

P378
.M2785

MULTI-USE COMPLE

Gayah Square

KUALA LUMPUR - MALAYSIA

Creative Arts Library

Montana State University Library, Bozeman

WILAYAH SQUARE IN KUALA LUMPUR, MALAYSIA

by

ARIFFIN B. MAHMUD

A professional paper submitted in partial
fulfillment of the requirements for the degree

of

BACHELOR OF ARCHITECTURE

Approved:



Advisor

Thesis Coordinator



Director, School of Architecture

MONTANA STATE UNIVERSITY
Bozeman, Montana

1988

CAL 11A 5542
120.6
1176
112985
P 378
MZ785

DEDICATION

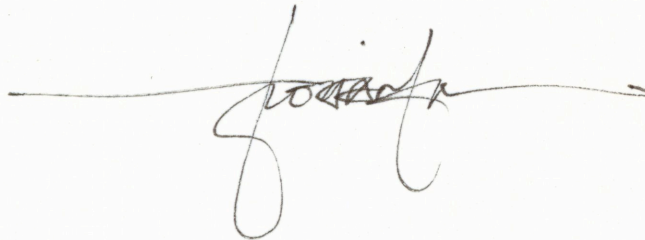
This paper is dedicated to my family, staff and faculty,
friends at the School of Architecture and also to all Moslem
brothers and sisters in this world.

Without them I could not achieve this reality.

PERMISSION

In presenting this paper in partial fulfillment of the requirements for a Bachelor of Architecture degree at Montana State University, I agree that the library shall make it freely for inspection and study.

I further agree that permission for extensive copying of the paper scholarly purposes may be granted by major professor or in he/her absence, by the head of the library. It is understood that any copying of this paper for financial gain shall not be allowed without my written permission.

A handwritten signature in dark ink, appearing to read "J. J. J.", is centered on the page. The signature is written over a horizontal line that extends to the left and right, with a small arrow-like flourish at the end of the line on the right side.

CONTENT

INTRODUCTION

ANALYSIS

PRECEDENT

PROGRAM

DESIGN

BIBLIOGRAPHY

INTRODUCTION

MULTI-USE COMPLEX
Gayah Square
KUALA-LUMPUR - MALAYSIA

PREFACE

A work of architecture is essentially a mirror on which is reflected the civilization of the times. No piece of architecture, by its intrinsic nature, can be produced through an apriori process; it always has been, and will be, a product chosen by the people who live within the frame unsure of freedom and restriction of each specific age and region.

In any country, people live within a specific of their own national trait, historical background and natural conditions which give substantial peculiarity to their mode of living. Their way of thinking and their style of architecture as well. On the other hand, memorable progress in the science of transportation, technology, and communication tend to equalize and generalize throughout the world. The levels of production and consumption, and even the sense of value.

Any piece of architectural work cannot be expected to be an architectural reality in the true sense of the word, unless the factors described above are seriously taken into consideration. Conflicting and opposing problems as regionalism versus internationalism, locality versus universality, aesthetics versus technology, and humanity versus productivity, should be evaluated and excellently coordinated.

OUTLINE OF PROJECT

The project is to develop a mixed-use complex which includes an office and other, residential/apartment and shopping /retail areas. The main intention however, will be focused more on the development of shopping center itself.

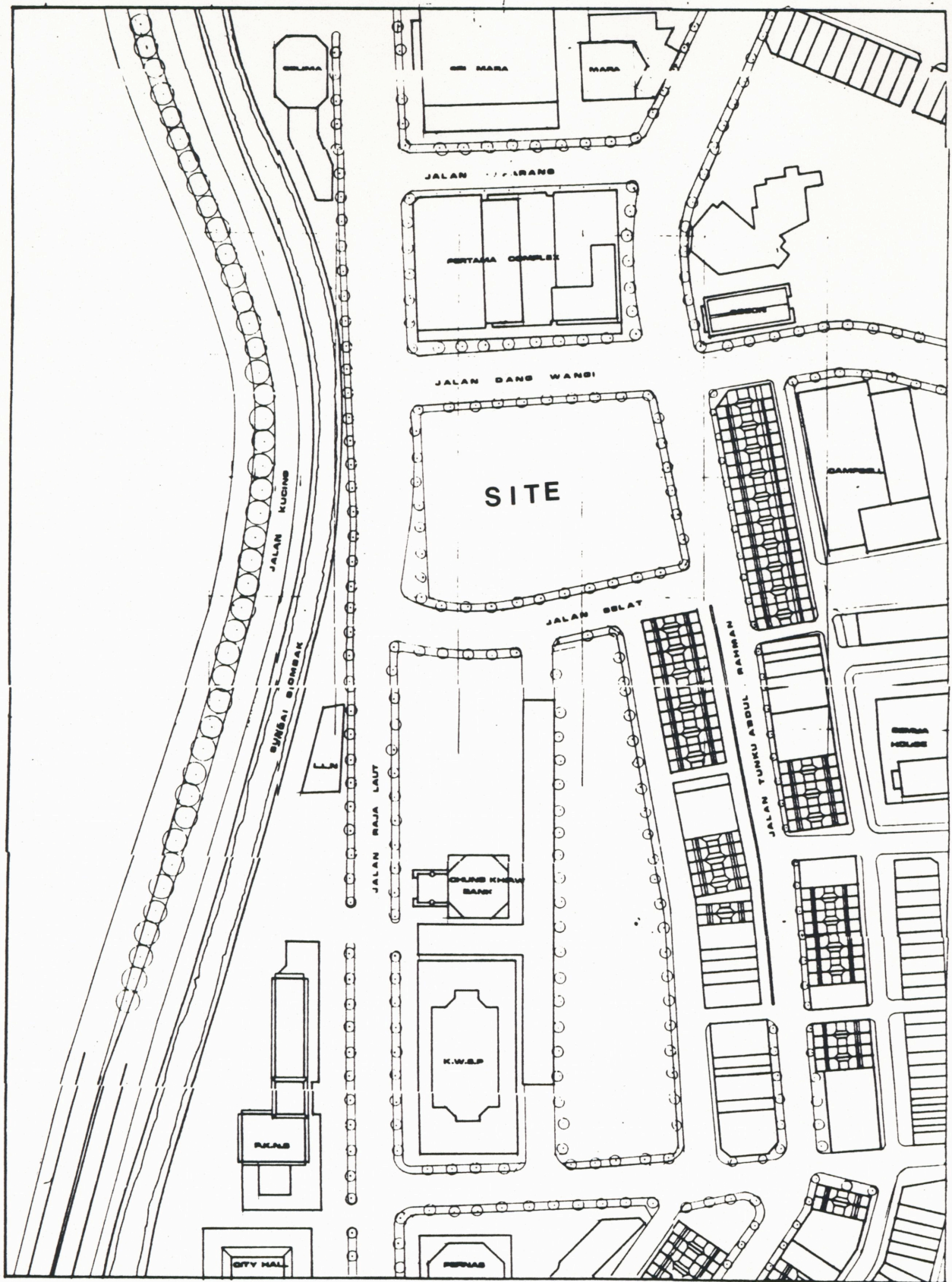
The project is located within a 126,000 square foot (2.9) acres) in the Central Planning Area (Central Business District) of Kuala Lumpur.

The city of Kuala Lumpur has developed rapidly, especially in the central planning area due to the country's economic boom inn the 1970s and 1980s. The development of the central Planning Area was based on economic rather than cultural concerns. The existing mixed use organization pattern of the city is changing towards total development due to the short sighted laissez faire planning policies.

The predominant building type of the city, which is shop houses where residential quarters are located above the commercial floors, gradually being replaced by office towers and shopping centers. The street hawkers, who often can be found along the street line in front of the shop houses, are being re-accommodated away from their prime location. Gradually, the activities, the continuity, the intimacy, and the picturesque character of the traditional streetscape of Kuala Lumpur are being eliminated.

The particular site is chosen because of its location in the center of the new and old architectural development. With various urban transport systems concentrating on the west side of the project site and surrounded by a number of shopping centers and specialty shops, the site occupies a strategic location of which development will have a vital effect on the existing commercial facilities that surround it.

The existing shop houses, the street hawkers, the office tower, the shopping centers, the transportational nodal point, and a high pedestrian movement all within the general vicinity, create a rich complex atmosphere to the site and its surroundings.



PROJECT GOAL/POTENTIAL

The principal objective is not only to convey a perceptual identity of Kuala Lumpur which based aggregate forms and fabric whose image and functions are related to the life-styles and identity of the local communities that they serve but it also acts as a base for urban activities in Kuala Lumpur and which will also have positive effects on the surrounding area.

Due to its strategic location and the characteristics of the project site, other potential basic site requirements should be developed:

- 1) The project should play an active role in development of the urban community utilizing the locational advantage of the site which is situated in the center of the urban area, the project site should be developed in such a way as to have an immense total effect on the surrounding areas. The building complex to be constructed there would be such that it will greatly help stimulate the business and commercial activities of the existing complexes and shops in the neighborhood and that it will maintain a proper relationship with the public zone.
- 2) The project should serve as a node of urban transportation.

The terminals for the aero-buses CAT, LRT, taxis and coaches, and the large car parks should be properly laid out so that transfer from one type of transport to another can be made easily and smoothly at the project site. For this purpose, a well planned network of walkways and shopping malls should be developed.

3) Attractive cityscape should be formed.

The projected building complex should form an attractive focal point in the cityscape when seen from such places as Bulsn't Wanas on the east, the prime minister's residence on the west, and the city hall on the south. Further, Jalan Raja Laut should be improved to have a view that is symbolic of the representative main street in Kuala Lumpur, and Surgai Gombala have its water front repaired and organized.

THESIS STATEMENT

"Every once in a while, that old tossed-about syndrome of a Malaysian identity in architecture rears its head. Although there have been innumerable efforts to bring the subject to the fore, it has never really been properly resolved. Lurking a shade upstage, there are some drawing-boards thumping diehards who swear to its existence. Elsewhere are the formalists who contend that anything that isn't functional or honest to materials is totally philistine. Somehow, it should be liberated from its architectural closet into the piazza."

There must be a clear perceptual identity for Kuala Lumpur. The identity must be recognizable, memorable, vivid, engaging of attention, and differentiated from other locations. This urban identity is a support for the sense of belonging to some attached group as well as a way of marking a behavioral territory.

The arguments are not based on a wish to call a halt to the march of modernist architecture, but on the idea of identity can only be found through criticism and analysis of the region in question's history, culture, economics, and politics.

APPROACH

The test for a city's identity is not with unusual of its graphic presentation, but the degree to which it vividly remembered and identified by its inhabitants and visitors.

Any urban design plan must necessarily address the structure of the city and relate the individual concerns within the city to that larger structure. It will demonstrate a sensitivity to the relationship between its part to the whole particularly where there had been a continuity established between the very broad regional overview of the situation and the intermediate states, down to the detailed forms of buildings.

An urban design plan for a highly layered, culturally complex as Kuala Lumpur must work at these three kinds simultaneously:

- at the level of the city itself
- at the level of its system
- at the site specific design level

The city level of urban design regards Kuala Lumpur city as a whole with regard to its man-made and natural features -its land utilization and overall pattern of growth, economic goals and others. These levels of urban design generally permit only partial control by the urban designer.

These factors should be considered in developing a tropical urban aggregate form in Kuala Lumpur:

- 1) Indigenous landscape
- 2) Existing architectural heritage
- 3) Existing urban heritage
- 4) Culture and symbols
- 5) Possibilities of the combining local material and new technologies
- 6) Climate

Enhancement and exploration of its inherent natural features and in the inventive design adaptation of its existing man-made features are one way toward achieving this identity.

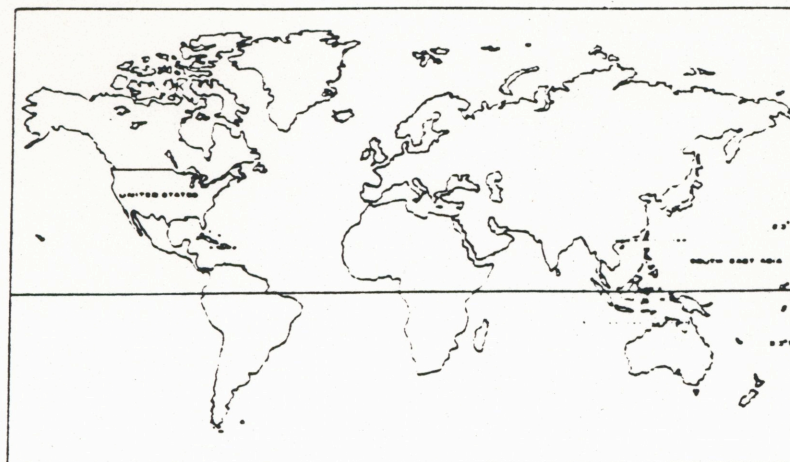
ANALYSIS

MULTI-USE COMPLEX

Gayah Square

KUALA LUMPUR - MALAYSIA

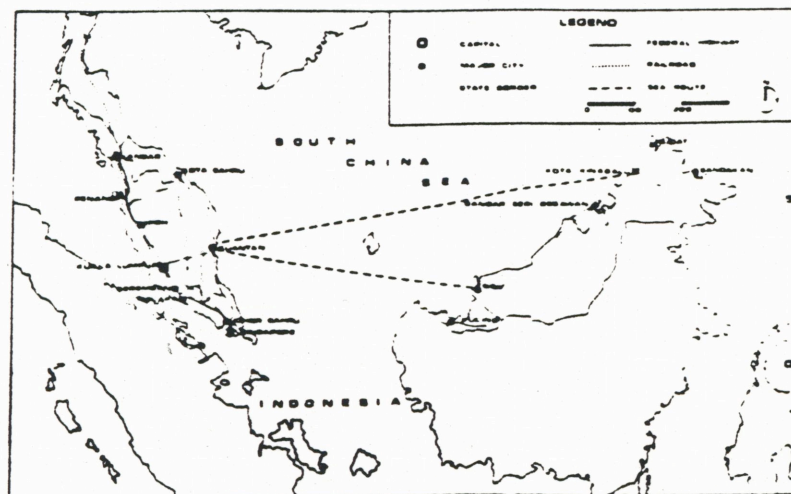
LOCATION



SOUTH EAST ASIA



MALAYSIA



MALAYSIA - GENERAL

Malaysia is located in the Southeast of Asia. This country is composed of two major regions, which are West Malaysia on the Malay Peninsula and East Malaysia on the Island of Borneo. The total land area of this country is 127,316 square miles. It has a population of about 15 million.

