold war years of the 1950s, their entrances disguised as park shelters, subway or train station portals. Athletic field reviewing stands were also used to fool the eye. What has not been known until recently is that whole communities were carved out of the banks and valleys of these areas for the same security reasons. So it was with much interest and anticipation that Dr. Raymond Sterling, director of the estimable Underground Space Center located here in Minneapolis, agreed to conduct a tour of earth sheltered structures in China this fall for the international scientific exchange program called "People-to-People" in cooperation with the Chinese Ministry of Science & Industry. This group, composed of 90 architects, engineers, and planners invited from across the United States, were the first Americans to set eyes on the underground buildings and, in a few villages of the central provinces, the first foreigners ever to visit there. Their experience has been captured in the photographs on these pages.

—BN



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Photographs by Douglas Derr

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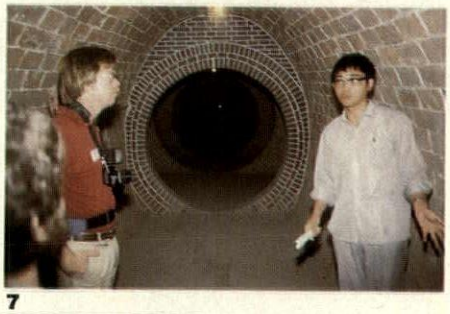

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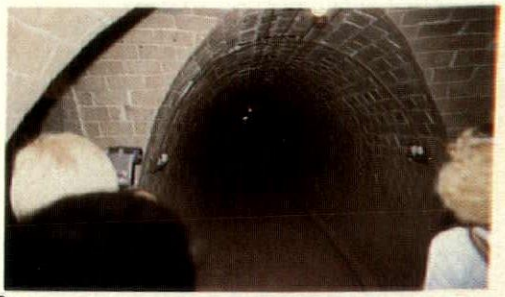

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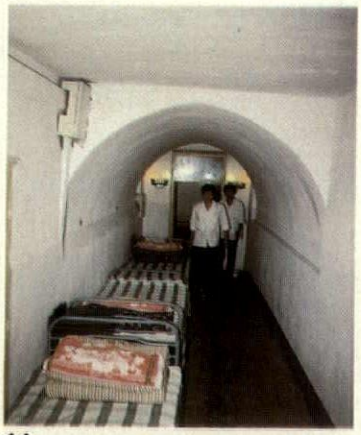


11

12

early ten million Chinese
e in sub-surface housing.
the central China prov-
ce of Henan alone (see
ap opposite), up to seven
illion people live in un-
rground homes such as
e one in a village near
loyang (opposite). Typi-
l of atrium style houses
g into the loess (soft,
llow loamy soil found in
e Henan), its courtyard,
feet below ground, mea-
res roughly 30 feet
uare. Houses of this type
e a response to both a
rsh climate—very hot
mmers and bitterly cold
nters—and a lack of nat-
al building materials.

Note the slight soil erosion above the brick-veneered entryway. This soil can be easily carved and excavated, like soapstone; left alone, it can take many seasons of the elements without either shoring or maintenance, as a house near Zhengzhou (Chengchow) shows (1). Whitewashing, brick-veneering or free-style texturing (2) can add status as well as structural strength to the walls of a home. Typical entranceways ramp down to the houses, securing the atrium from intruders (3). A chicken coop has been carved out of a wall (4) and bedrooms are brightened with whitewash and large shuttered windows (5).

The Chinese have used underground grain storage facilities for thousands of years such as these modern ones built in Kaifeng (6-7-8). The storage bins are egg-shaped and made of masonry waterproofed on the outside. Tunnels connecting the vaults are also ellipsoidal for the important reason that, so shaped, they have withstood the region's frequent earthquakes and unstable soil conditions.

