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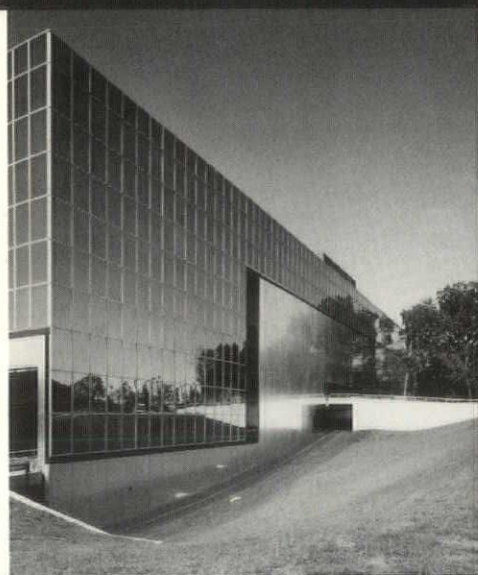
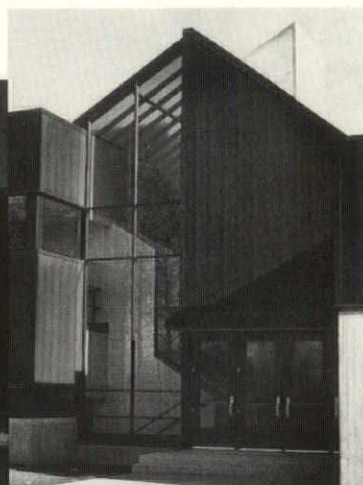
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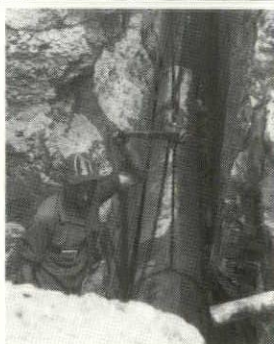
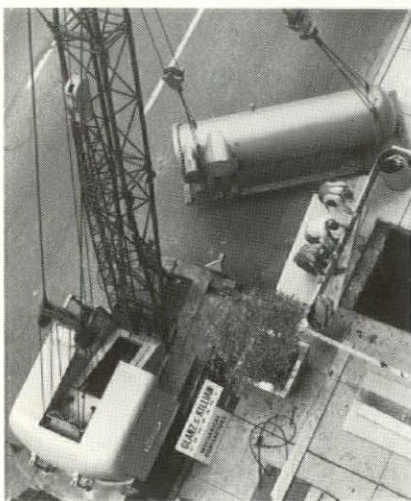
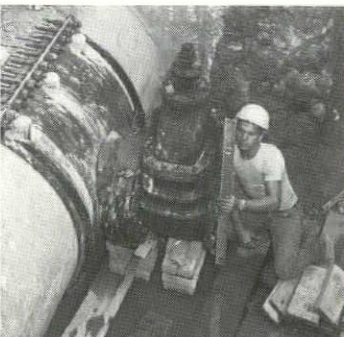
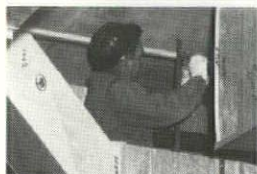
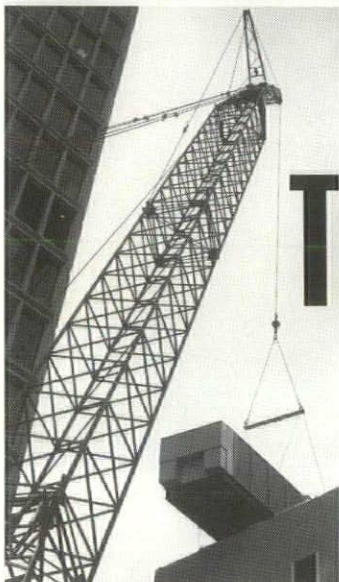
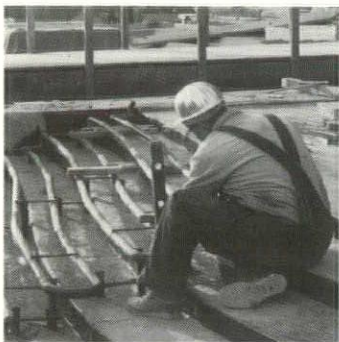
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December 1973
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1973
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Monthly Bulletin

Vol. 48 No. 12
December, 1973

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We regret the omission of credit to Dave Jordano for the cover photograph of the October issue of the MB. The Historic Preservation article in the October issue of the MB was compiled by members of the Detroit Chapter, AIA, Historic Preservation Committee. Our apologies to all concerned: Ed.

THE MONTHLY BULLETIN IS
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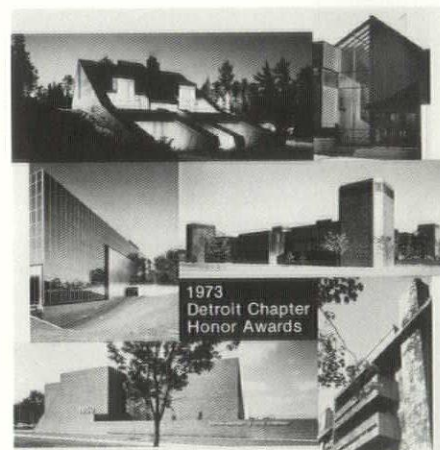
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Another Look At the Energy Shortage

*From a talk given at Four State
Regional Energy Conference in Chicago,
Illinois.*

This conference is a major step forward by the four state governments in bringing before their own staffs, the professionals serving them and others, the fact that they make a tremendous impact upon the energy shortage.

Energy conservation as it relates to operations in the Bell System.

Five years ago, most people I talked with thought the energy shortage was a scheme by a power company or the petroleum industry to raise the price of their products. Even a year ago I talked with some of those "educated and informed" individuals who felt that all the talk about the energy shortage was hogwash and would soon go away. Most of us today have been affected by that so called "hogwash" because it didn't go away.

Most of us have experienced an electrical brownout in some form or another.

Most of us have had to plan ahead when driving over the weekend or late at night to be sure we don't run out of gas.

In Michigan natural gas is currently being restricted. My company has had to resort to other energy sources in several instances while specifying twin burners on its combustion equipment to take advantage. This is an inconvenience and it cost us plenty to provide this flexibility.

Propane is in short supply now and is affecting our operations. Next spring, farmers are going to have difficulty in operating some of their equipment as will others who rely heavily upon this product.

While we all refer to energy in various ways, the basic sources are oil, coal, gas, hydroelectric, nuclear, solar and geothermal.

These sources are converted by various means to uses — residential and commercial, industrial, transportation and non-energy uses.

Let's look at the sources and uses for energy today as opposed to ten years ago. Then, let's look ten years in the future based on what we know. After that we'll play magician and look to the year 2000.

There are many ways of measuring our supply of energy depending on the source. I'll use the measurement that is most commonly referred to in discussions with the U.S. Government, and that is a million barrels per day of oil equivalent (MB/DOE).

Our current supply and consumption of energy is running at the rate of 33 MB/DOE. This is 50% more than it was ten years ago. And looking ahead to 1980, I anticipate we'll need about 49 MB/DOE. That's another 50% increase over today's usage. By the year 2000, projections indicate almost a 150% increase over today's usage. If these projections don't frighten you when you think of the problems we're experiencing today, they should.

Oil is the primary source of our energy supply. On the average, it accounts for approximately a third of our energy consumption.

There are two disturbing factors when considering oil as our major energy source for the future.

One, we are increasingly dependent on oil imports. And two, imports create problems.

Imported oil accounted for only about 20% of our oil ten years ago. It now is running 25% and will grow to more than 40% just ten years from now.

If you're an economist, you worry about our balance of payments.

If you're in the State Department or in the Pentagon, you worry about the dependency on the Middle East and Africa.

As partial alternatives we can get on with the business of utilizing the known oil reserves off the coast of California, in the Gulf of Mexico and off the East Coast. We can also expand our Alaskan operation and develop the North Slope reserves. We need these not just as alternatives to imports but to meet our demands for oil over the next thirty years.

I also hope that engineers and scientists will be better able to utilize today's available energy. It just doesn't make sense to me to take 42% of today's energy supply, which oil represents, and then turn it into end uses that only realize approximately half of the energy potential. And that's the present state of the art of energy transformation.

I'd be remiss if I didn't mention the ecological impact of further exploration and development of our oil reserves. Industry leaders, I think, generally recognize that progress, if it doesn't have ironclad safeguards, will not be tolerated. And it shouldn't be.

Two other major forms of energy are coal and natural gas. Long range projections indicate our demand for coal and gas will nearly double by the year 2000.

Coal can be found in abundance in the United States, but the problem is

the environmental concerns that plague this industry.

Strip-mining has not been acceptable to the extent required to economically harvest this energy crop. Only if the U.S. Government can enact the necessary legislation to protect the environment while at the same time recognizing the practicality of this energy source will the production of coal move up.

Stack effluents, which are a product of burning coal, is another problem. When you produce a compound that cannot readily be absorbed into the plant-life cycle, you have a problem. Over-simplifying the solution involved, R & D people are going to have to spend more time and effort at developing a "clean" process that will be compatible with the requirements of our environment.

Similar to oil, about 20% of the energy potential of coal is now being lost.

Gas is a desirable, relatively clean source of energy, but there are limited supplies of domestic gas available. The current projections indicate natural gas supplies from imported sources will rise from 5% of the total consumed today to about 30% approximately ten years from now. And I assume a dependency on gas imports is no more desirable than for oil.

I won't argue the merits of the natural gas companies' long standing complaint that the reason gas is in such high demand, in relation to its availability, is that the government has so fixed the price at the wellhead as to discourage the investment in exploration.

I can point out that nothing about a regulated industry permits it to attract the necessary investment for growth without having the necessary profit.

Like coal, we lose about 20% of the energy potential of natural gas with present technology.

Hydroelectric power is a very predictable and reliable source of energy, but because of the physical requirements of building a hydroelectric facility, it is not likely that anyone is going to suggest converting a natural resource like the Grand Canyon to create such a power system. Other than that location, our prime locations are already being utilized.

As for the future, our existing systems are expected to increase their capacities by about 50% over the next thirty years.

Nuclear energy was the one source that the average citizen felt would be available to supply our energy requirements without any problem. Back in 1945, soon after the horror of the atom bomb had subsided, a great deal was said about harvesting the tremendous energy of atomic and nuclear power for peaceful uses. The world would never have to worry about an energy problem again.