This country is a focal point of Southeast Asia and is located along the Strait of Malacca, which is one of the major sea lanes in the world.

- Economy

Malaysia's main source of national income is agriculture, forestry, fishing, and mining. The majority of this country's population continues to depend upon agriculture for livelihood. Malaysia produces a large amount of the world's rubber, tin, and oil palm.

Malaysia's power resources are coal, peat, wood, petroleum, and hydroelectricity. The country depends primarily on imported fuel oil for power generation.

Attempting to broaden its economic base by industrialization, Malaysia's economy still relies on a few raw materials for export. About 1/2 of the total laborers of this country are still engaged in primary production, and because of this, the country's industrial sector is still insignificant.

Economically, Malaysia remains one of the rich countries in the southeast Asia region.

- Cultural Life

Malaysia is a mixture of people and culture. It is a melting pot of several important cultural traditions, stemming from the Malay archipelago as well as from China, India, the Middle East, and West. The four major racial groups are the Malays, the Chinese, the Indians, and the Pakistanis.

The Malays are originated from different parts of the peninsula as well as the Malay archipelago. They comprise 50% of the total population and are politically the most important group. The Malays are adherents of Muslim religion, and because of this, Muslim religion is regarded as one of the most important factors distinguishing Malay from non-Malay. The number of Malays who are not Muslim is negligible.

The Malay culture in the Malay Peninsula and other parts of Southeast Asia was strongly marked by pre-Islamic Indian and early Islamic influences during the first one and a half millennia, A.D. Islam, which is the dominant religion of the Malays, was introduced to Melaka (the first Malay empire) in the 15th century. Western culture, which was introduced in the 19th century, affected many aspects of Malay life, especially in technology, law, social organization, and economics, mainly in the cities. The contemporary Malay culture is multi-faceted, consisting of many standards -- animistic, early Hindu, early and modern Islam. This collective pattern thus established is distinct from other cultures and recognizably Malay.

The Chinese are the next major group, who make up 35% of the country's population and are an economically

important group. They were originally from the province of Southeastern China and ethnically homogeneous. They are, however, less homogeneous than the Malays in terms of language and religion.

The early Chinese traders who settled in Melaka and Penang during the 15th century were partially assimilated (to the extent of adopting the Malay language), but the Chinese who emigrated to Malaysia in the late 19th and early 20th centuries in large numbers are usually transients who established self-contained communities. They are not a homogeneous group and their cultural influence on the country has consequently been minimal. The Chinese culture in Malaysia has its roots in the civilization of pre-revolutionary China, with modifications brought about by local circumstances and environment.

The Indians, Pakistanis, and Ceylonese are the people from the Indian subcontinent, which constitute 11% of the total population of West Malaysia. Most Indians and Ceylonese are Hindus, while the Pakistanis are predominantly Muslim. Most Indians are immigrants and originally came as laborers to work in the coffee or rubber plantations. Like the Chinese, they too, until World War II, were mainly transients, living in closed communities and remaining virtually unassimilated.

The population also includes small numbers of Europeans and Americans, Eurasians, Arabs, and Thai.

Because of the past British colonial rule and present western modernizing influences, the communities of Malaysia have all been affected. The western cultural influence has been greatest in education and institutional forms. Traditions and cultural institutions have least been affected in the rural areas, whereas in the cities cultural changes are happening rapidly.

KUALA LUMPUR - A SURVEY

Kuala Lumpur is Malaysia's largest city with an area of 96 square miles and population over a million. Among its unique qualities are its existing luxuriant green landscape both within and surrounding the city, a rich heritage of historically important old buildings with its characteristic early streetscapes, a developing situation requiring new urban construction, a relatively good economic context and administrative framework. The city has a potential to become a vital and important city in the Asian region

Malaysia has no historical urban tradition and Kuala Lumpur is the only city so far to experience rapid growth. Its laissez faire development tending to follow existing patterns set up during its life as a small, 19th century trading/mining town.

In 50 years all Malaysian cities will be the size that Kuala Lumpur is now. There has been no concerted attempt to deal with a conception of the city, or analyze the morphological elements that structure it.

The traditional shop houses typology and the street markets are under pressure from development, being replaced by a high-rise central business district, where city's entire civic prestige is located. Yet this "Golden

Triangle" is not the real city, but only a minor aspect of a greater whole.

The growing city has to be housed and this is commercially translated into sprawling "Europeanized" suburbs in which there has been no attempt to investigate ethnic varieties in living patterns and solutions to climatic constraints.

Perhaps Kuala Lumpur doesn't need to follow accepted Western models, with a series of major avenues carved through it to impose a structure. Instead this may be accomplished by government manipulation of land values, land rates, etc., to reinforce patterns of occupation which the city has naturally generated. Incorporating a civic dimension to the city by providing the pedestrian connections, adequate foot paths, and semi-enclosed spaces for the public.

Only when such a structure of uses is recognized, can architects start to find suitable urban form

It's still possible for Kuala Lumpur

- to reinforce the structure of uses
- to consolidate the existing city
- to stop the headlong suburban expansion
- to clarify the civic role of its central business district
- to develop housing topologies which will form the new fabric of the city
- to investigate a structure for the city which is based

probably more on economic and social factors than on physical built form.

Definitely any physical planning research needs to be directly linked with the economic apparatus of government to ensure successful implementation.

KUALA LUMPUR - HISTORY

The city was historically founded at the confluence of two rivers: the Sungai Gombak and the larger Sungai Klang. In 1857, it was a small hamlet of a few houses and shops. Its creation was largely due to the early traders, mostly Chinese, acting as a service center in the coordination of trade and movements along the river. With the tin mining prospect around Ampang area in the North East of the confluence.

Within ten years after its creation, it became one of the great mining centers of Malaya. From its beginning as a shanty town in 1857, it became state capital of Selangor in 1880, the Federal capital in 1896, the national capital in 1957, and the city was declared as a Federal Territory of Malaysia in 1972.

Its accelerated growth was partly attributed to the rising tin prices in 1882. The transfer of British administrative headquarters from Klang to Kuala Lumpur the development of roads and railways systems to connect the surrounding tin mines, rubber estates and the north-south orientation of peninsular.

KUALA LUMPUR - PROBLEM AND POTENTIAL

According to the survey done by the City Hall, the number of residents in Kuala Lumpur will be around 1.55 million in 1990 and increase to 2.2 million by the beginning of the twenty-first century .

Rapid population increase in urban areas is a typical problem that almost every modern city has. People are moving into big cities specifically seeking for employment. Other than that, social attraction of city life and lots of accessibilities that would add physical and material comfort have also contributed to the population boom.

Growing migrating young generations, who are usually between the ages of 20-35, increased the burden to the city. It is true that they represent the main pool of skilled and trained man power in the labor force. However, the city has to provide accommodations to them in the ever congested city. Indirectly, they have exerted pressure to the city, even if the migration rates go down.

Due to limited facilities and amenities, increase in population will worsen the situation. The authorities

The actual business district coincides with the old town area as defined by the now defunct central market area in Jalan Bandar, the railway station and bus terminals. This business district is characterized by a high percentage of working and residential population, with a continuous process of inner city revitalization, reorganization of land use, and the new commercial developments. In the 50s to the 80s, many of the modern developments in the district have eliminated the continuity and the intimacy of the traditional streetscape besides introducing new problems such as the rising traffic congestion due to the high density of working population being created.

Around the 1950s new residential and shopping areas began to be established around the periphery of the city, together with new settlement villages forming the secondary linkages. Radial ribbon roads with Jalan Tunku Abdul Rahman and Pudu Road forming the north-south axis to the city. Planning effort to resolve the traffic congestion in the central areas have resulted in the formation of the outer and inner ring roads.

Further commercial developments in the 1970s along Jalan Sultan Ismail, Jalan Ampang, Jalan Raja Chulan, and Jalan Bukit Bintang have resulted in an intensively developed area of shop houses, apartment blocks, office buildings, and modern hotels, which currently are described as the Golden Triangle Area.

concerned require to provide these services, such as electricity and water supply to individual homes and public transport and education facilities to the communities. Therefor, a slight increase in population will aggravate these deficiencies.

Options, such as creating new industrial areas on the periphery areas or even opening up a satellite city that has solid attraction, probably will overcome the migrating of these people. This ill then spread the development to other areas, instead of focusing only to the center of the capital city.

Housing is a basic need everybody expects to have. Inadequate housing is the biggest problem in Kuala Lumpur. In this context, a house is more than a shelter, but a decent house, a habitat that one owns, preferable located in a healthy environment. Almost one quarter of the city's residents live in squatter areas, which do not have enough amenities and facilities such as electricity and water. Even in certain squatter areas, the housing units do not have proper excess to it and drainage that these areas are highly susceptible to flooding

Housing shortages for the lower income bracket are not new to the city. Rapid development, which took away the squatter areas and increasing costs for houses, make the city's dwellers tend to lean on the government for support. Apparently, there is not much effort taken by the government to alleviate the situation. Effective and comprehensive

policies and programs should be taken by the government in order to deter this problem from becoming more serious in the future.

It is common that only the higher income bracket residents in the city to have their own houses, while the lower income bracket could not afford one because of the high prices of houses. More effort, either taken by the government or private sectors, should be geared to promote toward greater house ownership for this group, either by easier payment plans or constructing more low-cost housing which this group can afford

Transportation in Kuala Lumpur is a problem to the city's residents. Overcrowded buses, service frequency irregular, and many routes are inadequately served are a few examples of the inefficient public transportation in the city. City residents, especially office and factory workers depend heavily on this service. Privatization of public transportation is encouraged rather than depend only on the government policies to ease these problems.

Burden on road network is also a problem. The continuing growth of vehicle ownership in the metropolitan, forced for new construction instead of improving on existing roads (figure).

Alternatives such as other modes of public transportations, Rapid Light Transit or aerobes, should be introduced for the city commuters (figure). In addition, the authority has to restrict the use of private cars,

especially in the central business district. As a matter of fact, pedestrian like city should be considered rather than automobile in Kuala Lumpur.

Recent development made the capital city lose its image. Traditional shop houses have been replaced by many multi-story complexes. Basically, the city is an over expanded small town. Unconscious new developers have created new constructions which led to an unorganized mixture of activities in the urban center. It is imperative to keep a small town heritage alive while having massive controlled development

Very intense construction activities in the past decade had given traumatic changes in the urban form and design of th city. On the other hand, scattered development in the other parts of the city, left some valuable pieces of land undeveloped. Thus, an incoherent mixture of forms, functions, and activities existed as a result of improper treatment to the city's development .

Kuala Lumpur has to be a city where everybody is proud of it. It seems that the identity of the colorful past this city had, has been exploited by unbalance in harmony between the old shop houses and the new high rises. Subsequently, the city itself will lose its character and integrity. Many architects and urban planners are struggling and searching to resolve these issues. Probably, a more precise general framework as a guideline to other cities, such as the balance between the old and the new buildings, relating to

the form and a carefully organized master plan for the future will be implemented. Otherwise, Kuala Lumpur, a city that has to reflect the nation's history, culture, and aspirations, will be extinguished.

Modern cities, like New York City, have their own open greenery spaces which function as leisure and recreational purpose for its inhabitants. On the other hand, Kuala Lumpur lacks of these facilities (Figure).

Current standards and provisions for open spaces are below requirement in the city. Open spaces in local housing units, generally inadequate and poorly managed. In several open spaces, entry is restricted exclusively for such as club members and elites. Priority to provide an active recreational facility has been neglected. Although the City Hall have been providing some facilities to the residents, due to negative responses from other sectors, either public or private, and difficulties to get additional funding, make the City Hall lose their interest.

It is time for Kuala Lumpur to be a people oriented city. Walkways for pedestrians, bicycle paths for cyclists, open spaces for family runabouts, and active recreational facilities for youths are typical characteristics for a modern city. To achieve this goal, greater efforts have to be made by the authority. Besides, concentration on the social and spiritual development to the city's residents should occur simultaneously with the intense physical development of the city.

Thus, Kuala Lumpur will be more livable to the public at large and probably will elevate to a tourism industry.

Among modern cities in the present time, dealing with the environmental quality has been a dilemma. Inadequate environmental control and intense physical development within the city are making the Kuala Lumpur's atmosphere tinted. Improperly discharged domestic and industrial wastes caused the city's water system to be severely polluted. Worst of all, the air has also been severely affected, caused by industrial and motorized vehicle fumes.

Tropical cities, such as Kuala Lumpur have the capacity to integrate the greeneries into extensive landscaping and streetscaping on roads and streets to make the city more beautiful. However, very limited steps have been undertaken to accomplish these ideas.

The city now left with small pockets of greeneries that have been left untouched by the development, such as small patches of left behind open spaces that have not been restored and upgraded, causes unpleasant visual images to the city ().

It is every Malaysian's dream to see a beautiful and healthy environment. There are ways and opportunities to generate these concepts; joint efforts, provision of nursery facilities, and advice with more a liberal and direct approach by the City Hall and appropriate authorities. However, to deal with the air and water pollution problem requires more restrictions and stricter enforcement,

especially to the industrial sectors. Abandoned lands, both private and public, which have unpleasant visual amenities probably can be planted with trees. Encouragement should be made through mass media such as newspapers and television to achieve this goal.

There are a lot of attempts by many architects and town planners to find answers to these problems. However, serious efforts to deal with a conception of a city or investigate and analyze every possibility to the study of forms and structures to shape the city seem to be neglected.

As quoted from David Dunster, leading researcher in the search of Malaysian architecture:

The government of Malaysia is wealthy. It has established many new universities and places a certain priority on architectural education. Let it then initiate active town planning research programs closely linked to the legal and administrative apparatuses of the state so that research and implementation are connected. Then perhaps Kuala Lumpur will become a city, and the national identity of Malaysian architecture will be the result of prolonged consideration rather than the headlong dive after what has taken European countries over a thousand years to establish.

Of course, there are still possibilities from different aspects and views for this city to undertake research. Other factors such as stopping urban sprawling and formless city, unify the whole existing cities together, develop new types of housing typologies that shape the city's fabric, make clear the civic role of the business district. As the

urban center, and also based more on economic and social factors rather than on physical built forms to determine the structure of the city, should be given serious attention.