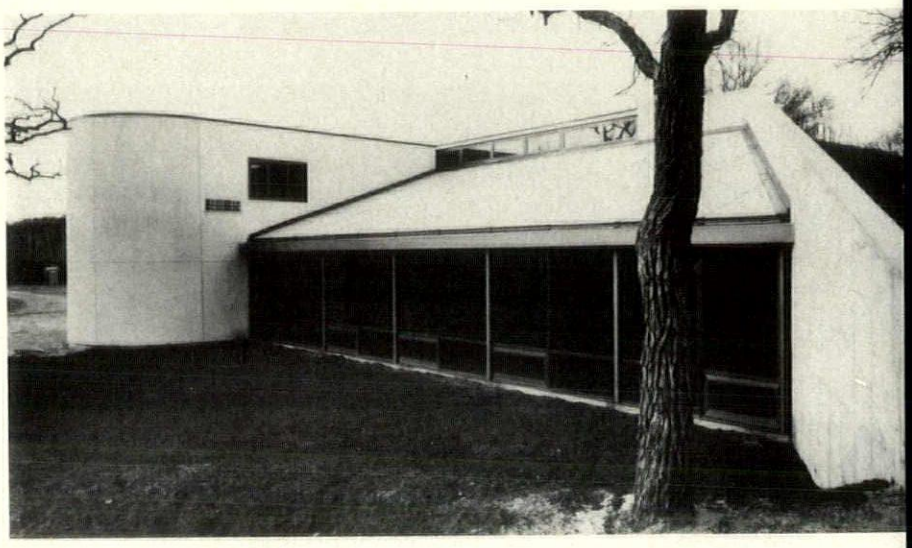
In Beijing (Peking), a civil defense shelter has been reclaimed for use as a garment factory (9), while an air raid shelter in Xi'an (Sian) doubles as a hotel (11). To make the underground spaces more appealing, many of the shelters are decorated with wall murals, as in this small art gallery in Xi'an (10), or utilized for entertainment and social functions such as this restaurant in Shanghai (12).

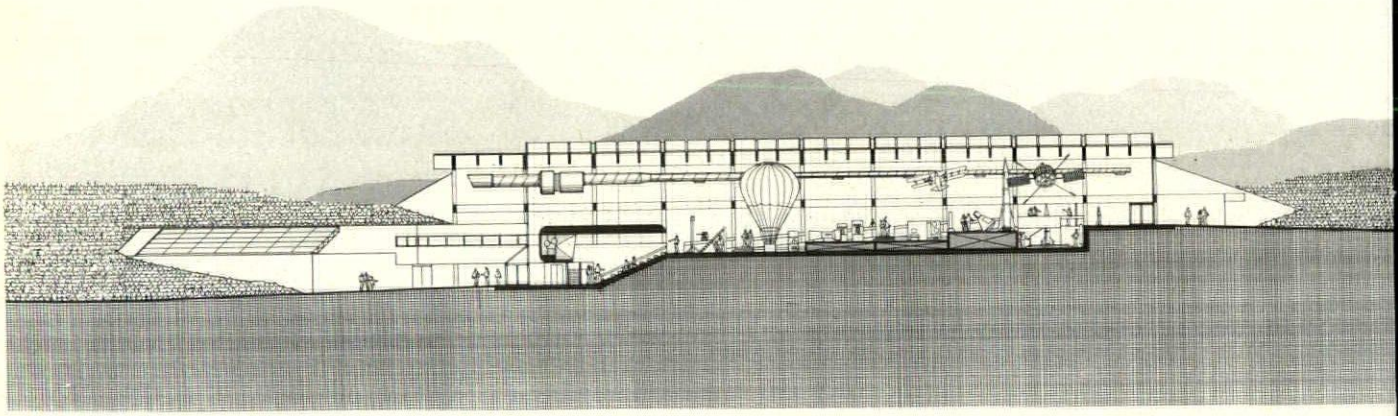
THE MIDWEST DIGS NEW IDEAS

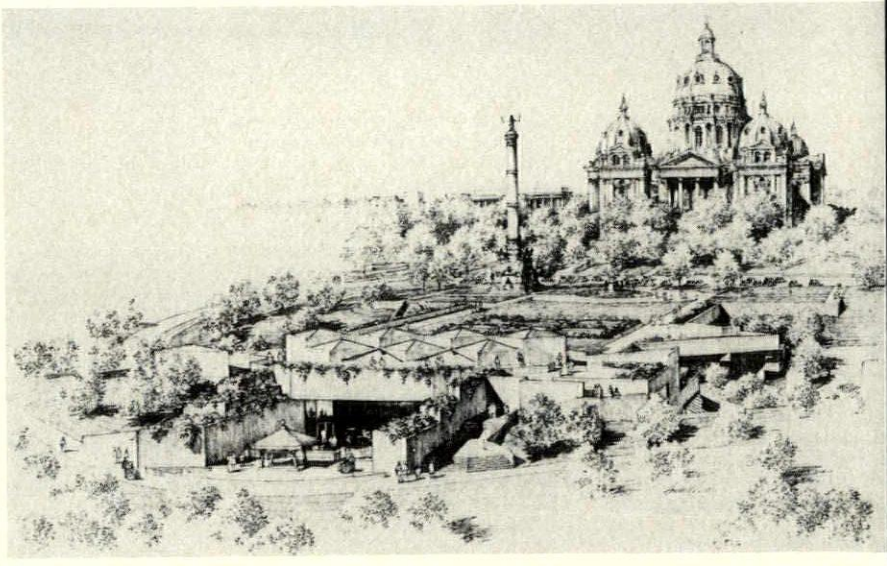
The range of work in underground design is broadening significantly, as witness these refreshing projects