Technology has moved ahead, but not fast enough to keep up with our growing

demands. The year 2000 will see a greatly expanded application of nuclear energy for our everyday use, but no where near what we will need.

And unless we perfect the Breeder Process, whereby we create more fuel than we expend in the reaction process, our known reserves of uranium will be spent in approximately 40 years.

Nuclear energy is one of the "cleanest" fuels. The major difficulty it faces is from those who are fearful of the safety of such a process.

Certainly there is a risk with almost anything we do. As a layman, I hope that those prudent and knowledgeable scientists, engineers and technicians are right in the safety of these reactors. Based on the evidence, if I had a vote in a community where a reactor was proposed to be located, I would approve the installation so that an important

aspect of our total energy supply could be put into operation as rapidly as possible.

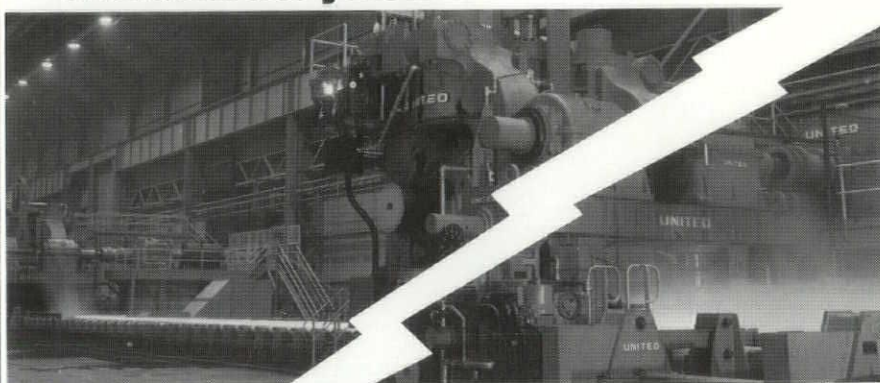
There are other, exotic sources of energy for the future.

One is geothermal. For example, the geysers of Yellowstone National Park contain tremendous geothermal energy. And geophysicists may be on the verge of a breakthrough in using the natural energy that is stored in the earth. But from everything I've read, although there is some extensive experimentation in California, there are no practical means in sight for harnessing this source.

Another future energy source is solar.

Depending on who you listen to, solar energy is either a farfetched idea or the only answer to the energy shortage. As something of a science fiction enthusiast, I tend to put my money with those

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who strongly support the idea that our energy source for the distant future — and by that I mean after the year 2000, when most of us won't be around to say how right or wrong we were — will be solar energy, along with what we will be able to extract from the seas.

It's infinitely available, it's clean and, most importantly, we have already solved some of the basic problems of engineering. This will enable us to further refine that technology in the next thirty years, conduct the necessary experimentation and put active systems to work. I might add that I envision this system working similarly to that of our communications satellite system. Solar energy gathering stations will condense the energy source, utilize the laser beam concept in transmitting it back to solar

energy stations on earth which in turn will disseminate it as the demands warrant.

Let me just mention two other sources that potentially have enough energy to handle the world's demands for a considerable period of time. They are shale and the sea.

Geologists know of the tremendous formations of shale that our planet contains, but technology is just not far enough advanced to economically extract the oil reserves they contain.

Likewise with the sea. They contain an almost limitless supply of the isotope deuterium (or heavy water). Heavy water is the fuel for the Fusion Process which reacts like the sun, with a small mass creating a very large amount of energy.

But again, it's not expected that

technology will be far enough advanced before the year 2000 to have economical commercial supplies of this energy available.

Let me move from this rather general survey into how the Bell System views the energy shortage as it affects our operations and what we are doing about it. Each of you will have to develop similar specifics affecting your particular company, or your client if he seeks your professional advice in these areas.

And what I have to say about what the Bell System is doing to conserve energy has its roots in direct testimony that was given before legislative committee hearings exploring the energy shortage in Washington in May of this year.

The Bell System is A.T.&T., 23 Operating Telephone Companies, like Indiana, Wisconsin, Illinois and Michigan Bell, Bell Telephone Laboratories and the Western Electric Company. The Bell System provides service to approximately 117 million telephones. These phones, and other telecommunications services, serve commercial, industrial and private customers, as well as local, state and the federal government. In providing telecommunication services, the Bell System employs over 1 million people and utilizes 28,000 buildings and 162,000 motor vehicles.

You can get a better feeling for the Bell System's need for energy in the form of electrical power, gasoline, fuel oil and other refinery products by realizing that in 1972 alone we used 6.2 billion kilowatt hours of electricity and 185 million gallons of gasoline. We use other energy sources in large amounts as well.

Quantities such as these depict the magnitude of the Bell System's dependence on commercial energy sources. Since the amounts are based on the year 1972, they do not reflect our present or future needs which will be greater due to the construction of additional facilities.

Our communications switching systems operate on direct current power but are dependent on a commercial power source. To assure the reliability of services during short-term commercial power failures and brownouts, emergency power generating equipment is provided in all but the smallest switching and toll equipment centers. The effectiveness of our emergency generating systems has been demonstrated during such incidents as the Northeast Blackout in 1965, the Pennsylvania, New Jersey and Maryland Grid failures in 1967, and innumerable power failures caused by storms and commercial power interruptions and curtailments throughout the country.

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(Con't page 18)

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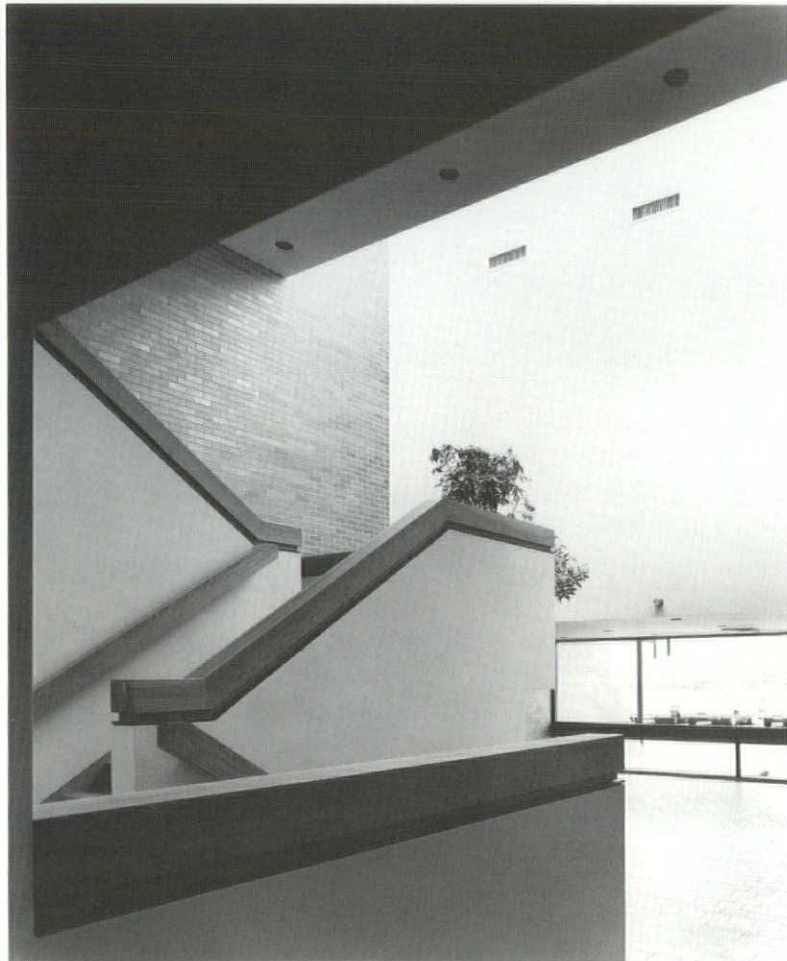
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1973 Detroit Chapter Honor Awards

We publish in this issue the winning entries in the Detroit Chapter Honor Awards Program for 1973. While some of the projects premiated by the Chicago Jury have been seen in these pages on previous occasions, they represent the trend of architecture in Michigan today, and are indeed worthy of repeat exposure.



1973
Detroit Chapter
Honor Awards

Burton-Abstract & Title Company Headquarters Troy, Michigan

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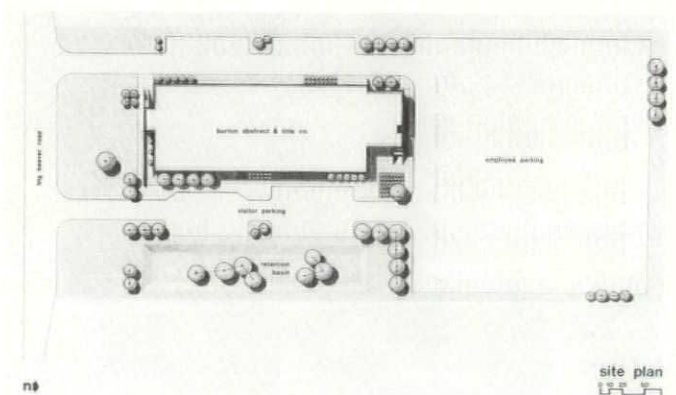
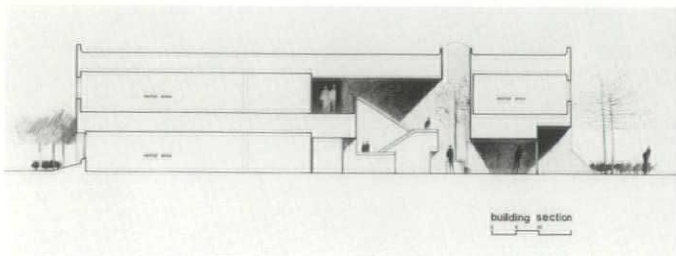
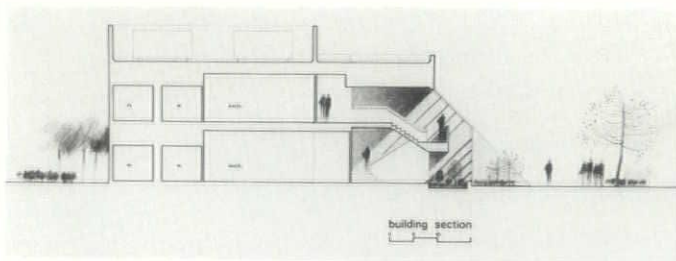
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Cottonwood Condominiums
Timber Lee Hills
Traverse City, Michigan