Perhaps land values and rates have to be manipulated in order to reinforce the naturally generated occupation patterns and to unite a civic dimension such as providing pedestrian connections, adequate footpaths purposely for the inhabitants of the city. However, all these proposals and suggestions must conform to the country's economic situation and the government policies.

CLIMATE AND SUMMARY

- Kuala Lumpur, at latitude 3 08' N and longitude 101 44', is located geographically positioned in the Kelarg valley.
- The Malaysian warm, humid climate is characterized by its intense tropical sunshine, heavy seasonal rainfall, and prevailing winds which are Northwest monsoon and the Southwest monsoon.

- Sun

The sun altitude is almost constant every day of the year, with its azimuth moving slightly north and south of the equator. The east face and the west face of a building are always affected by the sun all through the year. The highest sun altitude is at noon time and the lowest sun altitude is during the morning.

- Temperature

- > High is the months of March and April.
- > Average temperature is 82 degrees F.
- > Annual range is 4 degrees F.
- > Diurnal change 5.5 degrees F.

- Humidity

- > Relative humidity is always high.
- > High humidity is during the months of October, November, December, and January.
- > Average relative humidity is between 82%-86%.

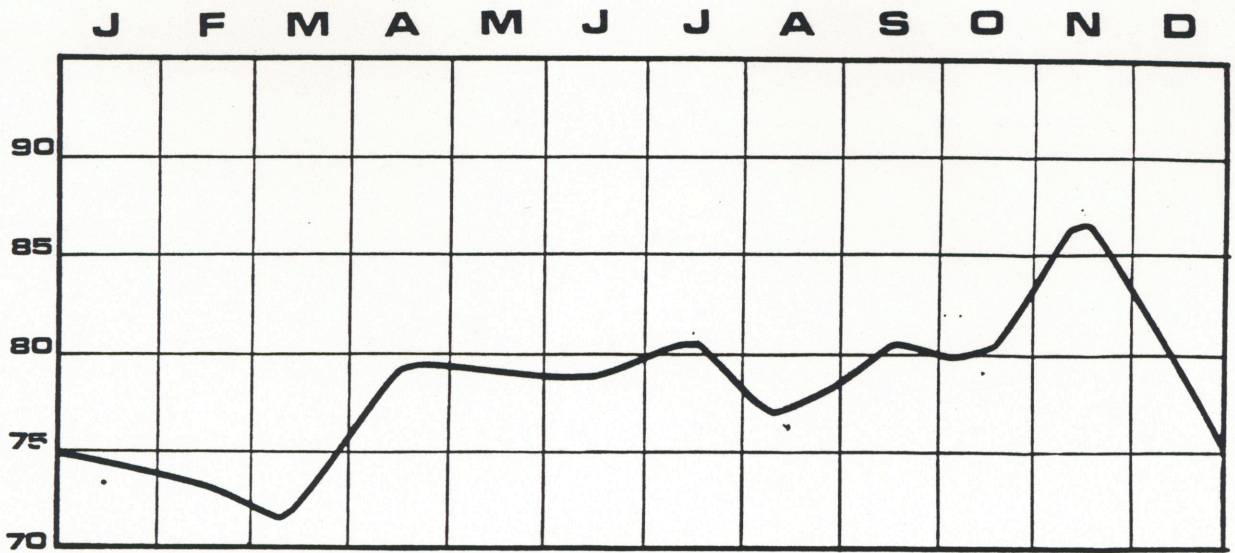
- Wind

- > High wind during the months of July, August, and September is brought by the Southwest Monsoon.
- > The speed of the Northeast Monsoon is hindered by the central mountain range.

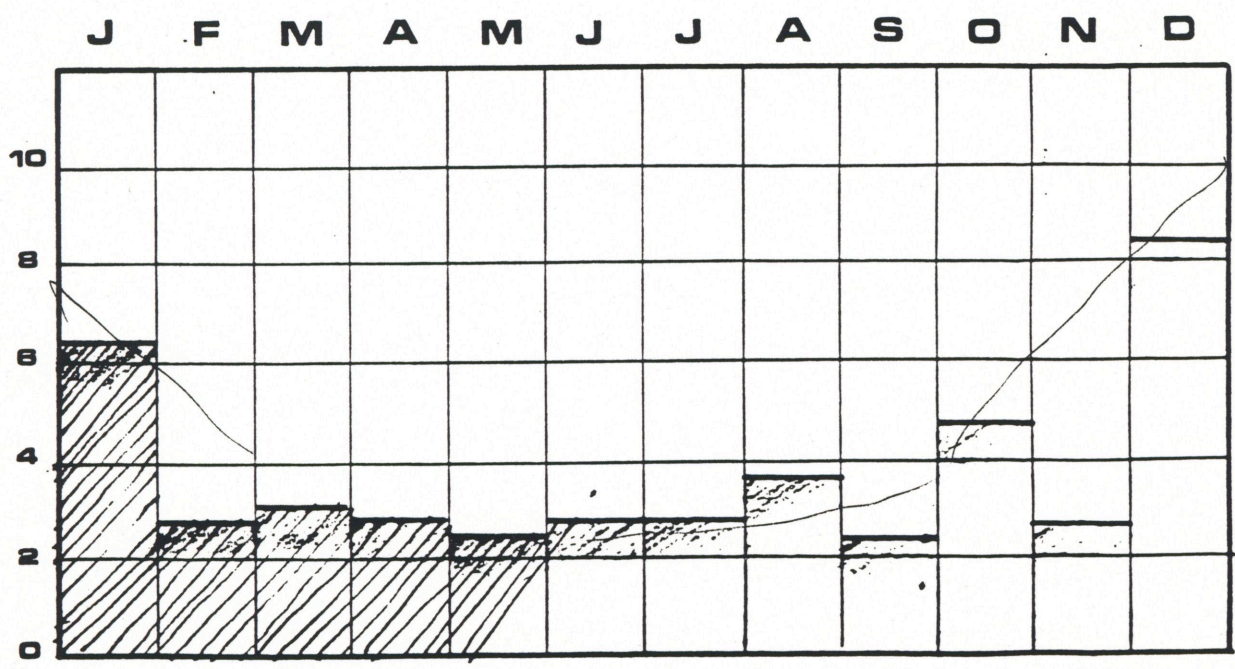
- Rain

- > Rainstorms are about 120-140 days a year.
- > Average yearly precipitation is 2000 mm/year.
- > Rainy season is during the months of October, November, December, and January.

HUMIDITY
%

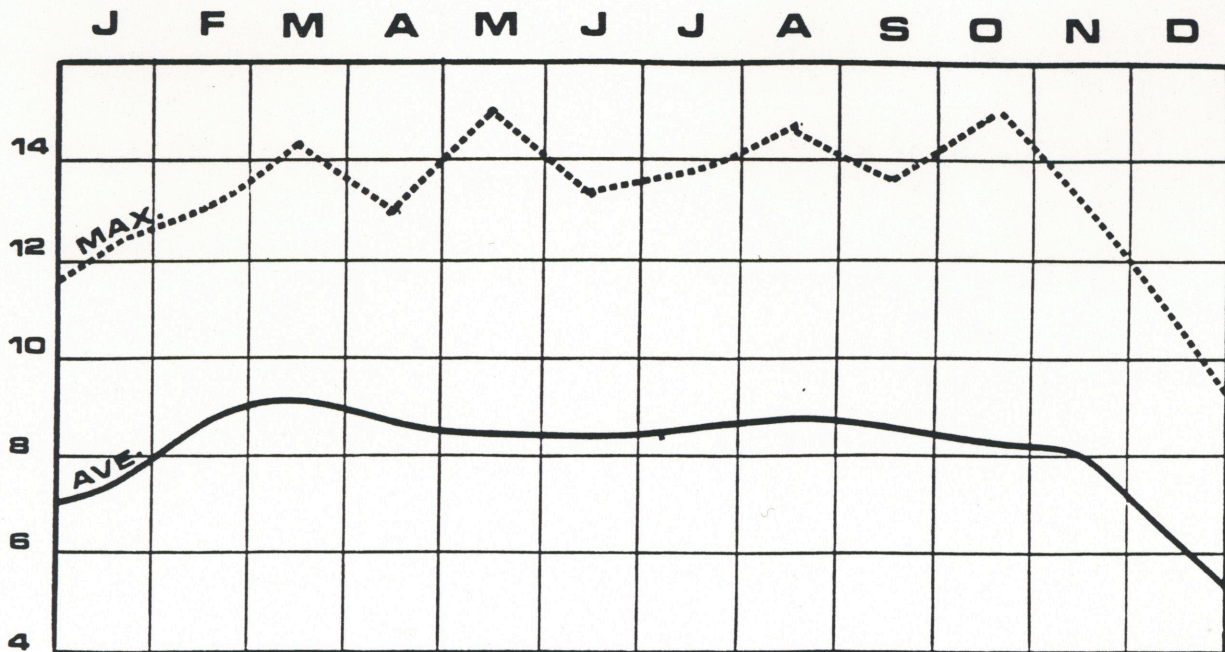


RAIN
INCH



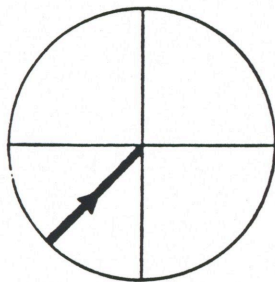
WIND

KNOTS



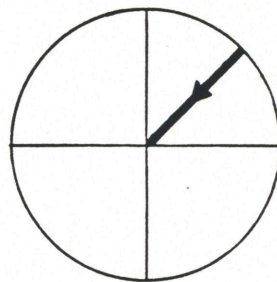
WIND DIRECTION

SOUTHWEST MONSOON



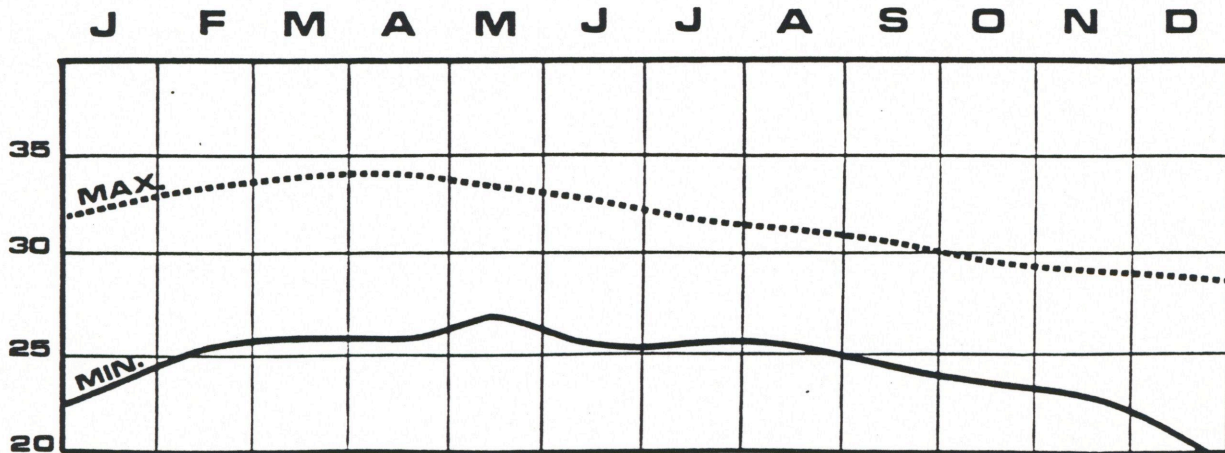
JUL.-SEPT

NORTHEAST MONSOON



OCT.-MAY

TEMP.



CLIMATE - PROBLEMS AND REQUIREMENTS

- The high humidity condition requires high air movement to increase the human comfort level throughout the year
- The high intensity of radiation requires special architectural treatment to cut the strong sky glare.
- The high temperature and rain throughout the year create an uncomfortably hot environment, and requiring building openness and shading to provide continuous and effective ventilation and protection from sun and rain.

According to the Olgyay bioclimatic chart, shading is required 88 percent of the year and ventilation is required 62% of the time in order to reduce the effects of high temperature and humidity to within the human comfort range.

BUILDING SETTING AND ORIENTATION

The placement of a building in relation to the sun's path is an important factor in reducing the adverse solar loading. During mid-day, only minor walls will be exposed and encountered by the major radiation. A majority of adverse solar loading occurs during the morning and afternoon when the low angle of the sun penetrates the East and the West wall openings and windows which directly heat up the interior space.

In order to minimize the are exposed to the low angle sun, it is recommended to orient the short sides of buildings toward the east and the west. In the Miami area, because of easterly prevailing winds, the buildings' faces are shifted 5% East of South. From this orientation, the building still can be shifted to 10% inn either direction.

Micro climate conditions can be improved if a proper relation between location of structure and land form is carefully studied. For instance, in the area of moderate topography, it is recommended for a building to be located toward the windward edge of a plateau or on a ridge crest or on a facing slope, or combination of these in order to receive the benefits of the increased air flows and higher wind velocities.

In the inland areas, the best location is high up a slope that faces the desirable wind direction. This also applies to buildings located at shore sites. However, the combination of topography and exposure to prevailing winds, sun, and view may determine the best setting and orientation for a building at both areas.

SHADING DEVICE

It is very obvious the impact of solar radiation in tropical regions will be greatly reduced, not only by effective design of structure and orientation, but by also providing adequate shading. Various methods of shading solutions are possible through the architectural treatment of a building and the extensive use of vegetation.

Trees and shrubs are relatively the simplest way of protecting a low building from solar radiation. A full protection however, can only be obtained from mature trees. Strategic placement of trees and careful analysis of solar movement will provide shade at various times of the day. Size, shape, width, and height of its crown, and also its

distance and position in relation to the building are other important factors to be considered.

As mentioned, shading solutions are possible through the architectural treatment of the building. There are 3 types of shading devices commonly used. These include horizontal screens, vertical screens, and a combination of both systems. Generally, horizontal screens are effective against high sun and are normally used on the north or south sides. Vertical screens are useful against the low sun on the east and the west facade. The combined vertical and horizontal screening can be used for any orientation depending on its depth and the dimensions of the openings.

Most important of all, the shading device should not only prevent reflection and avoid trapping hot air in any part of the building, but should also ensure quick cooling after sunset through the use of low thermal capacity materials.