The potential energy savings of earth-sheltering has been stressed publicly more than any other benefits of this building type. Its greatest potential, however, is in its combination of advantages. Earth-sheltering can cut down on energy use but can also reduce a building's visual impact, save surface land for other uses, and protect it from damaging storms, intruders, and the penetration of noise or vibration. These benefits, according to Ray Sterling, director of the Underground Space Center on the University of Minnesota campus, are often more important for large-scale structures than for residences.

The first generation of this building type is now appearing in great variety, as the projects on these pages demonstrate.







Earth-sheltering emphasizes the natural setting of the Springbrook Interpretive Center (top) in Fridley, Minn. The Design Consortium Inc., Mnneapolis, placed an 84-seat assembly room, teaching lab and workshop under earth cover.

USAF Academy Visitors Center (center) in Colorado Springs designed by BRW Architects will pass visitors from a hillside entrance through increasingly complex displays on their way to Academy grounds.

The proposed earth-sheltered Iowa State Historical Museum (right) in Des Moines will provide a climate controlled interior for sensitive archives. Architects Brown Healey Bock, Cedar Rapids, have placed atriums on three sides to increase natural lighting.

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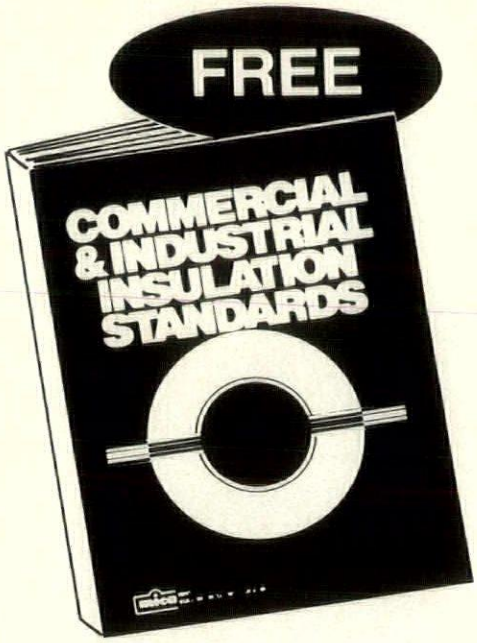

The widely acclaimed definitive standards guide. Contains 196 pages including 35 plates, plus glossary, tables and data. Handy 8½" x 11" size, loose-leaf bound to lie flat for easy on-site reference.

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"Human history becomes more and more a race between education and catastrophe."
H.G. Wells

...ews, notes & opinions

...ntinued from p. 10

The next exhibit in the Paper-...rchitecture gallery is "Napkin Art," a ...isplay of the spontaneous brilliance of ...Minnesota architects. It will open ...hursday, January 7, 1982.

...new oasis of housing ...n an otherwise ...arched country

St. Paul, anticipating a cutback in ...deral and state funds for housing, will ...on begin a housing program that will ...d in the construction of approximately ...000 privately developed housing ...nits.

Called the Scattered Site Tax Incre-...ent District, the program will create ...oth rental and owner-occupied housing ...nits on eighteen project sites through-...t the city. It should provide 200 units ...r low income families, 600 units for ...iddle income families and 200 units ...r higher income families.

The main money source will come ...om tax increment financing, which ...orks as follows:

When an area is designated as a tax ...crement district the value of property ... the district is assessed. After develop-...ent, the difference between the new ...lue and original assessed value is cal-...lated to determine the amount of tax ...crement money.

The money from the tax increment ...n then be used for site preparation, ...blic improvements or housing assis-...nce. The length of the tax increment ...strict can be up to 25 years.

John Wenker, project manager with ... Paul's Department of Planning and ...onomic Development, said that this ...using development program will pro-...de one-tenth of the housing units the ...y plans to construct in the next dec-...e.