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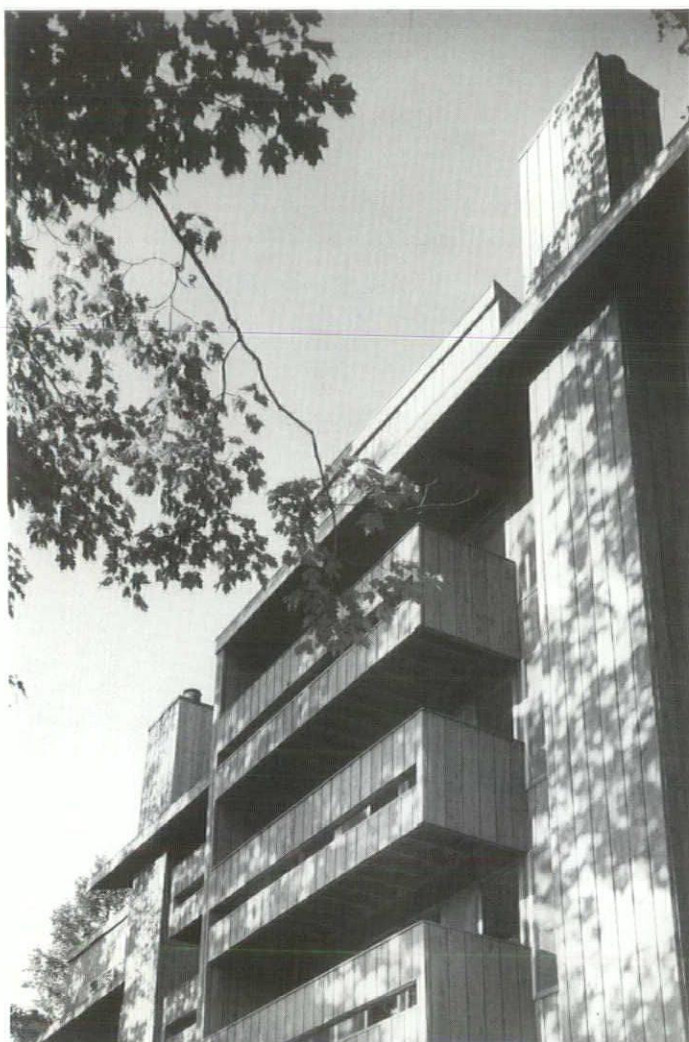
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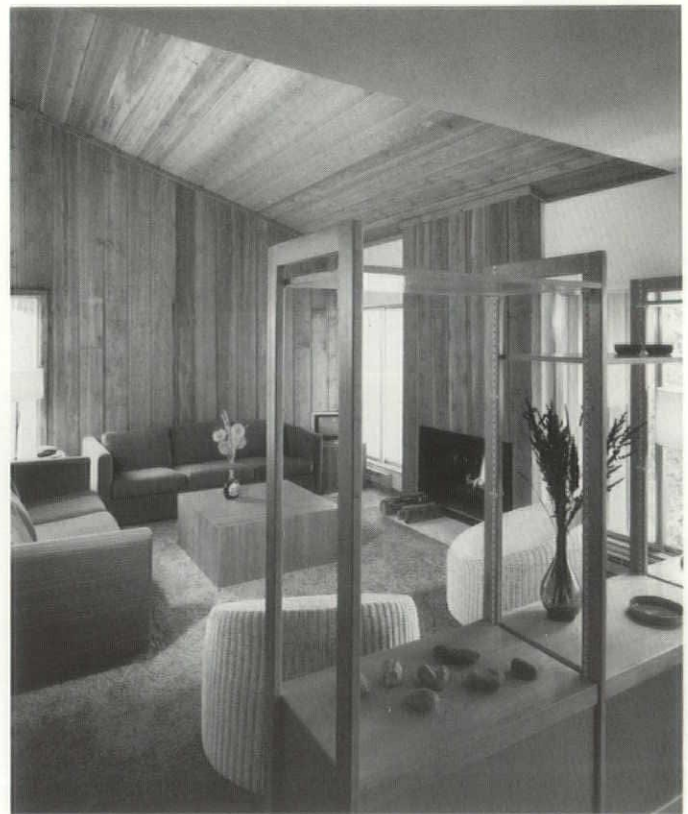
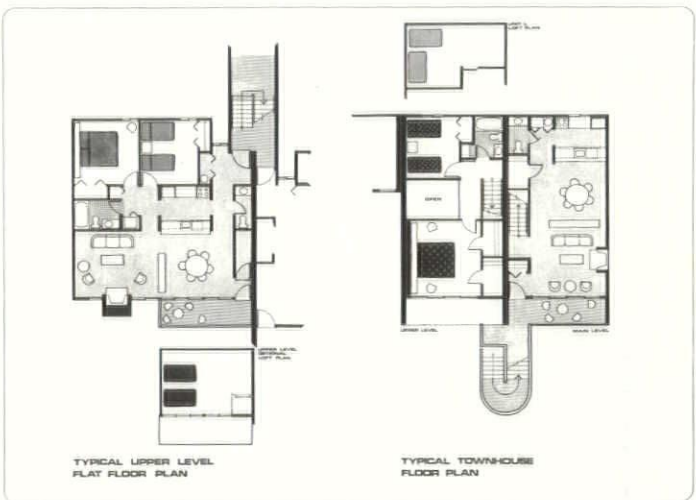
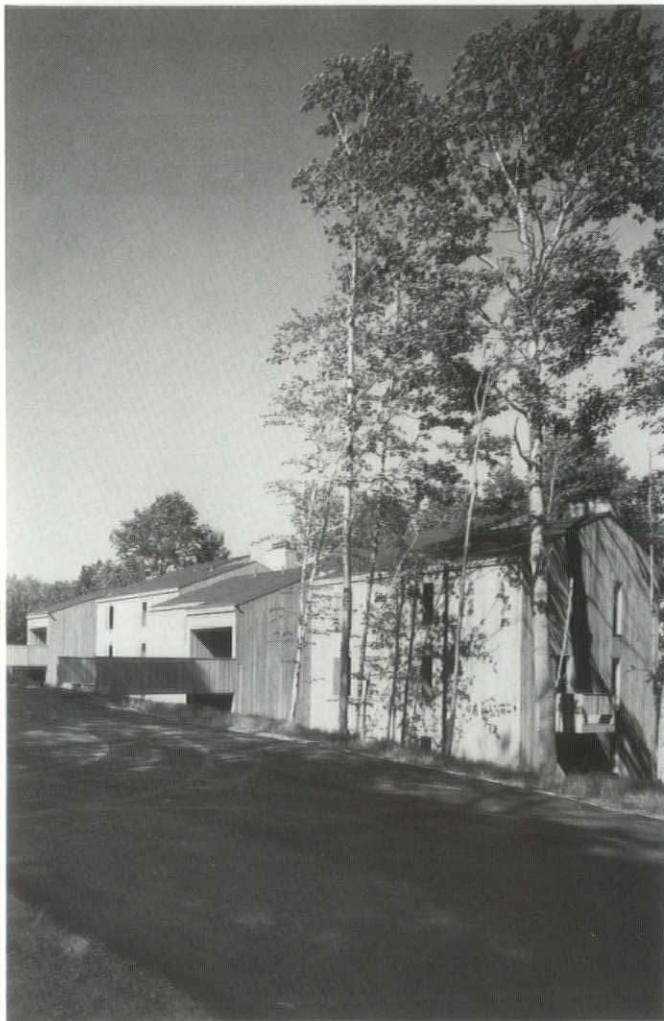
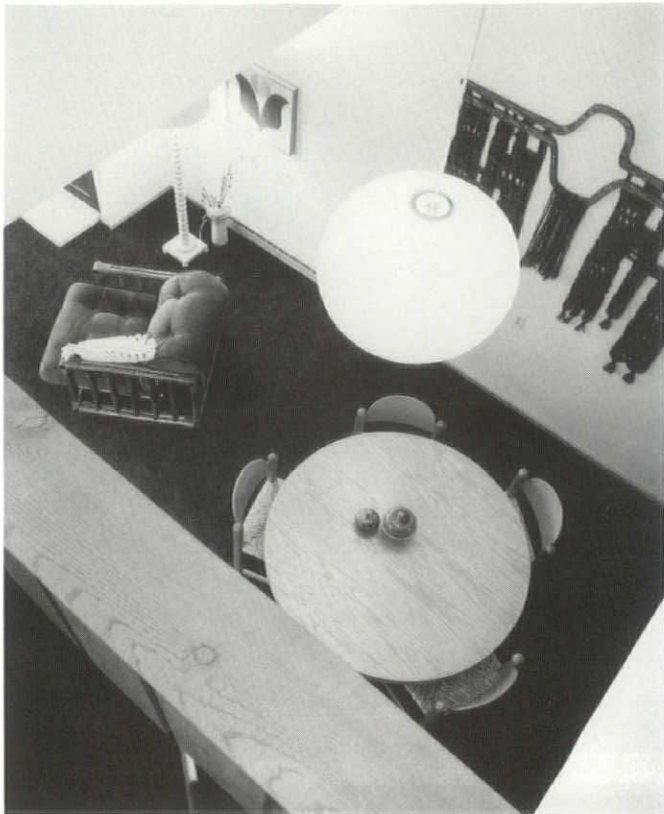
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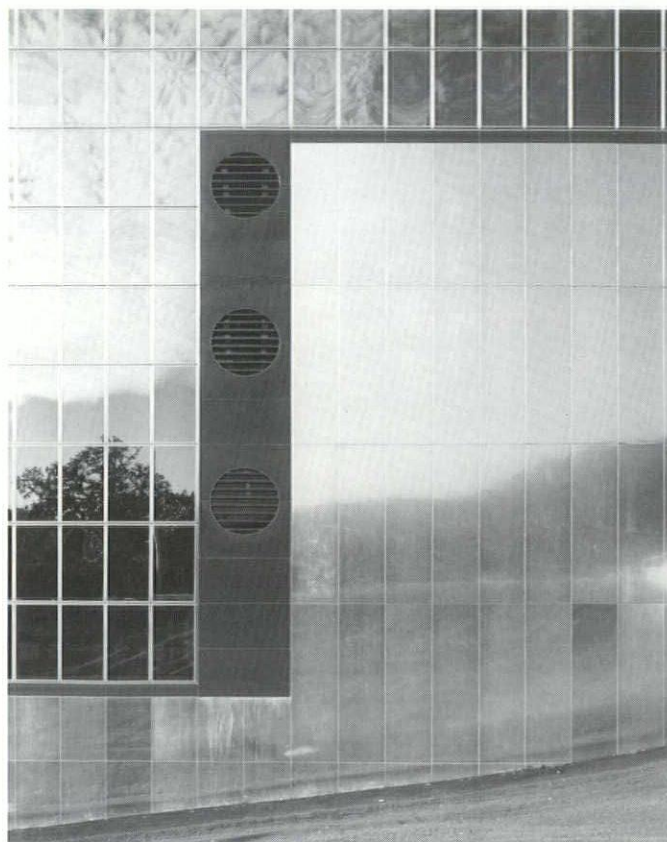