- Projecting Roof

Effective shading devices for residential and low rise office buildings are best used on the north and south sides of the building for protection against high sun. These include the projecting roof, which also gives protection from the driving rain to areas like balconies or decks. An advantage of this solution is the unobstructed view.

- Projecting Floor Slab

Protecting floor slabs are commonly used for multi-story buildings, but this type of sun control is subject to

economic, structural, and aesthetic limitations. This type of construction has a number of advantages. The projecting slab, which simplifies the mounting, cleaning, and repairing of the facade unit, also provides an additional fire escape route in the shape of an encircling outdoor platform.

- Bearing Structure Building

Load bearing ports are placed outside the facade, giving a vertical appearance of structure and can provide a shade for a building. If the distance from the curtain wall to the load bearing ports is deep enough, a sufficient shading will be provided. This system will also give a protection from the low sun on the east and west facades.

Disadvantages of this solution are the loss of net floor area and high construction costs. On the other hand, fully effective sun protection will not be obtained just by using this solution. Other shading devices are required to go with the system.

- Balcony and Loggia

The primary function of the balcony and loggia is to provide an outdoor sitting place. However, because of the minimum dimensions required and their position, they allow for sun protection. A combination of both systems will provide effective sun protection and also reduce the sky glare.

- Screen

Screens consist of larger or smaller units which represent a single diaphragm placed as a second facade or

curtain wall in front. Usually they are a mesh of composite, horizontally and vertically interlocked louvre elements divided into smaller units.

The screens not only prevent a glare problem, they also ensure privacy and permit adequate daylight into the building. However the appearance of the screens give a psychological cage effect to the user in the building.

- Awning, Awning Blind, Roller Blind

Basically these sun protection devices are based on the sun angle principal. The difference between the awning and awning blind is that the awning can only be opened at an outward angle, while the awning blinds and roller blinds can only be opened parallel to the facade.

Modest space requirements, the use of translucent materials. and modest structural requirements are needed for its installation are the advantages from the system. The problem of heat concentration outside of the facade must be kept in mind when using the system.

- Window Shutter and Jalousie

The most widely used and oldest external sun protection device in housing is the window shutter and jalousie. The advantages of this system include the fact that it is uncomplicated in operation and that it provides some burglar protection.

As far as the maintenance goes, both types consist of wood and are easily handled. Limitations of size which restricts the use of the jalousie has been solved by alloys and plastics available on the open market.

- Shade, Louvre, and Blind

Generally a shade is signified by a solid slab-like unit fixed horizontally or vertically outside the window or door. The louvre is considered as to be a shade broken up into small components and the blind is the most effective external sun protection device. It consists of small slats of blades which can be moved singly or jointly.

DAYLIGHTING

One of the problems in this region is not only the high solar radiation, but also dealing with the strong glare while at the same time admitting sufficient daylight. In residential areas, the glare problem is usually solved using the same device used for shading. For instance, low overhang eaves and a wide verandah are used to obstruct the view of the sky. This verandah in addition to shading the walls and windows, also allows a continuing ventilation during violent storms.

In traditional houses, coarsely woven mats, which in some cases can be rolled up, window shutters, and awnings are good examples of ways to eliminate glare while still admitting a good quality of light.

In high rises of office complexes, shading devices as vertical and horizontal screens are playing an important role in reducing glare problems. Nowadays, sun protection glass which is made purposely for this problem is available on the market. The glass, which is surface treated with a special coating, will not only help reduce the glare, but

also give the desirable view to the inhabitants.

Internal sun protection elements such as moveable louvres, screens, of venetian blinds of alloy or plastic also offer glare protection. These elements however, will work effectively only with a combination of other devices.

WIND AND VENTILATION

In hot humid climates, temperature and humidity are significantly reduced by air movement. In order to increase human comfort, the flow of air should be maximized by careful placement of plants and building masses.

Basically, natural ventilation and air movement perform these functions; giving the building a supply of fresh air and cooling the interior and the users of the building. The changes in temperature between two places will create a pressure difference and automatically produce ventilation. The only natural force available to increase the performance is the wind.

The position and size of vegetation located near the building will affect the air flow patterns, especially for a low building. Since the ventilation is so important in hot humid regions, the air should enter the building through the shade provided by the vegetation.

For indoor areas the position and design of the inlet, overhang, sun shading devices, and the internal organization of structure are among the important factors effecting air movement patterns. For instance, the adjustable louvres or screens not only block solar radiation, but also can allow passage of a cooling breeze into the building.

The wind velocity can be increased if planted corridors of vegetation are properly orientated toward the wind's direction. Hedges should be placed at a distance from buildings so as not to block air movement; or can be used as wind funnels.

Usually a good solar orientation is most suitable for prevailing winds. the best solution must be reached in each case. For this reason a building facade which is orientated at 45 degrees to the wind direction is preferred because of the average indoor velocity and a better distribution of indoor air movement.

In urban areas, the affect of tall buildings must be analyzed because if a low building is situated in the wind shadow of a block, the air flowing to the low building will be in the opposite direction. For this purpose a clustered arrangement of blocks which is more open and loose, and allows the cooling breeze, is frequently used.

STRUCTURE OF BUILDING

There is a continues exchange of heat between a building and its outdoor environment. The amount of heat being exchanged depends largely on the nature of its wall and roof. It is very appropriate to choose the right properties and types of structure to maintain the thermal comfort inside the building.

Since the radiation can be reflected and absorbed in this region, light colored materials are the best choices. For the wall construction, lightweight material with a low

thermal value is widely used. In traditional hot climate construction, there is often no wall and the house is raised on stilts for better exposure to prevailing breezes. In addition, this kind of construction allows for cooling of the floor below, particularly during the night time.

Roof construction in hot humid zones is usually pitched and has an overhang in order to provide better protection against nasty rain and sun glare. The roof surfaces should be reflective or light in color. However, all too often it is too difficult to maintain this surface because of high humidity and fungal growth problems.

In other cases a space between the roof and ceiling are recommended for providing a thermal barrier. Other construction types such as the ventilated double roof are also desirable, but must withstand the strongest winds.

As mentioned, windows are another important factor in better indoor air distribution. Windows should be large enough to allow air movement through the interior spaces. Other elements such as screens, lattices, grills, and others are useful to admit the air flow into the building.

CONCLUSION

Due to the intensity and the amount of solar radiation, solar energy systems are likely to be the favorite in this region. Because of the adverse affects of radiation and humidity, a high priority should be given on the site planning principles. Only with a proper application of these principles and the intelligent consideration of the factors

of orientation, shading, and wind utilization, will the adverse affects of climate be altered to increase human comfort levels.

ARCHITECTURAL CONTEXT

Malaysia is an old country but a new nation. The society has a long, rich, history of foreign cultural interaction and intervention of adapting and absorbing ideas into the culture.

Kuala Lumpur and many other cities in Malaysia are under a process of rapid transition to a modern city. The existing architectural heritage is culturally diverse, and influenced by the architectural styles from the Indian Kingdom (7-14th century) to post mid 18th century buildings like the colonial residences, Chinese shop houses, Indian influenced institutional buildings, and others still can be found in the city.

Nowadays, due to the economic and social factors of the city, a new government policy tries to formulate a "Malaysian" identity. This has tended to dismiss such urban tradition types as contaminated by colonialism.

In the central planning area of Kuala Lumpur, morphology of shop houses is being replaced gradually with modern shopping centers and high rise office complexes. Yet the new development is often brutally approached and conceived as isolated objects.

There are also needs for affordable housing for different individuals and groups of people in the city. A lot of housing projects have been developed to overcome the problem. Town houses, condominiums, apartments, and link houses are a few examples of housing trends which are

rapidly being built in the suburbs of Kuala Lumpur.

The architectural context of the city is basically diverse from the traditional shop houses and the street market activities to increasingly growth of high rise office complexes.

Here are the analysis of architecture that can be found near the area of the site and also in most parts of the country. Even though some of the buildings are located in rural areas they still play a major role in the development of architecture in the city.

TRADITIONAL SHOP HOUSES

The shop houses are the basic components of urban fabric of all Malaysian cities. This type of building is more associated with the Chinese. The variations of this building type were in existence by the late 18th century, from Batavia to Calcutta and Madras. This type of building was brought into this country in the early 1800's by the British colonials for the Chinese merchants who settled in major cities during that time. Such cities as Penang, Melaka, and Singapore.

Most of the shop houses in Kuala Lumpur are new. They were built during the first half of this century, and the earliest examples are no older than the 19th century.

The earlier shop houses were predominantly timber construction and can be identified by the use of Chinese motif, curved gabled end roofs, glazed ornamental tiles for the facade decoration and clay roof tiles. The facade

treatment of these shop houses became quietly elaborate by the turn of this century with endless experimentation that paralleled the late 19th century European eclecticism, to give the illusion of false front to the more permanent brick structure.

The depth of the shop houses vary from 100 feet to 150 feet and the widths vary from 12 feet to 28 feet, with a width to depth ratio of 1:3 to 1:7.

These are the basic elements in the earlier shop houses:

1) Covered colonnade that forms a verandah way and provided shade from the sun and the rain when they are linked together.

2) Two story high; shop in front, courtyard in the middle, and storage at the rear of the first level; living, dining, kitchen, and sleeping on the top.

3) Central air well for natural ventilation and lighting.

4) Jack roof on the ridge of the roof, allowing the natural draughts to enter through the openings to cool the heated roof and reduce radiation to the rooms below.

5) Tiled roof.

6) Full height windows on the facade which have openings that are taller than they are wide and are closed by window shutters.

7) Openings protected by a rail or balusters at the bottom to prevent people or objects from falling off.

8) Window shutters sometimes are fitted with louvers between the framing.

9) High ceiling, which is about 12 feet or more.

10) Linear arrangement, which creates a regularity along the street.

Recently, the traditional shop houses are eroded from two sides: firstly, due to the process of land use reorganization and the increased land value in the city center, which makes the city's two story structures uneconomical to maintain; secondly, the government policy, in an effort to formulate a "Malaysian" identity in architecture, has tended to dismiss such traditional types as contaminated by colonialism.

The change in family structure has also played a great role in the diminishing of the traditional shop houses. The extended family structure is slowly changing towards the nucleus family structure. The functions provided by the traditional shop houses do not seem to fit the need of the current family structure.

The new shop houses are overlooked as an architectural resource because of their utilitarian functions. They tend to be insensitive to the existing environment. Even though the second floor of these new shop houses is cantilevered to give a suggestion of verandah way, they are often high and inadequate for pedestrian environmental protection. The height of the verandah way often disrupted the scale and the intimacy of the streetscape.

ROW HOUSE

The row house is the forefather of the shop house, link house, terrace house, and the town house in Malaysian cities. All these houses are in a row, sharing all the load bearing party wall.

The earliest shop houses were built in Malacca for the residences of wealthy Malaccan Strait born Chinese merchants. The row houses are a typological variation of the shop houses with the exception that the ground floor is adapted for residential function and the verandah way is not created by the overhung second floor but by a lower secondary roof.

TRADITIONAL MALAY HOUSE

There are many Malay cultural regions in Peninsular Malaysia. Each of these regions has its own traditional architectural style. Even though these houses vary in their form, they have not departed from the social and cultural norms of the Malay people. They were also determined by the dictates of the society and custom, rather than individual wishes.

These are the common features that can be found in each of the houses in different regions even though they have their own distinctive character.

- 1) Raised on stilts.
- 2) Timber construction for structure; floor and wall
- 3) Thatch roof
- 4) Open plan with several different levels

5) Uses familiar building materials and construction system, which allows for additions and recycling components

6) Lots of window openings

7) Faces the morning sun and the Quiblat in Mecca

8) High pitch roof

The houses are divided into three major spaces: the main house, the kitchen house, and a bedroom which is located in the main house. The functions of these spaces are not specific but depend on the occasion. The women are forbidden to be in the main house in there is a religious or social occasion; they congregate in the kitchen house. An eating place can also be a sleeping place during the night.

In general, these houses reflect the cultural background of the Malay people and the climatic condition of the country.

There are only a small number of traditional Malay houses in the Central Planning Area. They can be found in Kampung Bary, which is a resettlement village that was established during the anti-terrorist war between 1948-60. This village is about 3 miles northeast of the site.

MOSQUES OF PENINSULAR MALAYSIA

A mosque is a prayer and gathering place for a Muslim community. There are two categories of mosques that can be found in Malaysia. The first is the type influenced by the traditional and regional style. The second is the ones that were influenced by the styles from the outside, such as the Middle East and Northern Indian styles.

There are a variety of architectural styles that can be found in the traditional mosques of Peninsular Malaysia. This is because it was built by different ethnic groups of Malay people that live in different regions of the country. The basic elements that can be found in a traditional mosque are:

- 1) High step pitch roof
- 2) Floor raised above ground level on stilts
- 3) Wood construction
- 4) Thatch roof
- 5) Three-tiered roof
- 6) Silang gunting (scissors cross) roof
- 7) Rectangular or square plan with a section on the south side that juts out (a place for the imam or a prayer leader)

There are only a few mosques left. Most of the wooden structures have been replaced by more permanent materials such as bricks and tile roof.

Mosques with onion shape domes were brought in in the 20th century by the British. Most of the earlier mosques of this type were built near the Sultans' palaces by the British in order to please the Malay rulers. Mosques with onion-shaped domes can be seen in almost every part of Malaysia now.

THE STREET HAWKERS

The street market activities can commonly be seen along the street in front of the shop houses in most Malaysian

cities. Their activities can also be found in parking spaces that are created when a large number of vendor carts are grouped together.

There are two general groups of vendors in the street markets. The first group is the street hawkers. They are a portable version of a specialty store where certain goods from a certain group of products will be sold by each individual vendor. Such goods are toys, household products, fruit, clothing, and many more.

The second group is the food stalls where each stall has its own chef who offers his/her own meal in great quantities, which is very fast and very cheap.

Even though these street markets are organized in a certain manner, their location contributes problems such as congestion along the sidewalk and they are often considered non hygienic. They make inefficient use of limited valuable land. Due to this problem, they are reaccommodated away from their prime location, which has changed a lot of the picturesque quality and the street activities of the Malaysia cities.