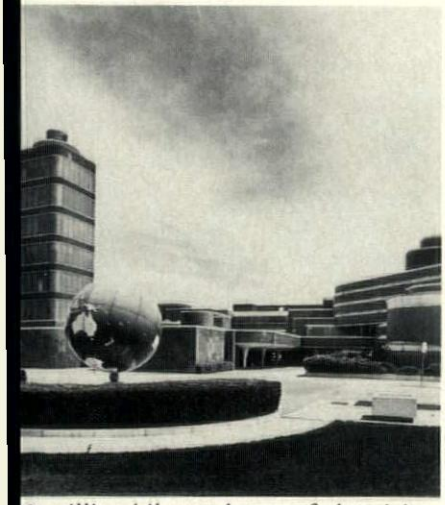
... Johnson Wax classic ...hugs up its energy act

When Frank Lloyd Wright designed ...esearch and office complex for John-...n Wax in 1937, neither he nor the ...ent thought much about controlling ...ergy use.

Now the building is part of two com-...xes in and near Racine, Wisconsin, ...ich total almost 2½ million square ...t—and energy use has become a ma... consideration for the company. In ...y, 1978, it installed two Honeywell ...lta 1000 building management sys-...ns to control the use of heating, ven-...ating and air conditioning and to re-...ce lighting usage in the Wright ...ilding as well as in the headquarters

uilding which dates back to 1885 and e huge Waxdale complex begun in 955.

"In a two-year period, we reduced nergy by about 600,000 therms (1 erm = 100,000 BTU's) of fuel and



9 million kilowatt-hours of electricity r year," said Bob Coffey, the com-ny's energy manager.

According to Coffey, this has nounted to a hefty $260,000 a year. the 1970s, Johnson Wax added 8,000 square feet to its manufactur-g and office facilities, an increase of .4 percent.

"Despite this phenomenal growth, in e fiscal year ending in June, 1980, the mpany used less energy than in any her year since 1970–1971," Coffey id.

Before the 1973–74 energy crisis, e building energy ratio (BER) at hnson Wax averaged about 450,000 TU's per square foot. In 1979–80, e BER reached an all-time low of 97,000 BTU's per square foot.

pcoming Exhibits nd Events

DE STIJL: 1917–1931, VISIONS OF TOPIA"
ALKER ART CENTER
NUARY 31–MARCH 28, 1982

The Walker Art Center will premiere e first major presentation in nearly ree decades of this influential Dutch ovement. The exhibition will feature proximately 200 paintings, drawings, chitectural maquettes, graphics, and eces of furniture, as well as partial re-nstructions and models of De Stijl de-gns and architecture based on studies cently completed under the direction leading scholars. These include Mon-ian's 1926 Paris atelier; Rietveld's hroder house, the cafe Aubette Cin-na/Dance Hall, Strasbourg, 1926–28, van Doesburg; and, Huszar and ietveld's Berlin Exhibition interior, 23. The exhibition and 260-page cat-g containing essays by Dutch, Cana-an and American scholars will utilize

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Jim Cramer
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MINNESOTA RETAINAGE LAW AMENDED

Effective on and after July 1, 1980, retainage provisions of public contracts entered into by the State of Minnesota or any of its political subdivisions are amended as follows:

An amount not to exceed **5%** of the value of the contract may be retained. Such retainage may be reduced or eliminated if work progresses satisfactorily.

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THE PIPING INDUSTRY BELIEVES THE PROVISIONS OF THIS AMENDMENT TO PUBLIC LAW HAVE MERIT, AND CAN SERVE AS A MODEL FOR PRIVATE AS WELL AS PUBLIC CONTRACTS.