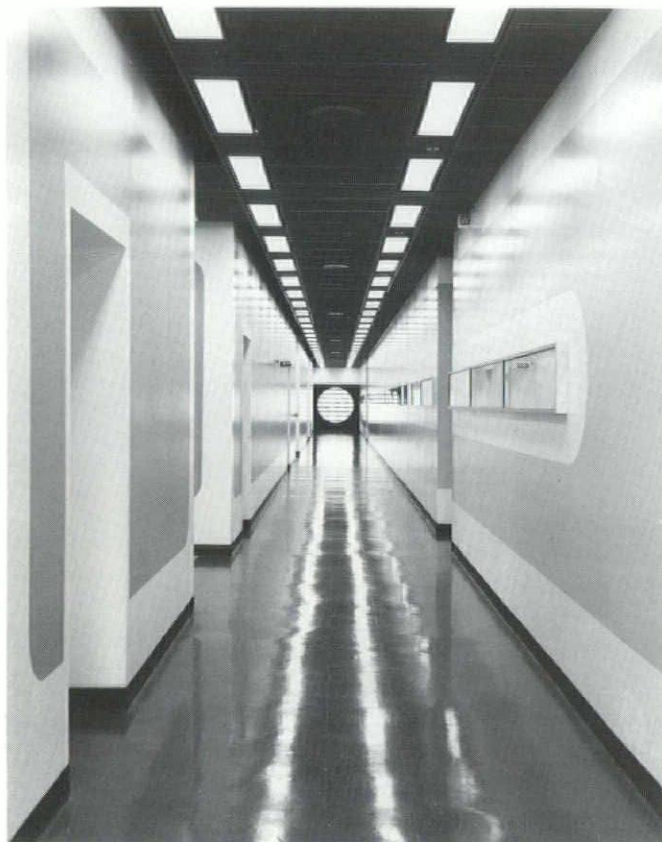
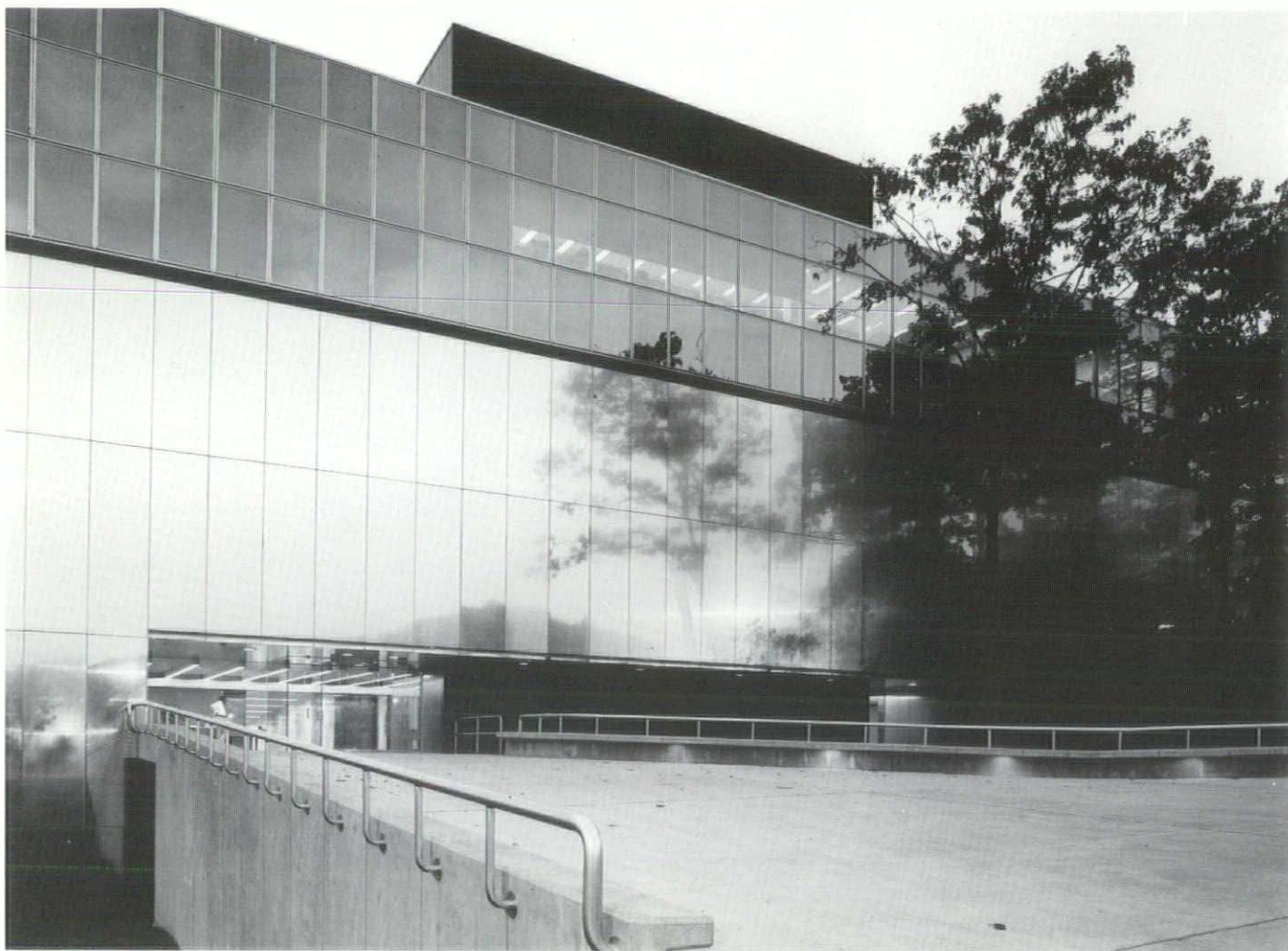
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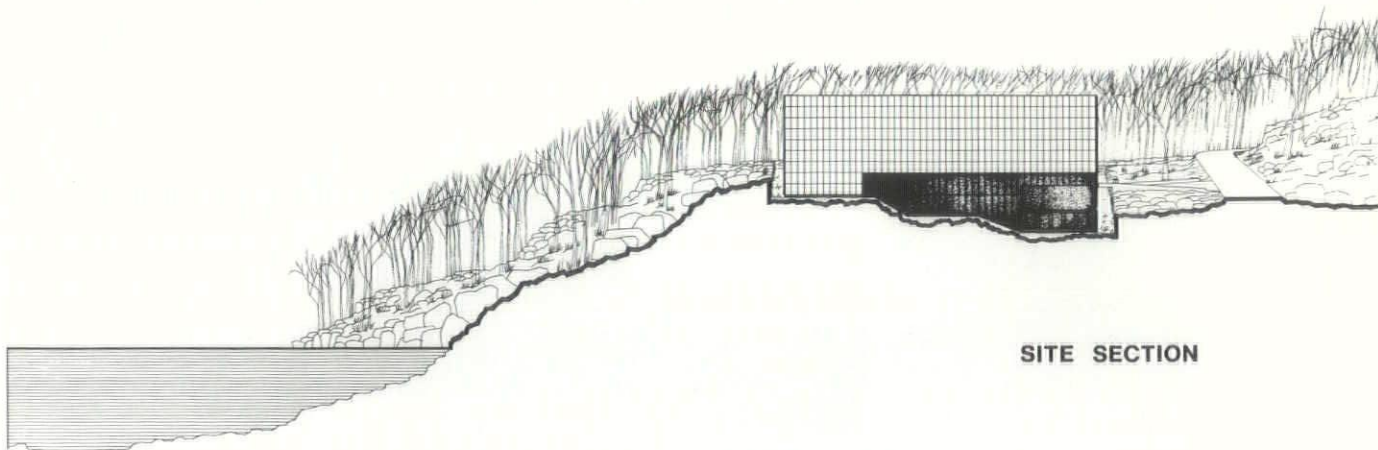
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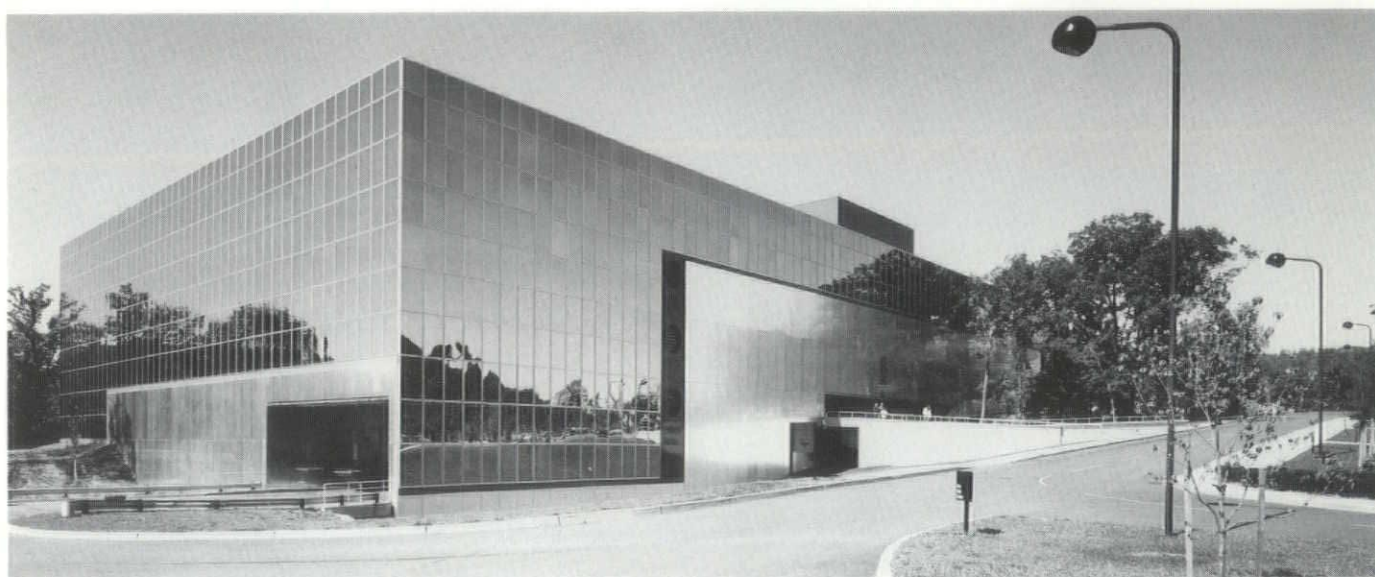
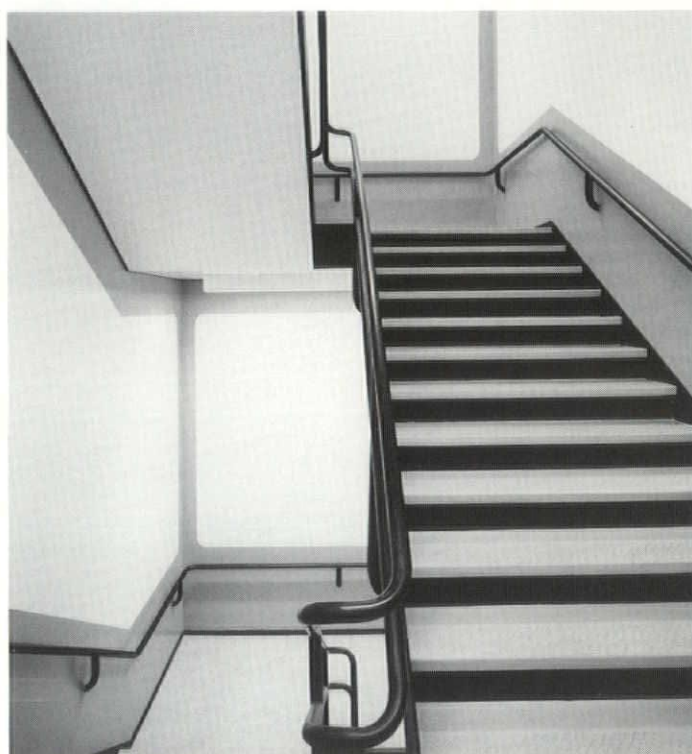