Recently, the government has recognized the role of these street markets as providing a first economic foothold in Malaysian urban life. Consequently, they are encouraged and protected, a special provision is required for them in any major urban development. In most cases, they are paradoxically banished from the street levels and relocated in the basement or upper floors of a development due to economic reasons.

LINK HOUSES - Kuala Lumpur (1972)

Owing to accelerating land costs, the trend for young couples to set up home independent of parents, and the increasing difficulty in securing domestic help, a demand was created for compact, self-contained units. However, terrace houses came to be regarded in the 60s as lacking in privacy, congested, and poorly ventilated. This led us to design the first 'link houses.' The plan is so flexible that front and back can serve as the main entrance. The house revolves around the courtyard and central service core, maximizing ventilation for all the rooms.

TOWN HOUSES - Kuala Lumpur (1984)

These freehold terrace houses are typical of the speculative suburban development now happening on the outskirts of Kuala Lumpur. This design adapts traditional house layouts to the needs of a single-unit family (rather than the traditional extended family). They are popularly sought after by young middle-class professionals of all ethnic backgrounds. Considerable variety can be achieved with the design, with only a few minor changes to the roof lines.

SHOPPING CENTERS

Many shopping centers and suburban shopping complexes have been developed in Kuala Lumpur recently due to the rapid development, increasing density, and the sophisticated expectations of a modern consumer society.

Many of the traditional shop houses in the city center are being supplanted by shopping centers which in certain respects retain the individual ownership of the shops inside. A shopping center is now a favorable place to go shopping compared to the traditional shop houses because it has a comprehensive program of retail business and it has a better thermally controlled environment.

OFFICE TOWERS

Office towers are the newest building type that can be found in the Central Planning Area (Central Business District) of Kuala Lumpur. The Central Planning Area is now under a rapid transition from two-story, mixed use residential and commercial shop houses into a totally commercial Central Business District. There is no shared notion of what form this city should take, so the new office towers are sometimes conceived as an isolated object without any context, and still going through a process of defining it.

The implementation of office towers in the Central Business District is because they signify status, "though a consensus for expression of that status is still to be developed."

THE LRT SYSTEM

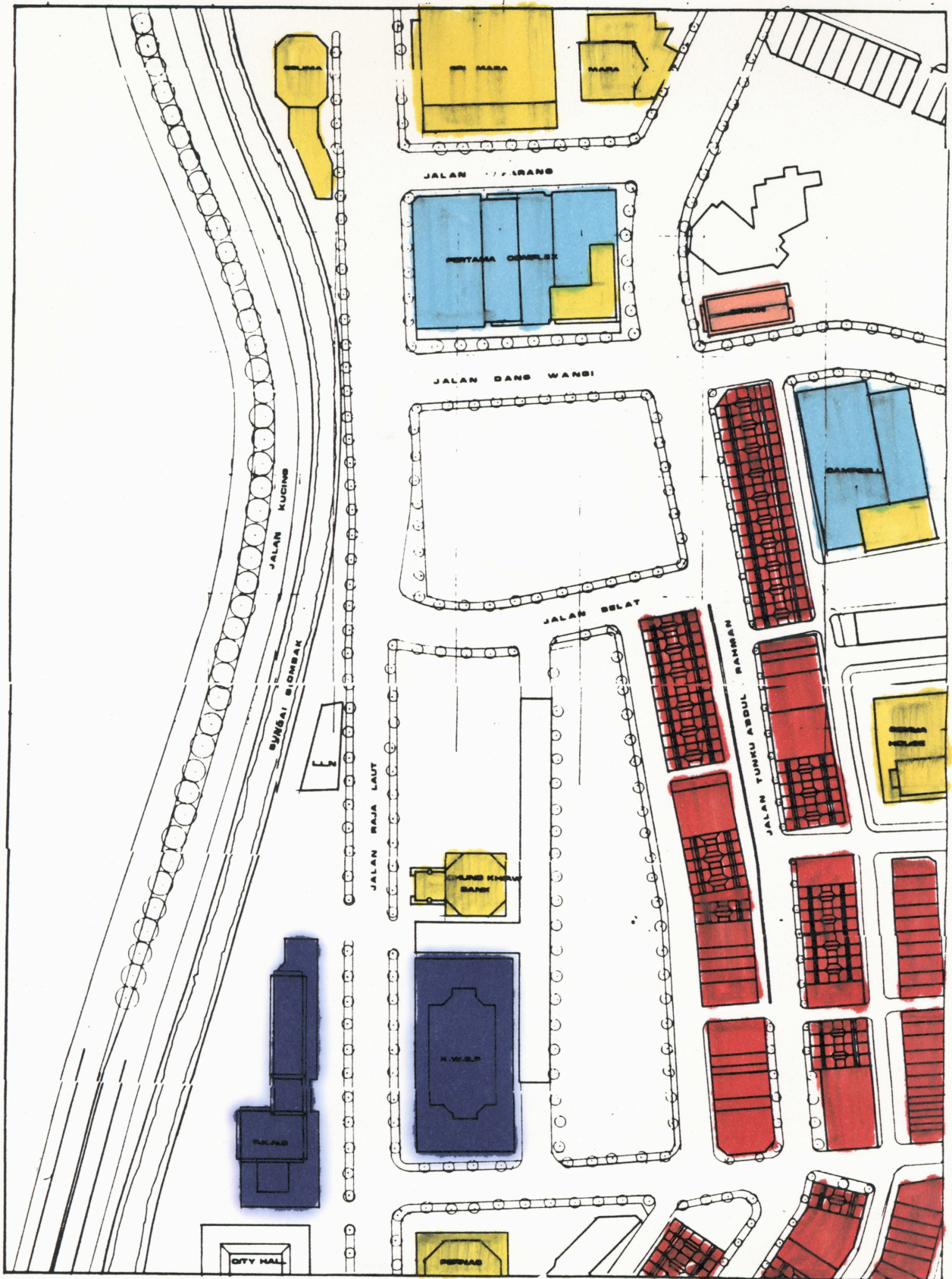
According to the Kuala Lumpur Structure Plan 1984, by year 2000 the population in Kuala Lumpur will increase to 3.05 million and car ownership is expected to increase from 125,000 cars in 1980 to 578,000 in year 2000. This would mean the increasing difficulty in finding locations for new roads or increasing the capacity of existing roads, particularly in and around the city center.

It is evident that in order to reduce the rate of increase in motor vehicles on the roads, particularly private cars, it would be necessary to provide an attractive means of transportation in the form of a much improved transit system.

A study done by a local engineering consultant, who was appointed by the government and the City Hall, confirmed that there is a need for a public transportation system bases on buses plus a light rail transit system.

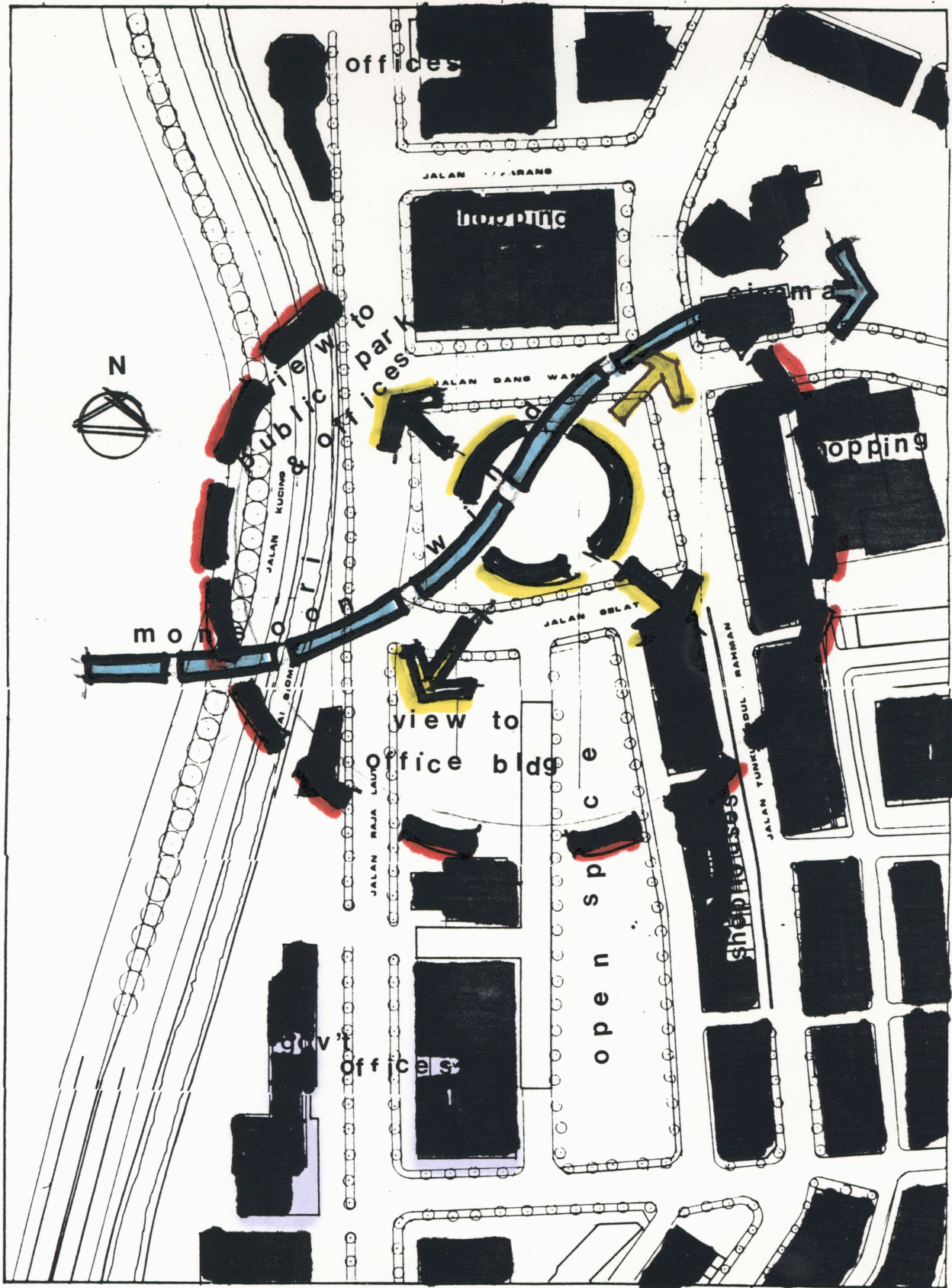
It is anticipated that the first passenger run of Kuala Lumpur's LRT system will be sometime in the beginning of 1989.

ARCHITECTURAL CONTEXT



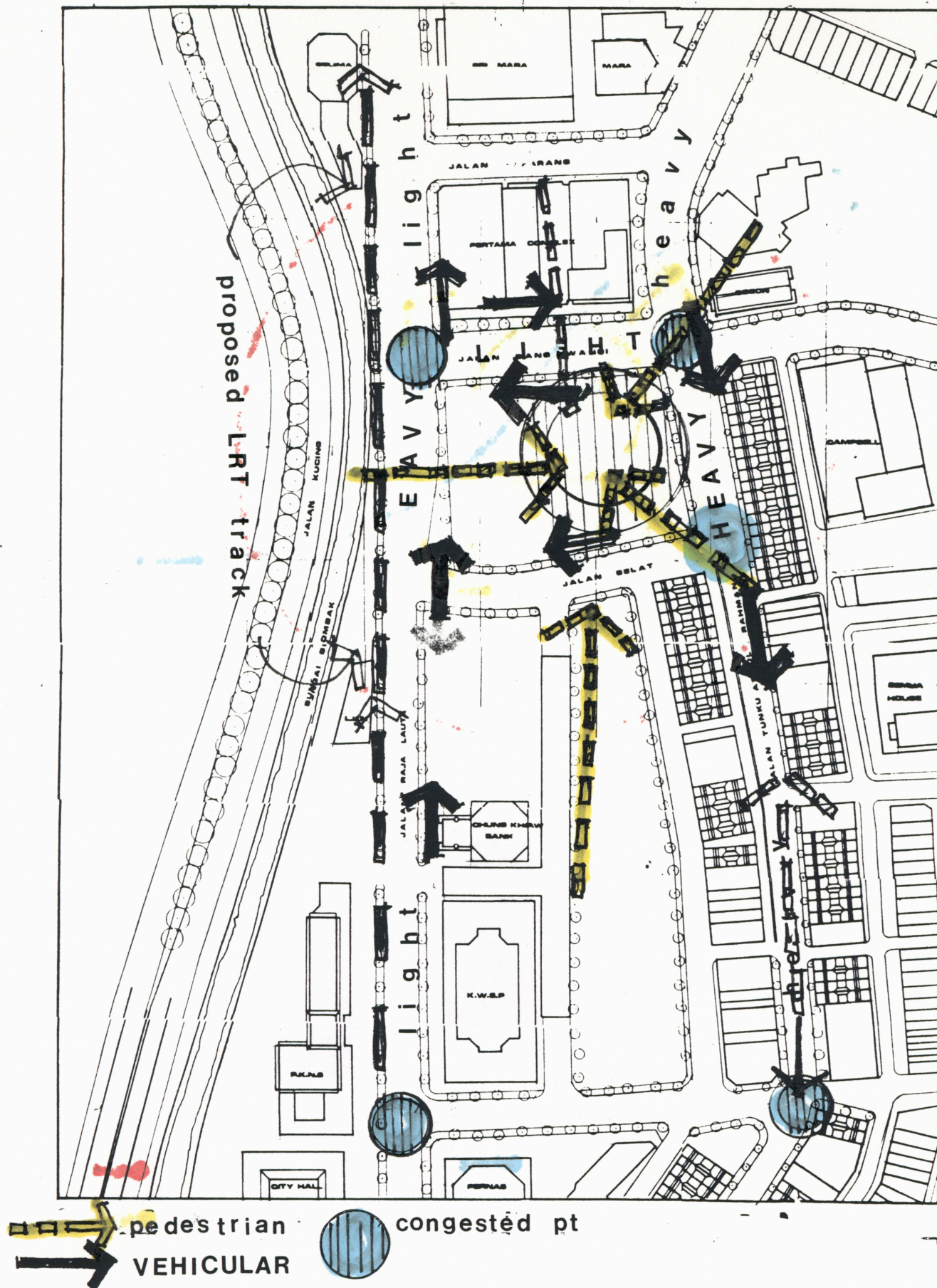
- | | | | | | |
|---|--------------|---|--------------|---|--------|
|  | GOV'T OFFICE |  | SHOPPING CTR |  | CINEMA |
|  | PRIVTE |  | SHOHOUSE | | |

SITE ANALYSIS



SOLAR ORIENT.
 WIND
 VIEW

PEDESTRIAN / VEHICULAR



PRECEDENT

MULTI-USE COMPLEX

Gayah Square

KUALA-LUMPUR-MALAYSIA

Programs (Sq. Ft.)