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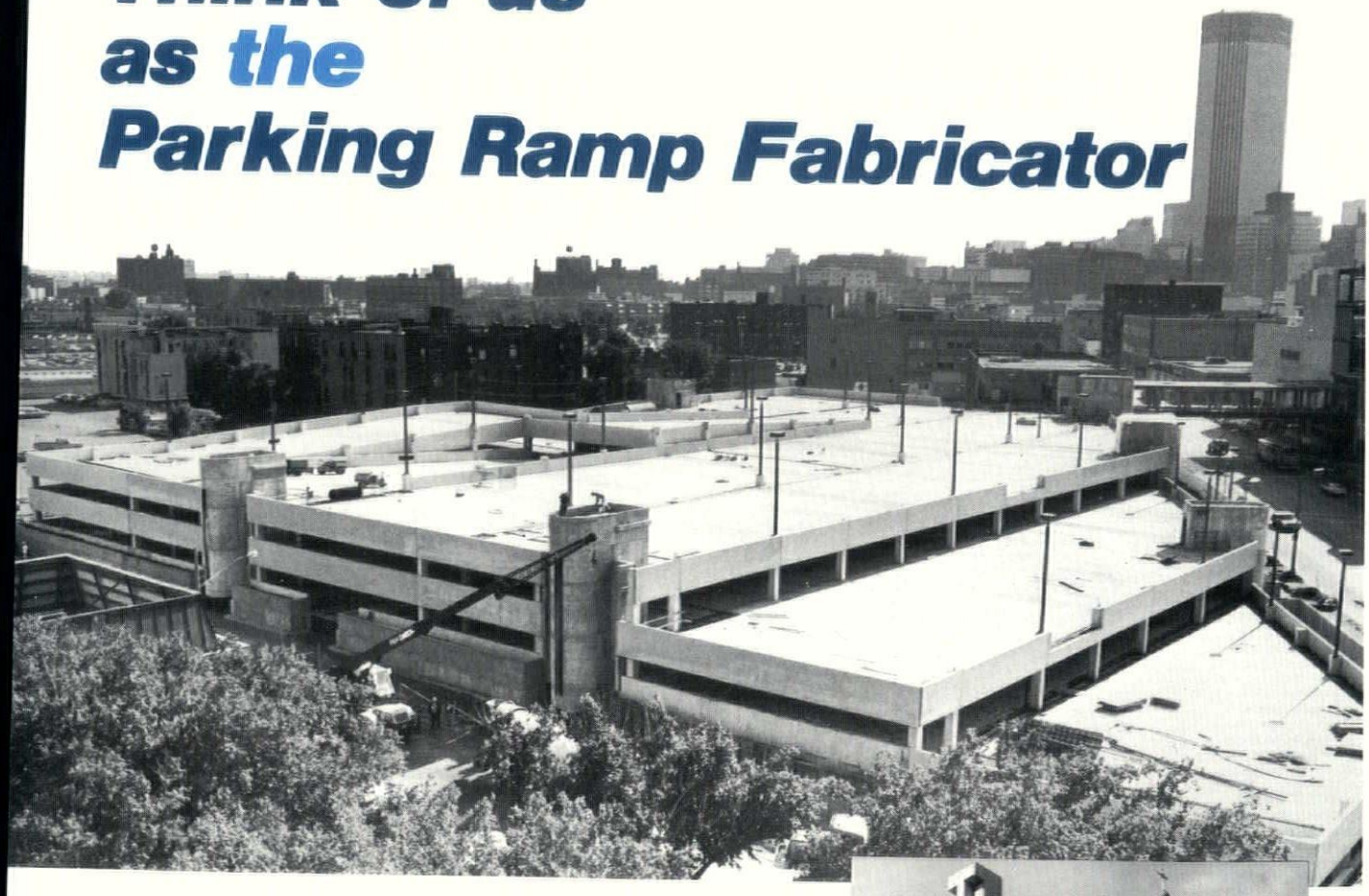

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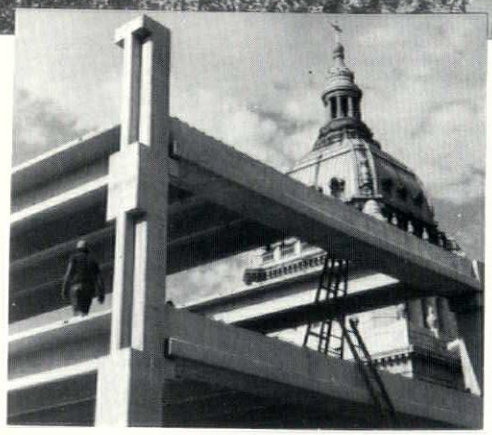

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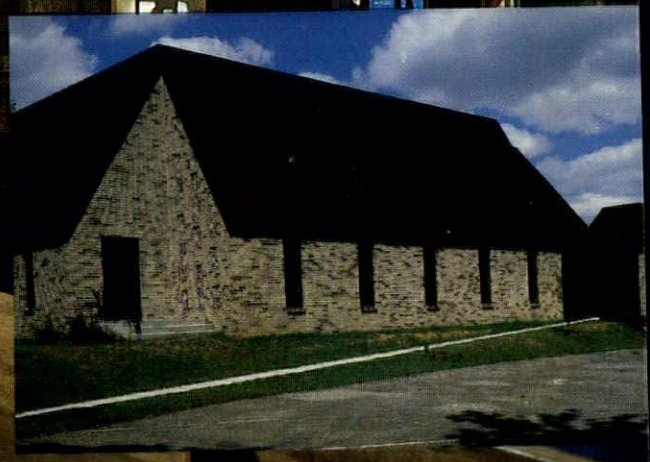

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