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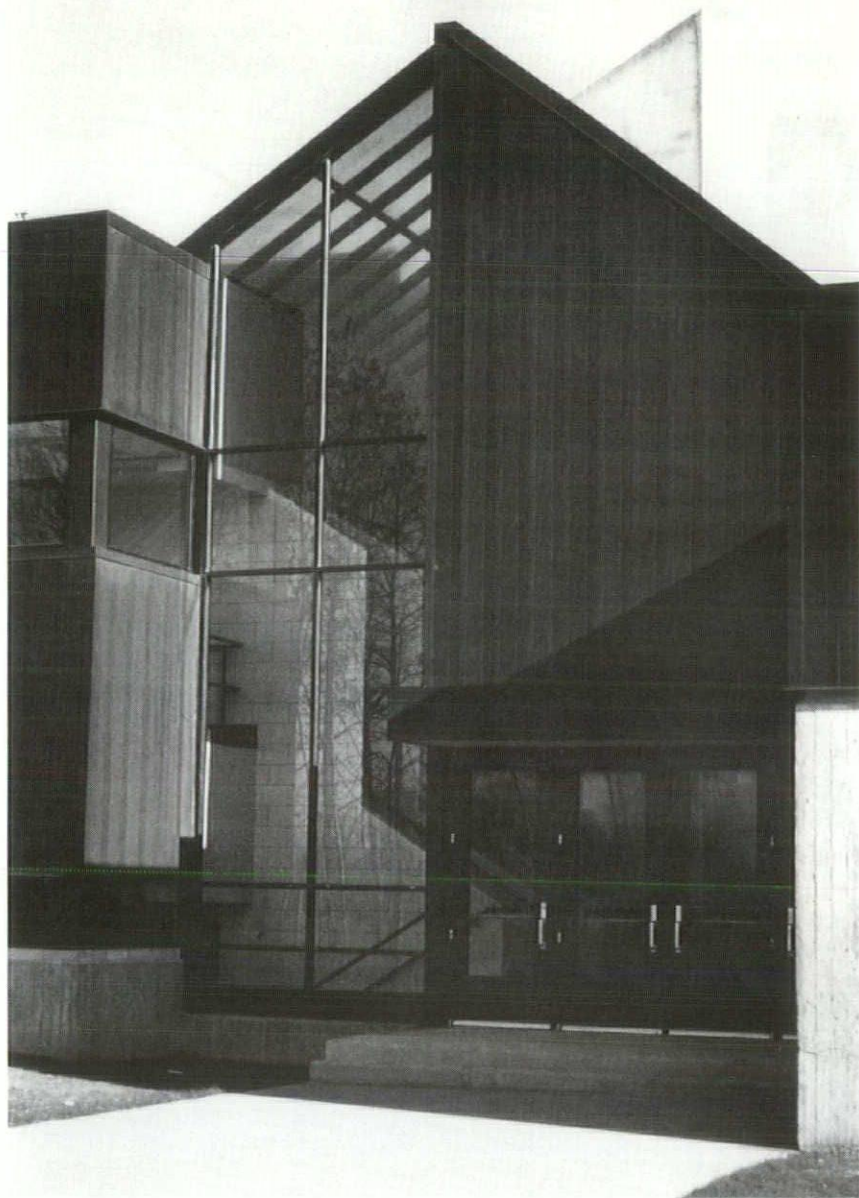
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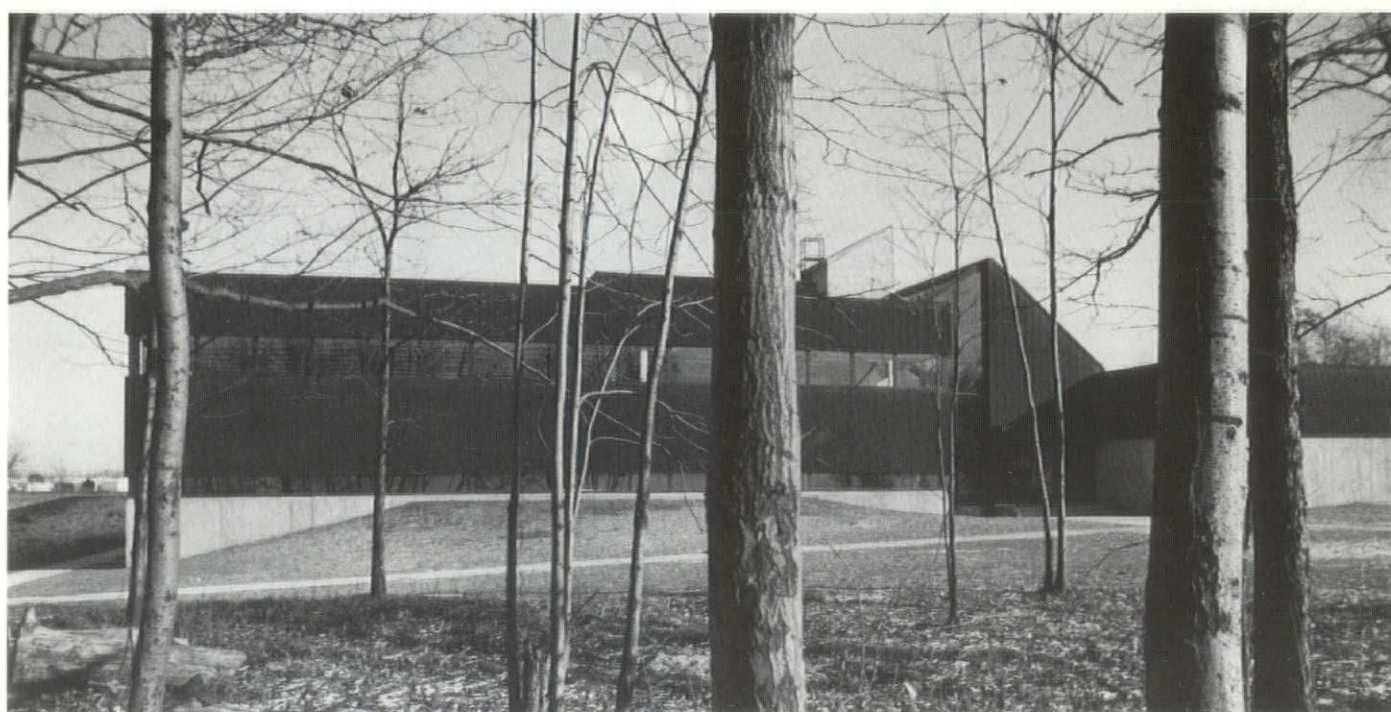
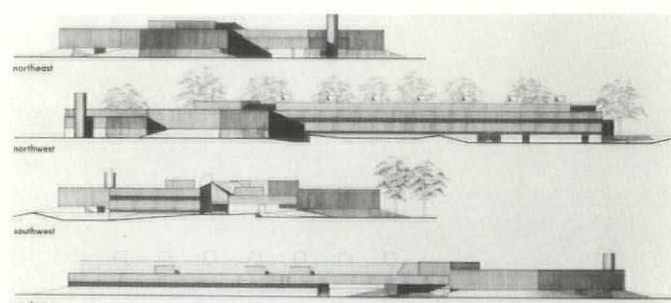
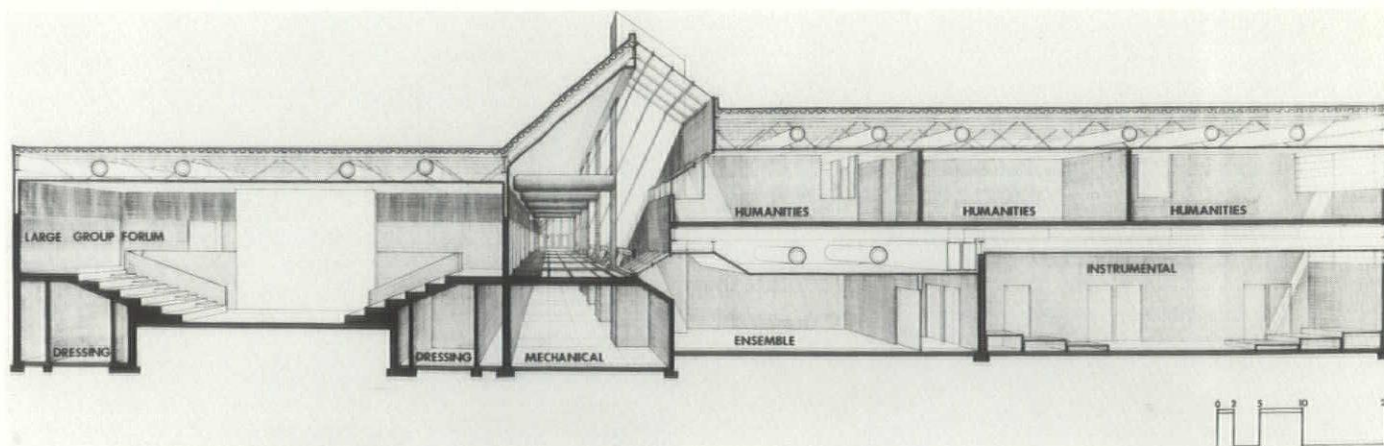
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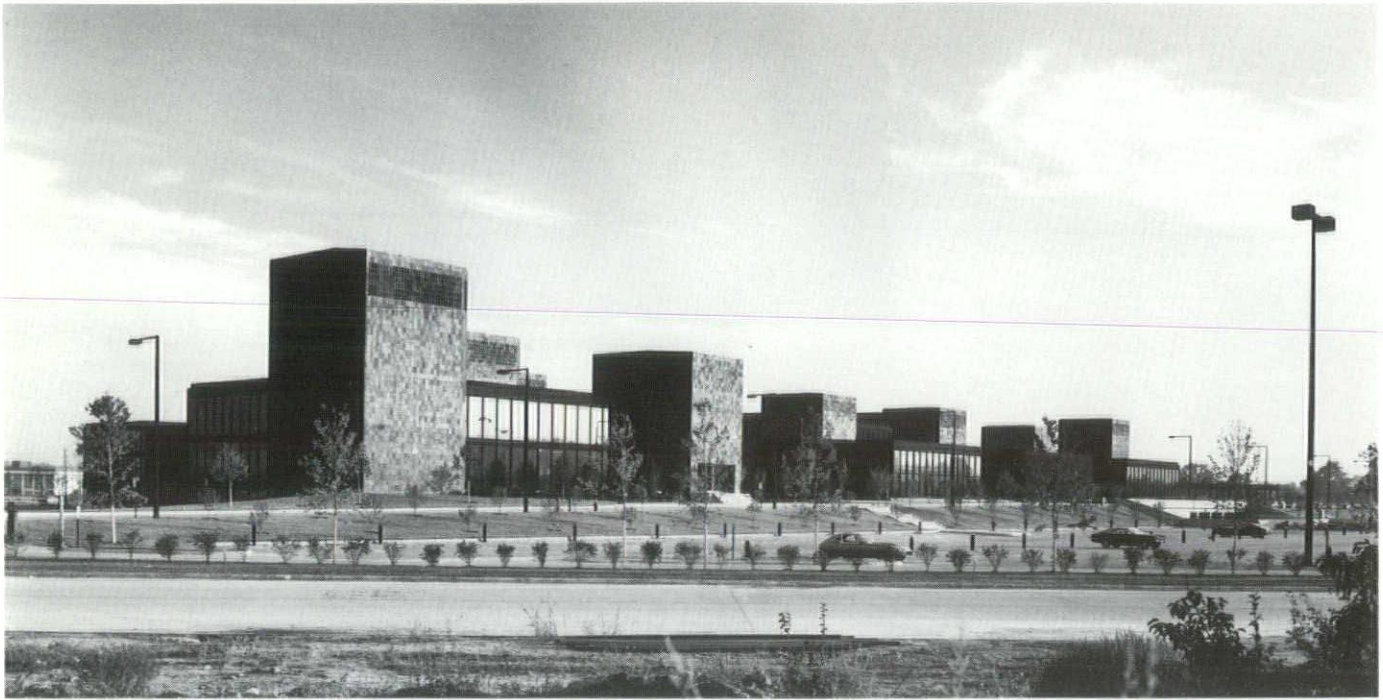
Trenton Public Schools