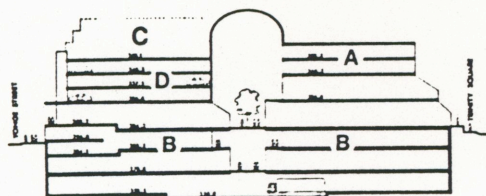
The Project	Offices	Retail	Residential	Parking	Total
Queen's Quay Terminal	368,986 47%	195,870 25%	147,992 19%	58,189 9%	771,037
Eaton Center	1,486,343 59%	582,692 21%	93,893 3.5%	587,547 21.5%	2,750,475
Calwer Strabe	45,208 23%	58,126 30%	23,142 12%	41,979 21%	168,455
West Mount Square	269,370 26%	125,830 11%	444,650 44%	211,897 19%	1,051,747
Average %	47%	20%	15%	18%	100%

The Project: Toronto Eaton Center, Toronto, Canada

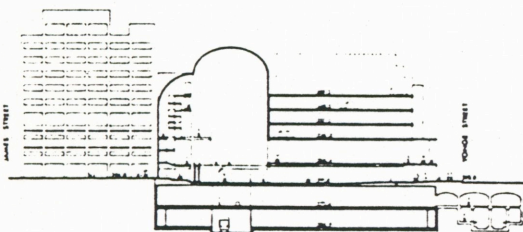
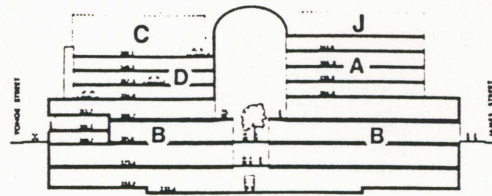
The Site: 630,761 sq ft

The Program:	1) Commercial, office	1,486,343 sq ft
	2) Commercial, retail	582,692 sq ft
	3) Residential/hotel	93,893 sq ft
	4) Parking @ 1,490 cars	587,547 sq ft
	5) Total	2,750,475 sq ft

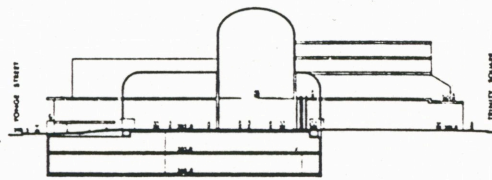
Floor Area Ratio: 4.4:1



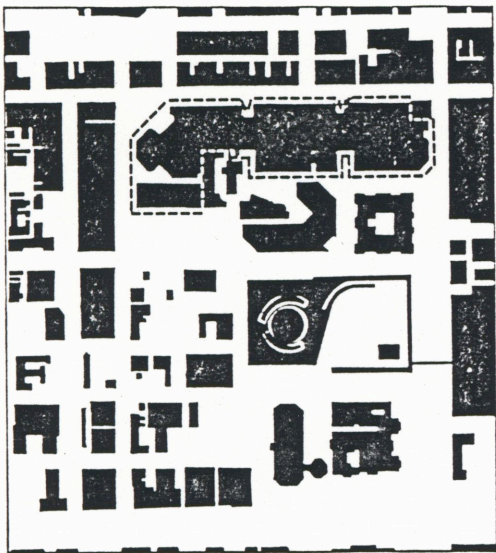
1



4



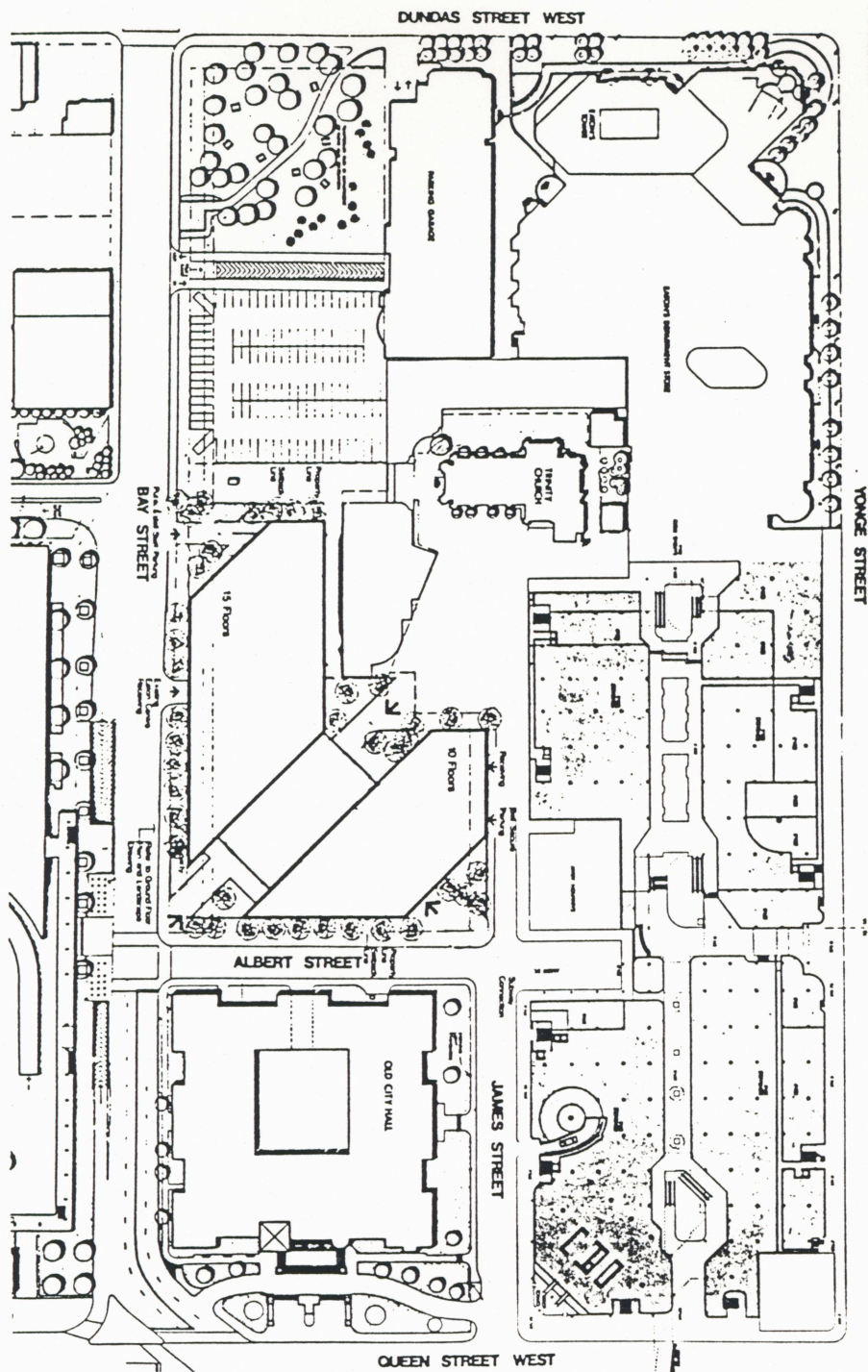
5

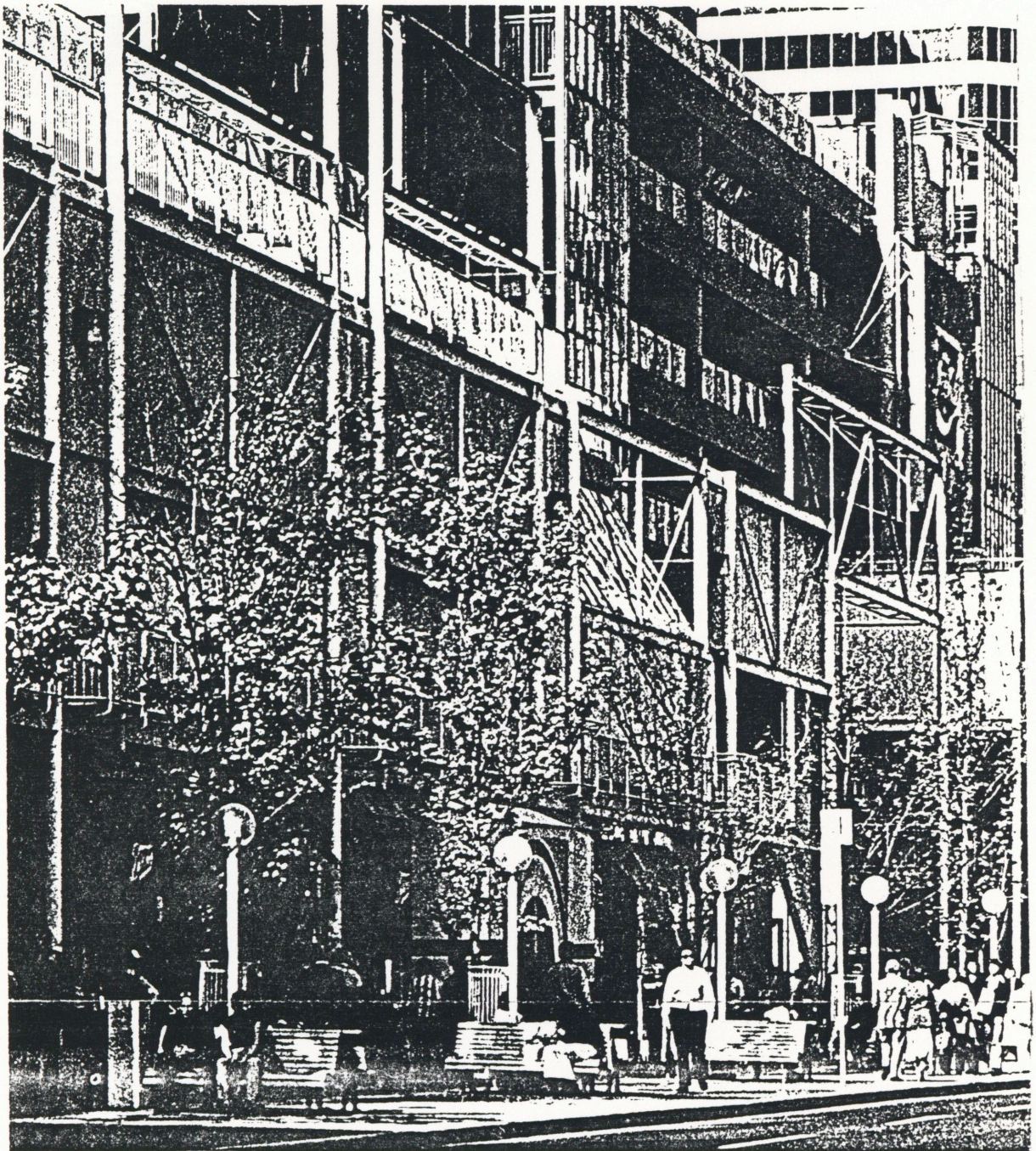


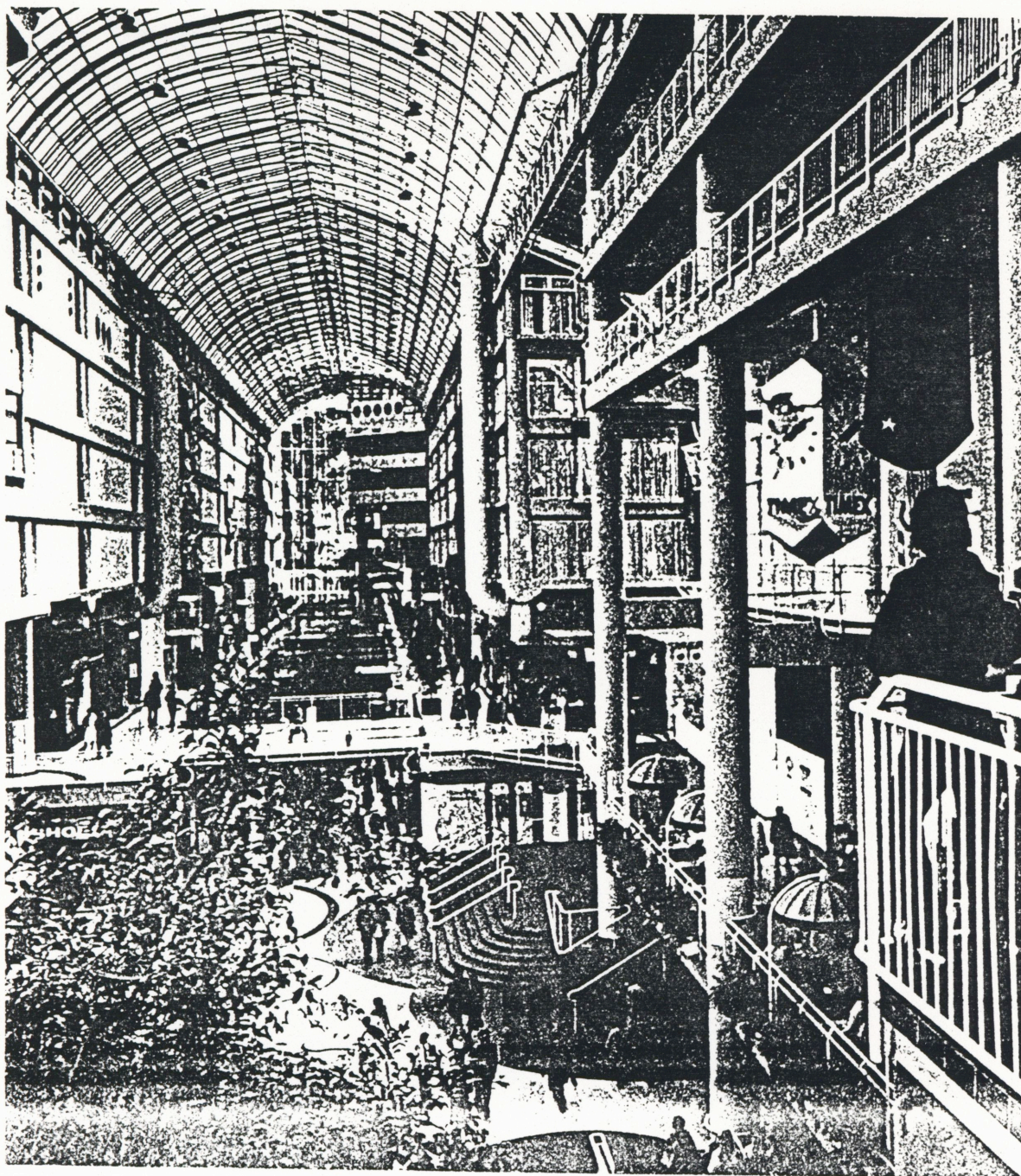
2

- 1 Longitudinal section
- 2 Figure ground plan
- 3 Site plan and ground floor plan
- 4 Section looking North
- 5 Section looking South