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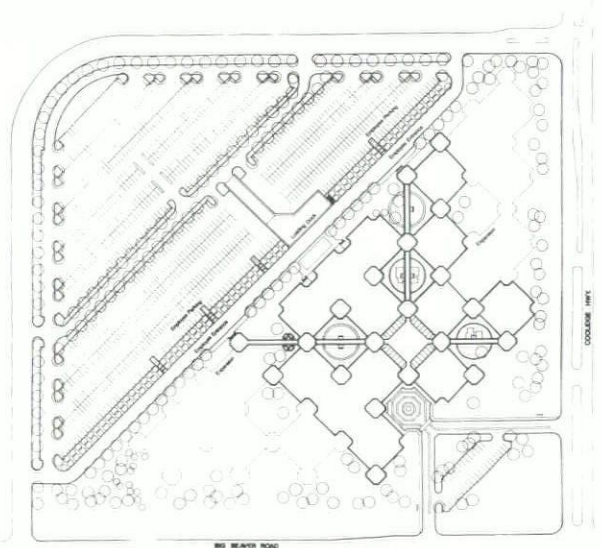
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(Con't from page 4)

typically store sufficient fuel to operate emergency generating systems for approximately two weeks. Less critical locations normally store enough fuel for about three days operation.

Other electrical loads, such as environmental control systems and computer data processing systems, are normally totally dependent on commercial power sources.

The operation of our motor vehicle fleet is essential in providing service.

The Bell Operating Companies rely upon Western Electric Company to supply approximately one-quarter million items necessary to provide telecommunications service. Western Electric is dependent on commercial sources of energy to perform its manufacturing and supply distribution operations. In addition, Western Electric relies on approximately 50,000 outside suppliers for equipment and material essential to the provision of telecommunications service. These suppliers are also dependent on commercial sources of energy to perform their various operations.

The Bell System has been continually concerned with energy consumption. Bell engineers design equipment to operate at maximum efficiency employing the most modern technology available. For example, switching systems

have evolved from electrically powered mechanical units to electronic systems that employ transistors and other low energy consumption semiconductor devices. Also, significant reductions have been achieved in energy requirements in manufacturing processes by the design of equipment that will perform multiple functions simultaneously — eliminating the need for single function machines. While the motivation to design and operate our equipment as efficiently as possible has been primarily one of economics, the policy has done much to conserve energy. It does, however, pose problems when trying to develop procedures to further conserve energy, in situations such as the current energy shortage.

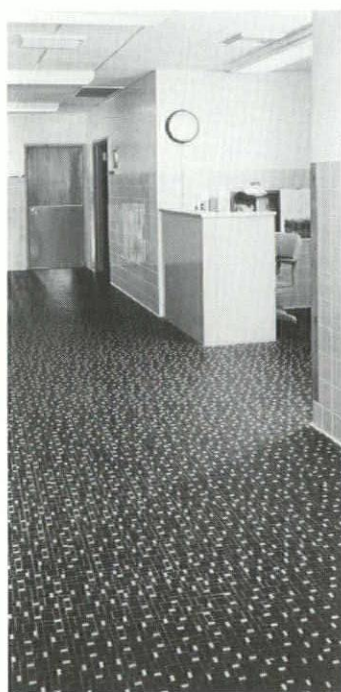
The Bell System has been concerned over the prospects of a domestic energy shortage for several months. In November, 1972, we extended the frequency of emergency generator test runs from once each week to once every other week. In addition, the Bell Operating Companies have initiated a number of energy conservation procedures that could apply to your operations as well. Some of these are as follows:

- Informing drivers of fuel scarcity and reviewing driving techniques such as the use of moderate starts, moderate speeds and reduced idling.

- Eliminating the use of vehicles where appropriate.
- Reviewing and extending lubrication periods where appropriate.
- Reviewing adjustment of vehicle engines to assure the most economical operation.
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- Maintaining a nominal temperature of no more than 50 degrees in garage areas during the heating season.
- Checking outside air dampers on heating, ventilating and air conditioning systems to assure that they are operating properly and set to admit minimum outside air requirements.
- Individually shutting off heat sup-

(Con't page 23)

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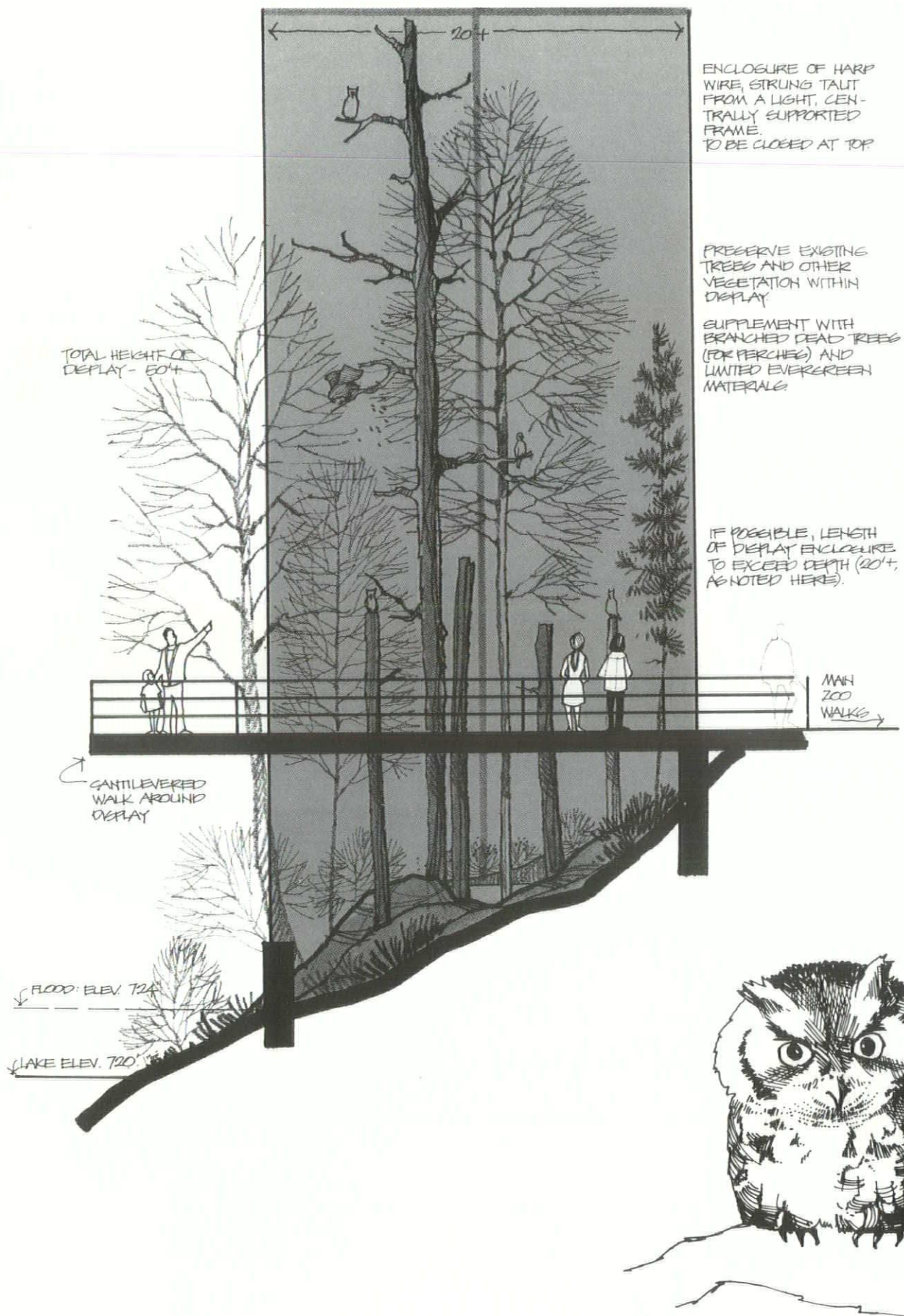
michigan zoo