- A Commercial, office
- B Commercial, retail
- C/J Residential, hotel
- D Parking







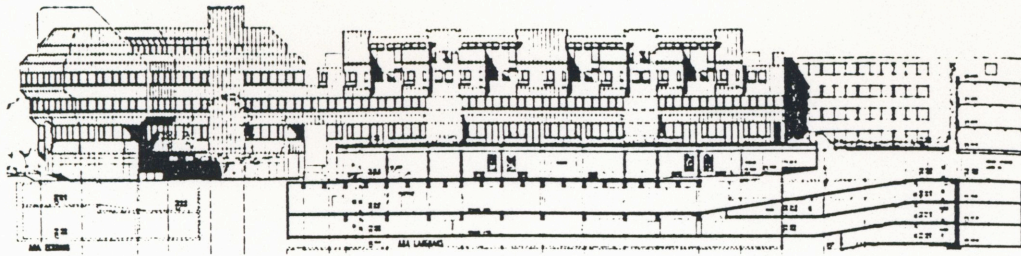
The Project: Calwer Strabe, Stuttgart, Denmark

The Site: 45,445 sq ft

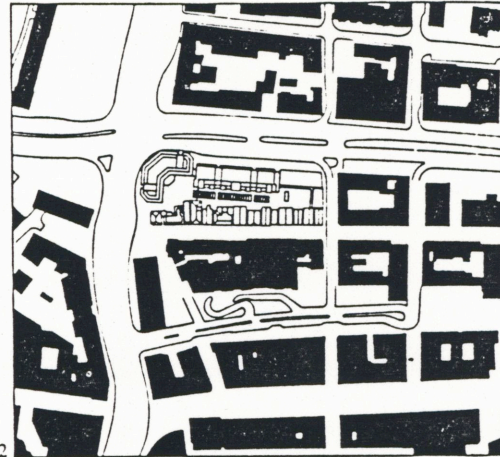
The Program:	1) Commercial, office	45,208 sq ft
	2) Commercial, retail	58,126 sq ft
	3) Residential @ 36 units	23,142 sq ft
	4) Parking @ 108 cars	41,979 sq ft
	5) Other	25,834 sq ft
	6) Total	194,289 sq ft

Floor Area Ratio

4.3:1

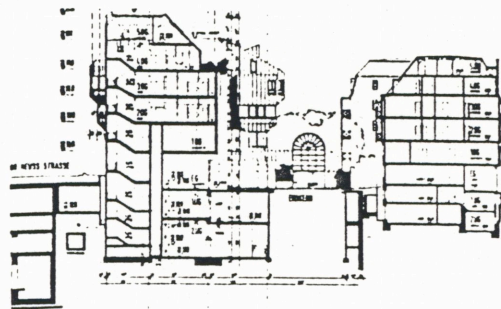


1

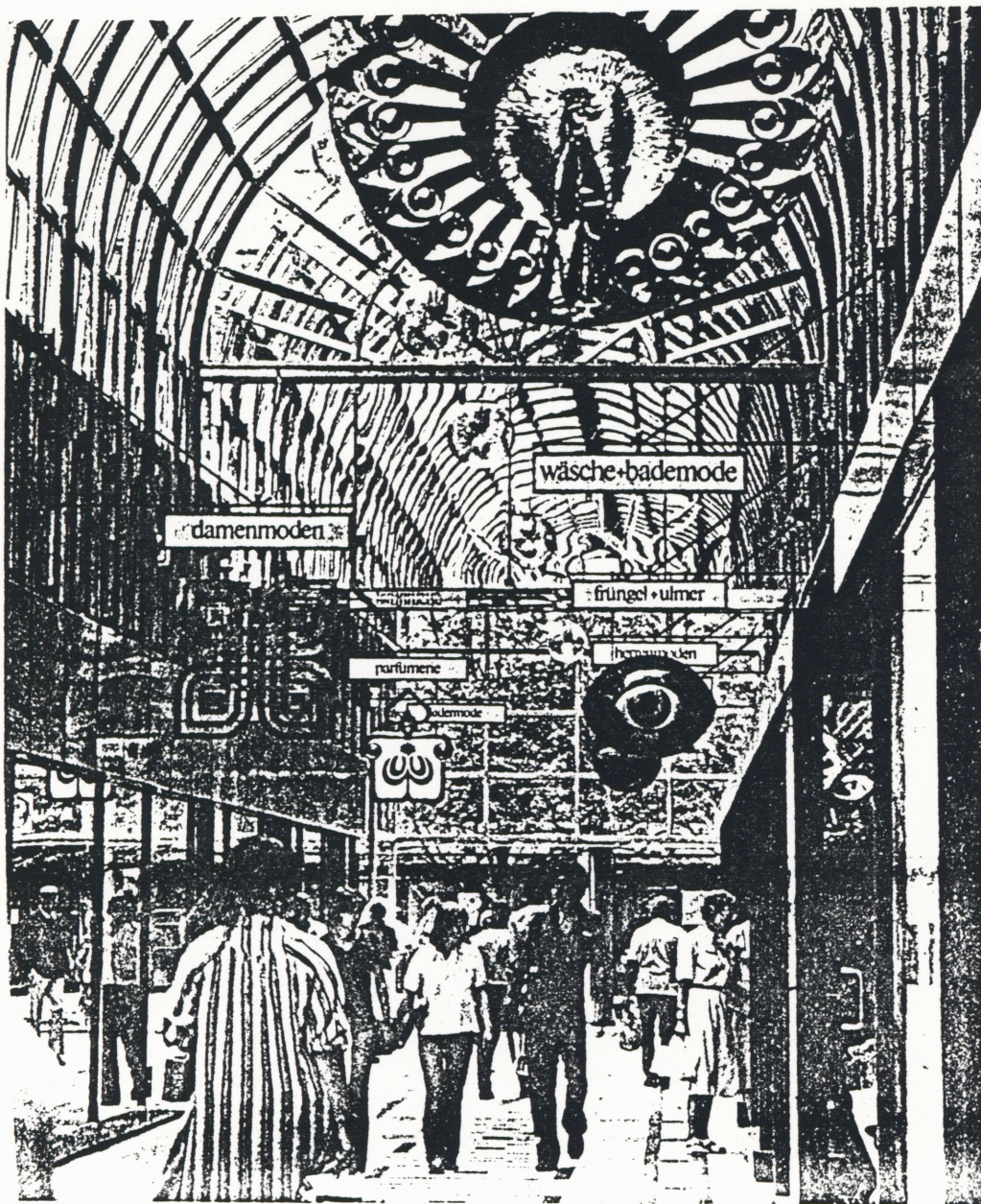


2

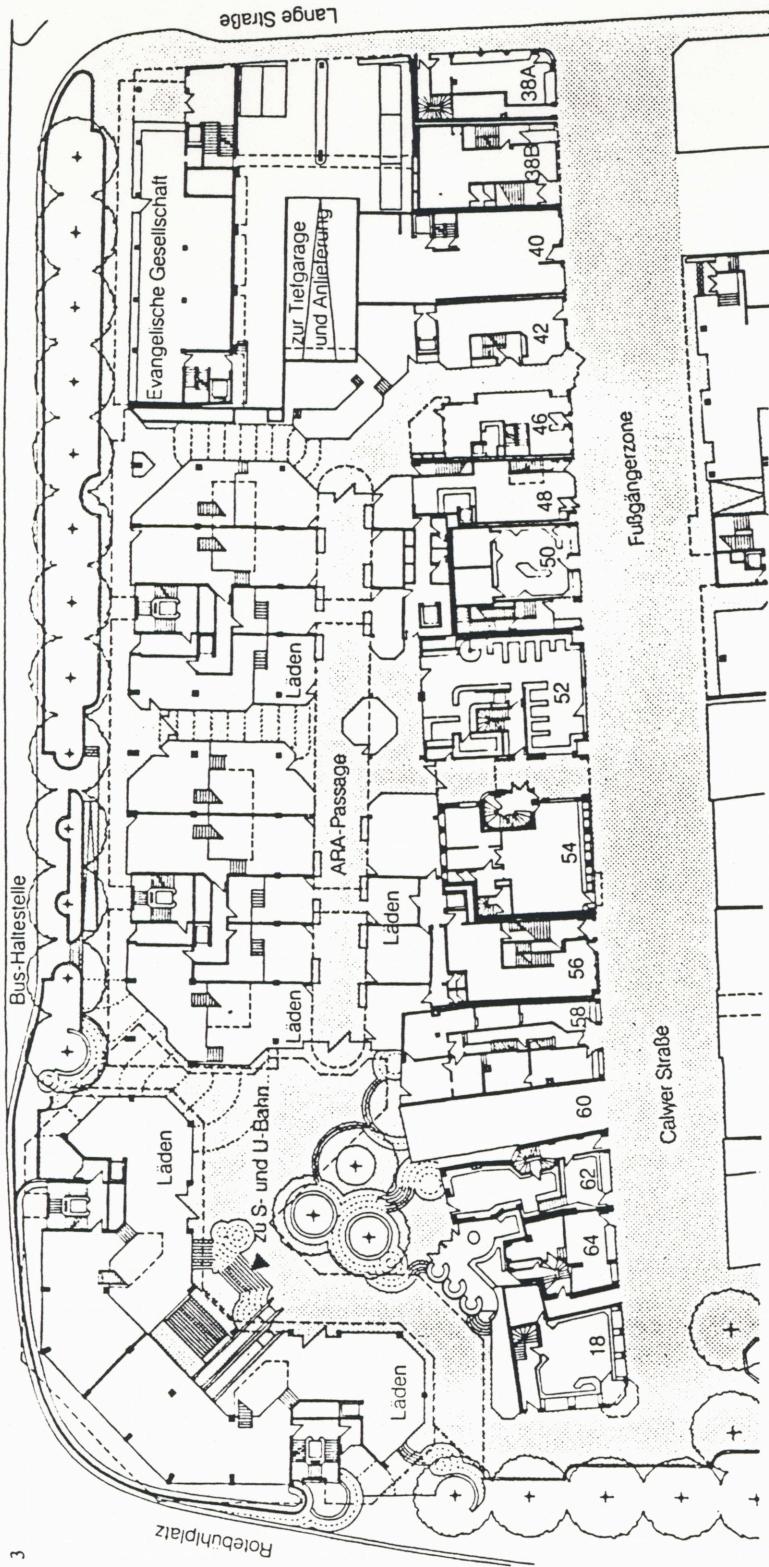
- 1 Longitudinal section
- 2 Figure ground plan
- 3 Ground floor plan
- 4 Latitudinal section