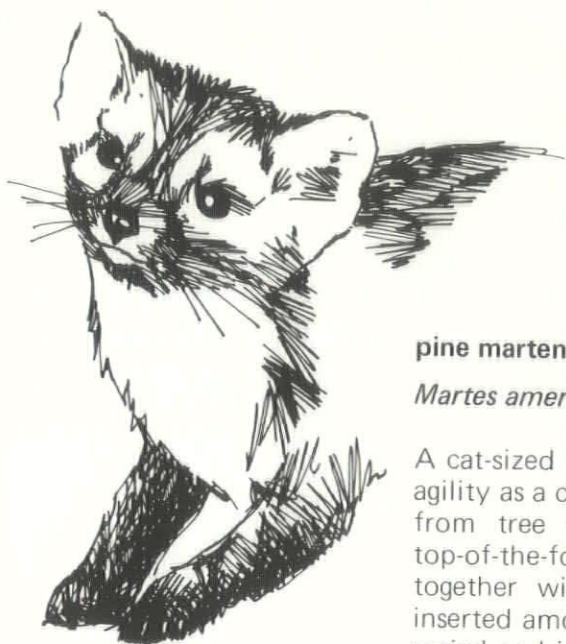
north american zoo
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michigan zoo
arboreal creatures

Because the native habitats of the animals included in this display category are in treetops, the exhibit is designed to place the viewer at that level of observation. Accordingly, the exhibits are located in the wooded zone along the lake edge and in the ravine where the steep slopes are utilized to advantage. Viewing walkways are "cantilevered" out from the slopes to carry the viewer to a position at a level with the tops of existing trees rising from a lower elevation on the slopes. In this manner the viewing experience is at the level of the animal and the display environment is essentially an unaltered portion of the existing native vegetation. The only separation between the viewer and the animal is harp wire stretched tautly on a rigid frame or mylar netting on slender support structures that enclose the natural environments and contain the animals. The several displays included in this category are separated from each other by stands of existing mature trees and other vegetation. Specific design of individual displays are in accordance with the requirements of the animals included within them.





pine marten

Martes americana

A cat-sized member of the weasel family, the pine marten is unexcelled in speed and agility as a climber. Because he spends much of his time in the treetops and can cross from tree to tree in great leaps, his zoo environment is a replica of this top-of-the-forest situation. Tauf harp wire encloses at least two large existing trees together with numerous saplings and several well-branched dead tree skeletons inserted among them to supplement the existing network of branches and provide a varied and interesting aerial zone for activity by the animals. Natural or artificially created cavities within the dead trees lined with a non-porous waterproof material to permit their flushing-out with a hose at intervals act as dens. At least two are provided and positioned not more than twelve feet above the ground to permit reasonable keeper access and keep them close to the viewer. Because the floor of the exhibit must be concrete for sanitary maintenance, subsurface watering and aerating systems to the existing trees is necessary. The contour of the floor surface is sharply sloping and very irregular creating several small pools and suggesting a natural rocky slope. Pockets of planting of shrubby materials and vines soften the appearance and blend the exhibit into the natural landscape. Keeper access to the exhibit is provided through a door beneath the viewing walkway in the foundation wall; necessary storage and utility appurtenances are concealed below the walk. The viewing walkway completely encircles the display at a constant elevation approximately fifteen feet above the lake at the outside edge of the exhibit. Circular in configuration, the exhibit has a minimum diameter of twenty-five feet and a height of forty or fifty feet, the height of the existing trees enclosed within it. Two martens, a male and female, are exhibited with separation area provided.

hawks

<i>Accipiter cooperii</i>	cooper's hawk
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Buteo lagopus</i>	rough-legged hawk
<i>Buteo platypterus</i>	broad-winged hawk
<i>Circus cyaneus</i>	marsh hawk
<i>Falco sparverius</i>	american sparrow hawk

owls

<i>Aegolius acadicus</i>	american saw-whet owl
<i>Asio flammeus</i>	short-eared owl
<i>Asio otus wilsonianus</i>	american long-eared owl
<i>Otus asio naevius</i>	screech owl
<i>Strix nebulosa</i>	great gray owl
<i>Strix varia varia</i>	northern barred owl
<i>Tyto alba pratincola</i>	american barn owl

The exhibit for each of these species are similar in concept, size and environment to that of the pine marten except that more branched trees, vertical snags and hollow nesting places are included. The exhibits do not attempt to present complete representation of the species involved, but show, two species each of hawks and owls to avoid the impression of large birds cramped in a small space.

red squirrel

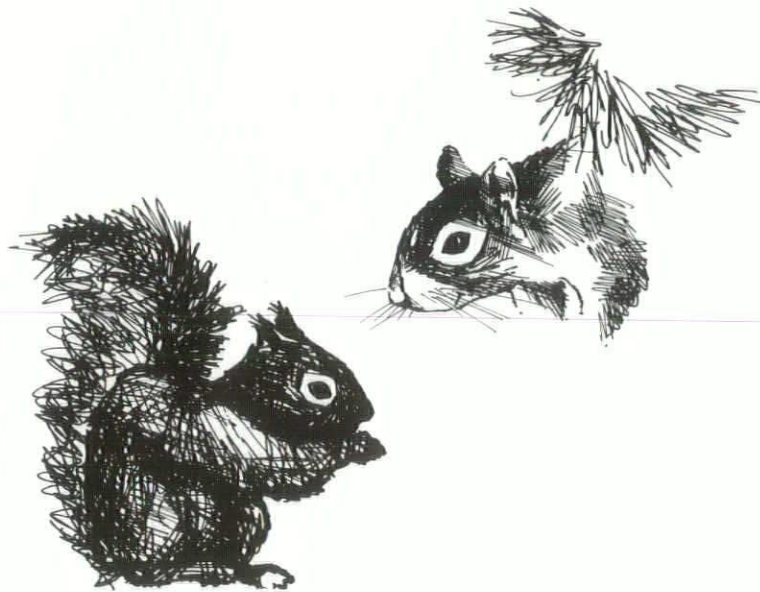
Tamiasciurus hudsonicus

gray squirrel

Sciurus carolinensis

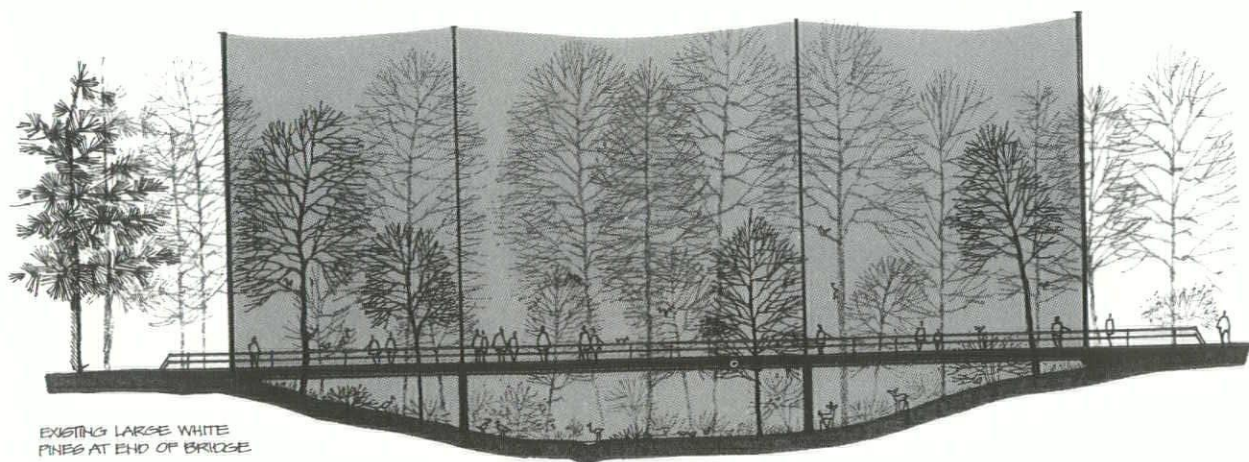
fox squirrel

Sciurus niger



The display space for the squirrels is formed by enclosing an entire section of existing woods approximately one hundred feet long and forty to fifty feet wide with netting extending over the exhibit area and continued down to the ground. The interior of this space may be subdivided with similar netting to segregate incompatible species. Entrances into the exhibit are designed to permit convenient visitor movement while at the same time serve as effective animal barriers. Placed perpendicular to the ravine running through the exhibit, a twelve to fifteen feet wide viewing walkway spanning the ravine places the viewer within the treetops at a level where the activity of the animals is the greatest. The viewing distance from the walkway is twenty to twenty-five feet to each side. All existing trees and vegetation within the display are retained and supplemented with plantings of native materials and a few dead tree skeletons to provide nesting places.

Through the introduction of a variety of other woodland creatures including partridge, quail, turkey, chipmunk, wood duck, woodpecker, blue heron and fawn deer, the scope and interest of the exhibit is expanded to present a Diurnal Forest environment.



EXISTING LARGE WHITE
PINES AT END OF BRIDGE

NO BARRIERS BETWEEN PEOPLE AND ANIMALS

MAY BE NECESSARY TO LIMIT SQUIRRELS TO SINGLE SPECIES, AND REPRESENT OTHER 2 NATIVE SPECIES WITH GRAPHICS/SCULPTURE

WIDTH OF ENCLOSURE RELATIVELY NARROW - 40'x50'

EXHIBIT REPRESENTS "THE DIURNAL FOREST" AND INCLUDES:

- | | | |
|-------------|---------------|-----------|
| • PARTRIDGE | • WOOD DUCKS | • RABBITS |
| • QUAIL | • WOODPECKERS | • HARES |
| • TURKEYS | • BLUE HERONS | |
| • CHIPMUNKS | • DEER FAWNS | |

(Con't from page 18)

plies to seldom used rooms, such as storerooms. If danger of freeze-up exists due to room exposure, a maximum temperature of 40 degrees is maintained.

- Checking gas and oil burners to assure that they are operating at maximum possible efficiency.
- Initiating programs to turn out lights when areas are unoccupied and conserving usage of electricity wherever possible.
- Periodically checking to assure that windows, especially double hung type, are tightly closed and locked. Instructing building occupants to leave windows closed.
- Operating snow melting systems in pits, sidewalks and driveways for minimum required to periods.

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If there is going to be an energy filled tomorrow, we'd better do something about it today.

*Robert F. Fearon, AIA
Engineering Manager of
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Company*



"Playlot" Planned in Bliss

The Michigan Society of Architects, in conjunction with the 1974 MSA Convention in the Saginaw Valley, being inspired by the theme of Recreation, hereby solicits design proposals for the creation of a Children's "Playlot" within Bliss Park in the City of Saginaw.

Bliss Park consists of approximately twelve acres. It is bounded on the north and west by City streets and by the Saginaw Medical Center, on the south by a residential area, and on the east by a busy city street and an automobile dealership. The park has an abundant number of mature trees scattered throughout. There are football and baseball fields on the Eastern edge and a flower garden on the western edge. Existing play equipment is located near the south end, along with a vehicular

entrance and parking lot. The park has a system of criss-crossing paths and is used by neighborhood residents and be nearby students for relaxation and play.

The playlot competition will be defined by a written program and will include a topographical survey of the site, both of which will be sent to all entrants in the competition.

BUT THIS IS NO ORDINARY COMPETITION . . .

Those convention registrants who feel an especial surge of physical energy and who seek an outlet for under-utilized muscle and hands-on expertise will want to bring workclothes, hand tools, gloves, and boots because we will construct the children's playlot during the Convention and will dedicate the space to the community as the legacy of the 1974 MSA Convention.

Persons eligible to enter the design competition are: Corporate members/firms, or associate members in association or joint venture with registered persons or member firms. Please express your intention to enter the competition by notifying Ann Stacy, Executive Director, Michigan Society of Architects, 28 W. Adams, Detroit, Michigan 48226, (313) 965-4100, no later than January 10, 1974. Detailed instructions and information will then be mailed to you.

Completed design proposals must be submitted to Ann Stacy by February 1, 1974, so that judging can take place and materials for construction can be ordered in time for the Convention date. The entry fee is \$5, payable with your intention to enter.

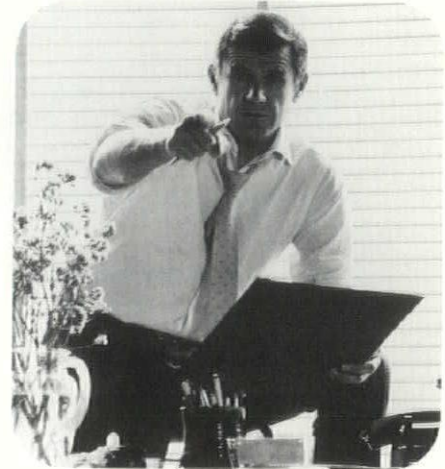
A permanent marker in the name of both the MSA and the winning designer will be incorporated into the site.

Help make the 1974 MSA Convention one to be remembered; submit your entry fee and intention to enter so that you can receive further information and begin planning the Children's Playlot right away.

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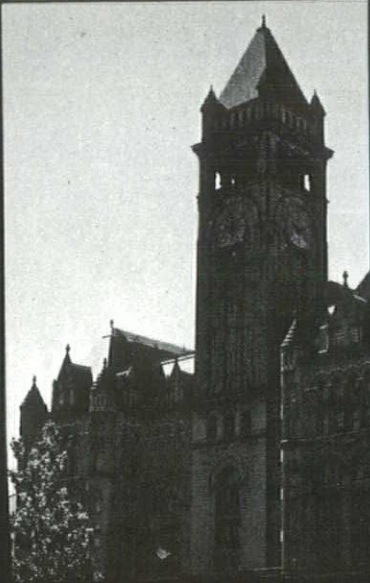
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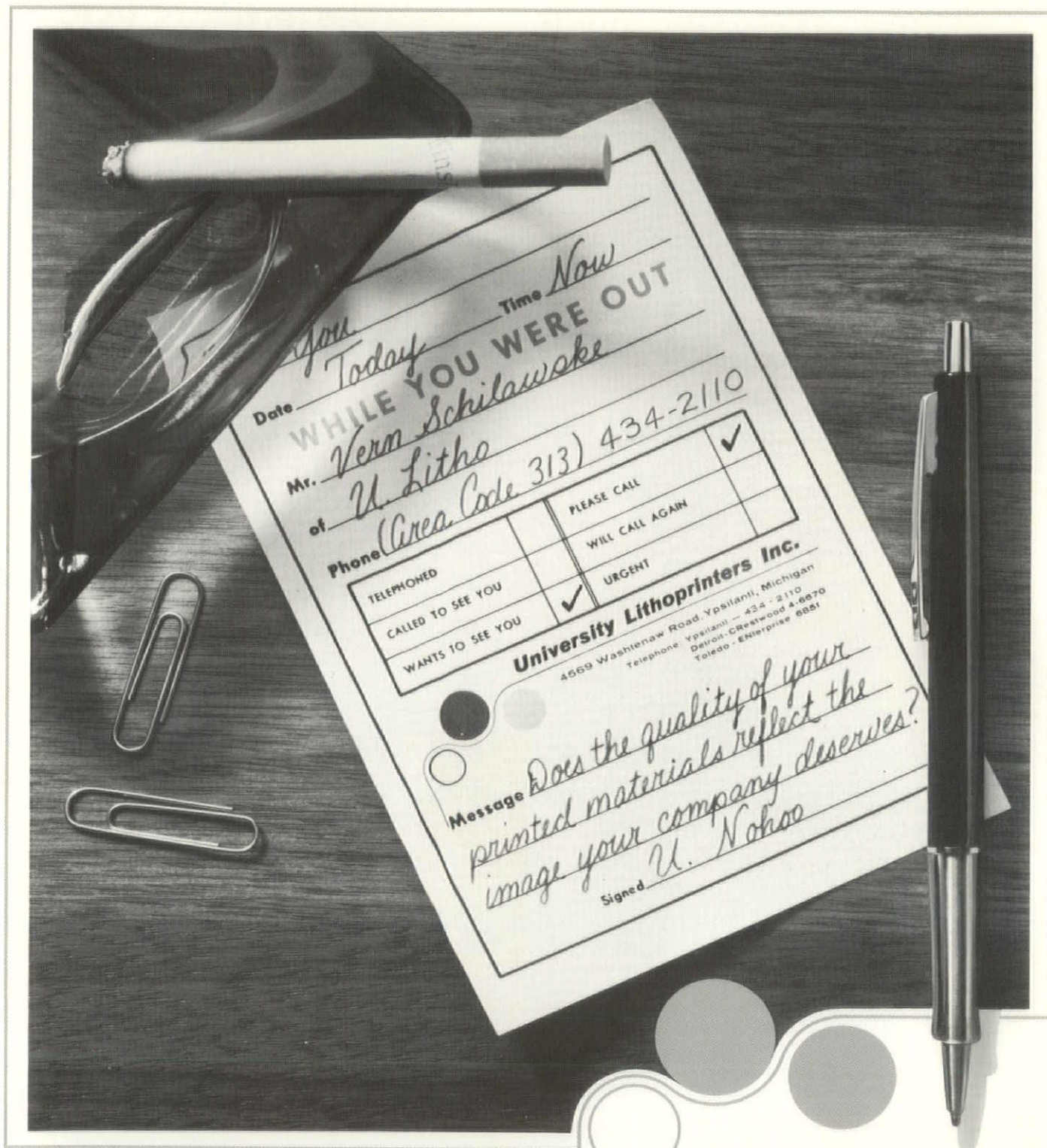
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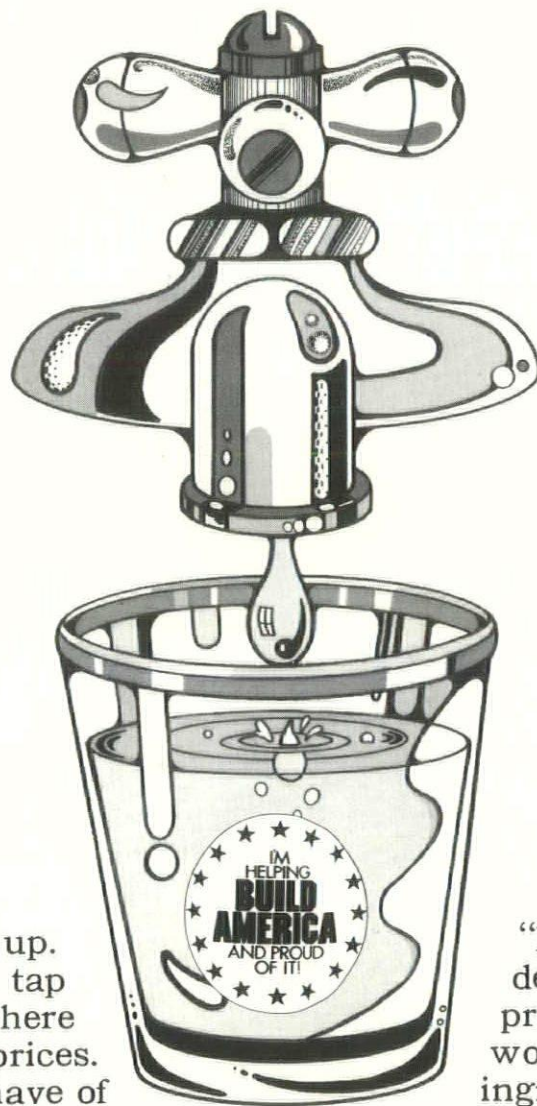
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