4



Theodor-Heuss-Straße



The Project; West Mount Square, West Mount, Ontario, Canada

The Site: 157,639 sq ft

The Program: 1) Commercial, office 295,870 sq ft

2) Commercial, retail 125,830 sq ft

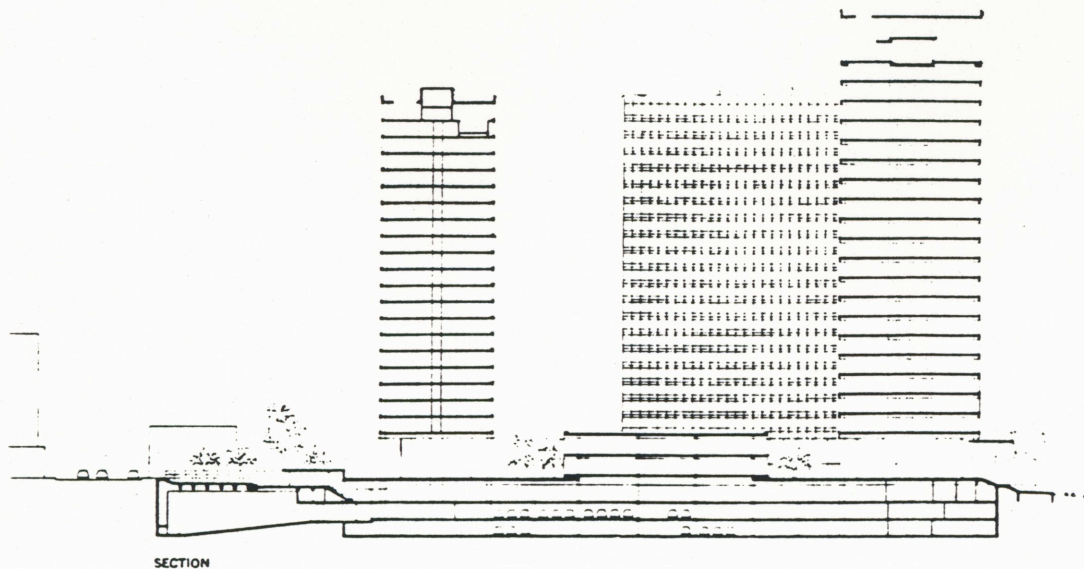
3) Residential 444,650 sq ft

4) Parking 211,897 sq ft

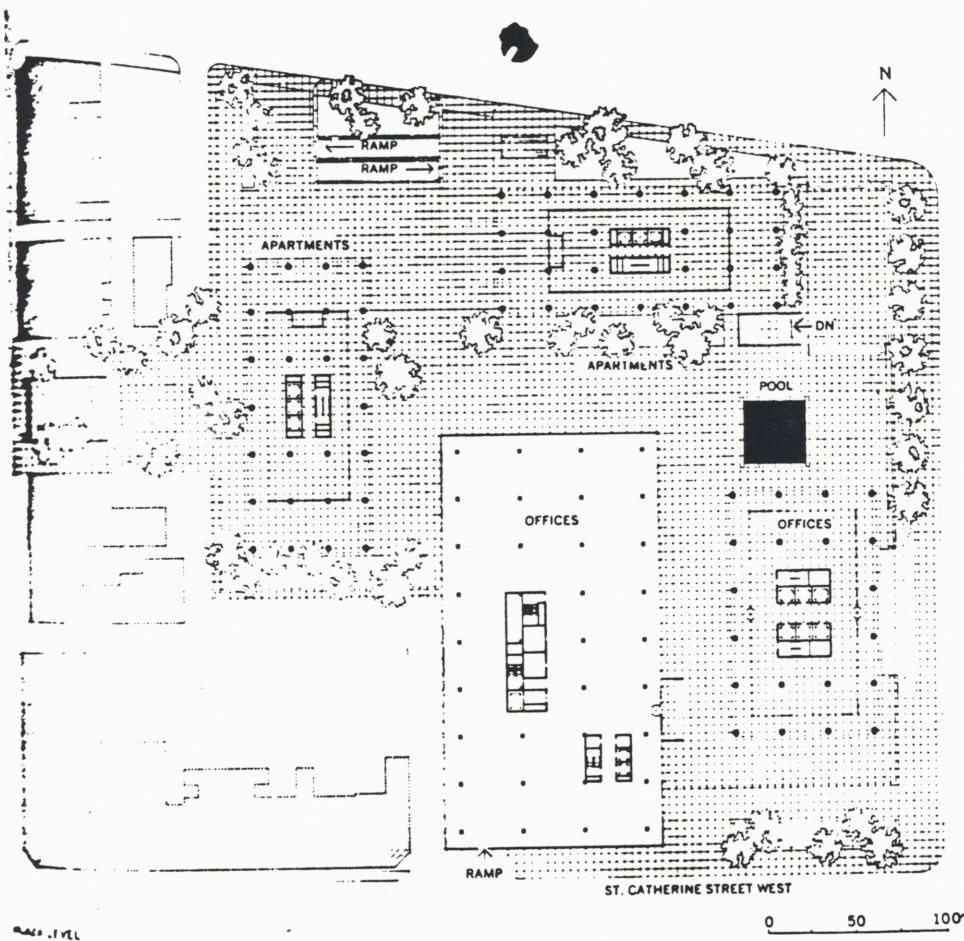
5) Total 1,078,247 sq ft

Floor Area Ration

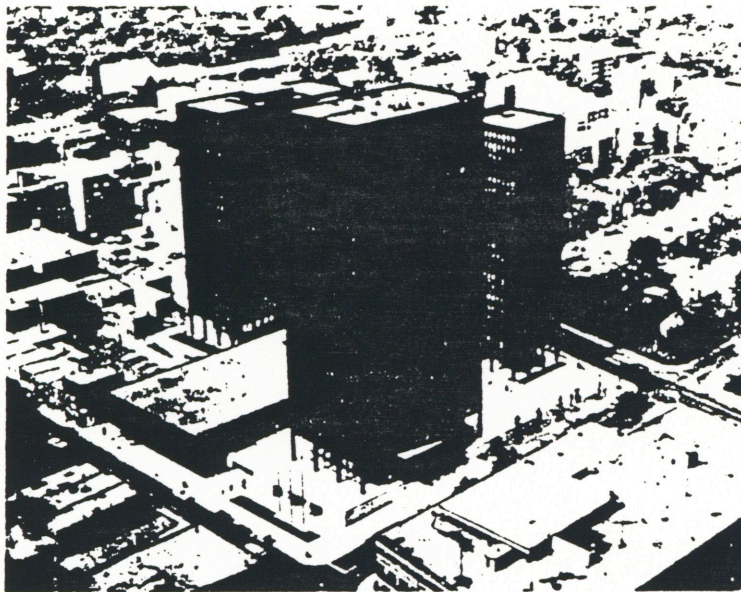
7.1



SECTION



BASE LEVEL



The Project: Queen's Quay Terminal, Toronto, Canada

The Site: 188,179 sq ft

The Program: 1) Commercial, office 368,986 sq ft

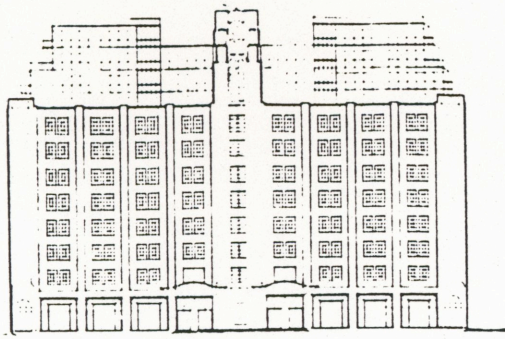
2) Commercial, retail 195,870 sq ft

3) Residential @ 75 units 147,992 sq ft

4) Parking @ 85 cars 58,189 sq ft

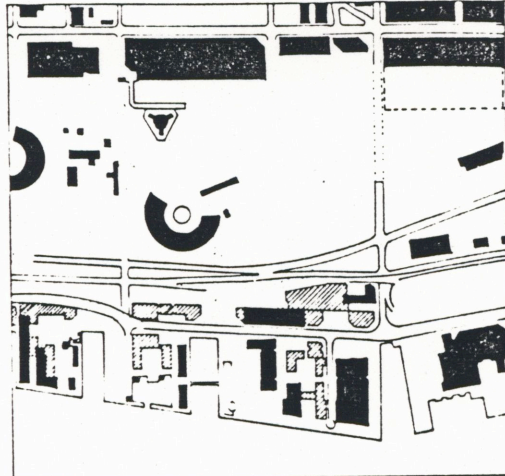
5) Total 771,037 sq ft

Floor Area Ratio 4.1:1



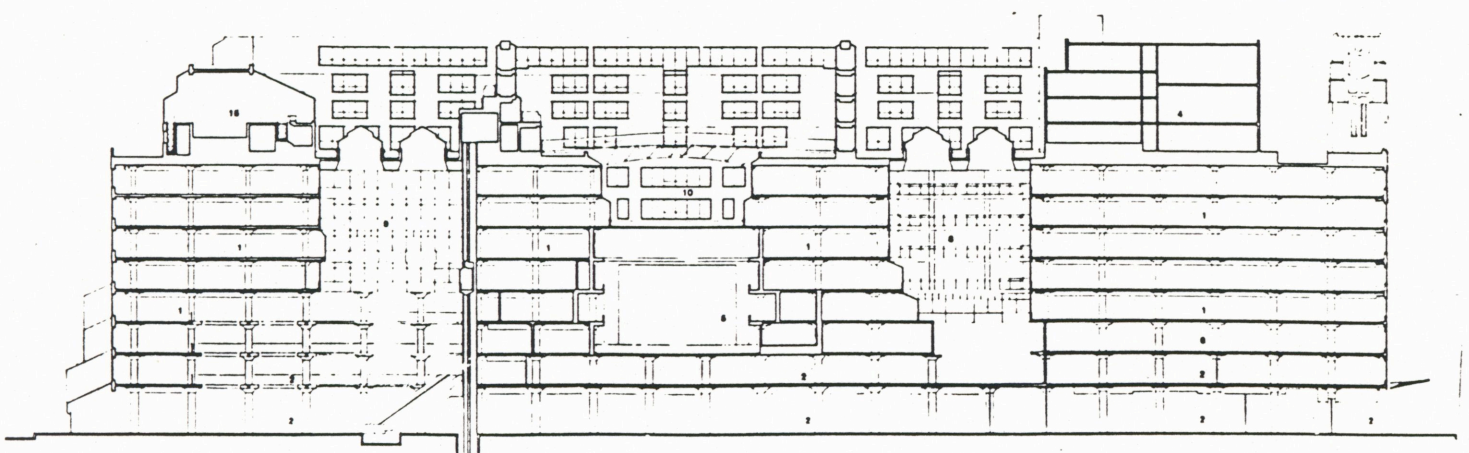
1

- 1 North elevation
- 2 Figure ground plan
- 3 Site plan and ground floor plan
- 4 North-South section
- 5 North-East elevation



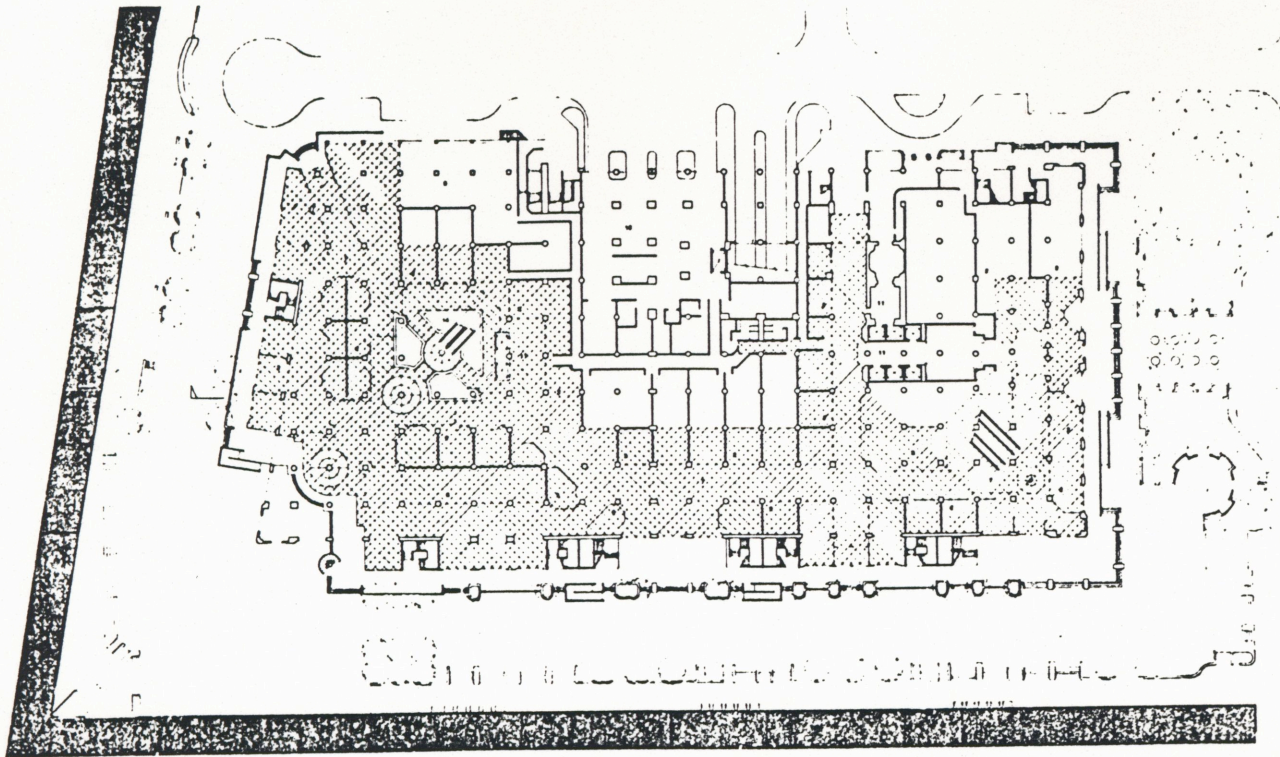
2

PROPOSED BUILDINGS



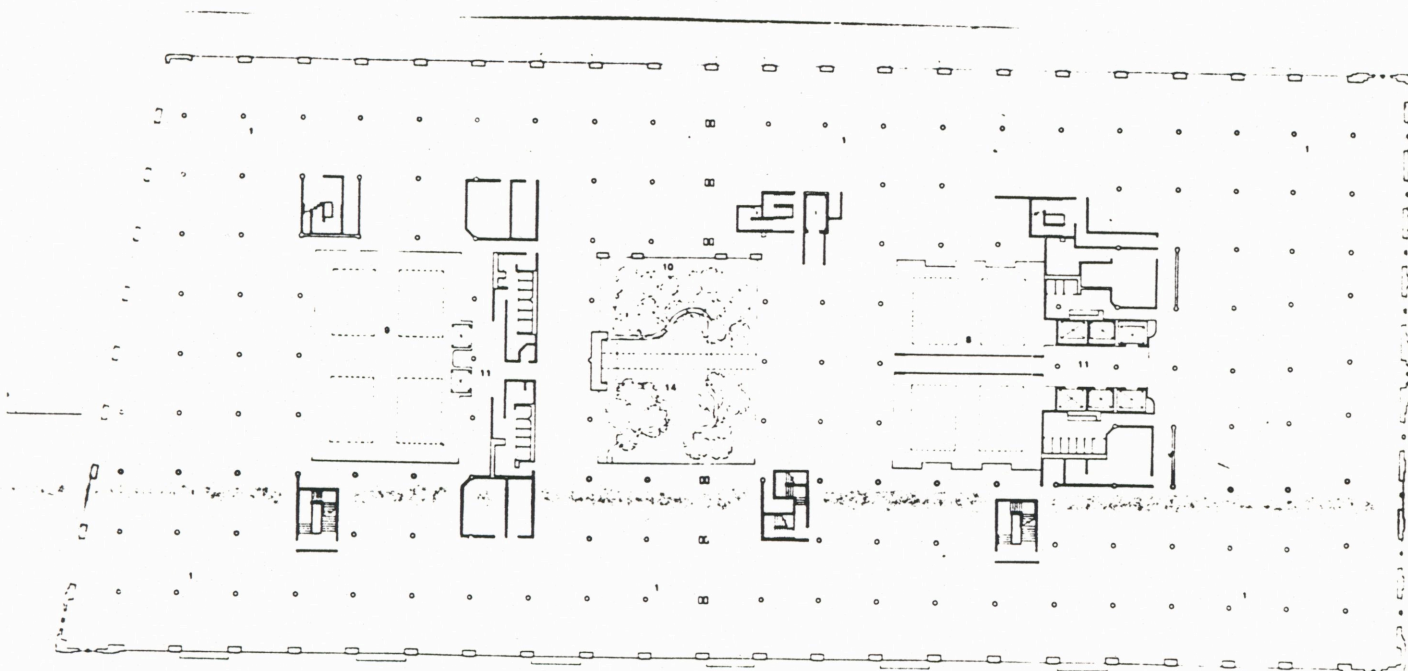
SECTION THROUGH QUEEN'S QUAY TERMINAL





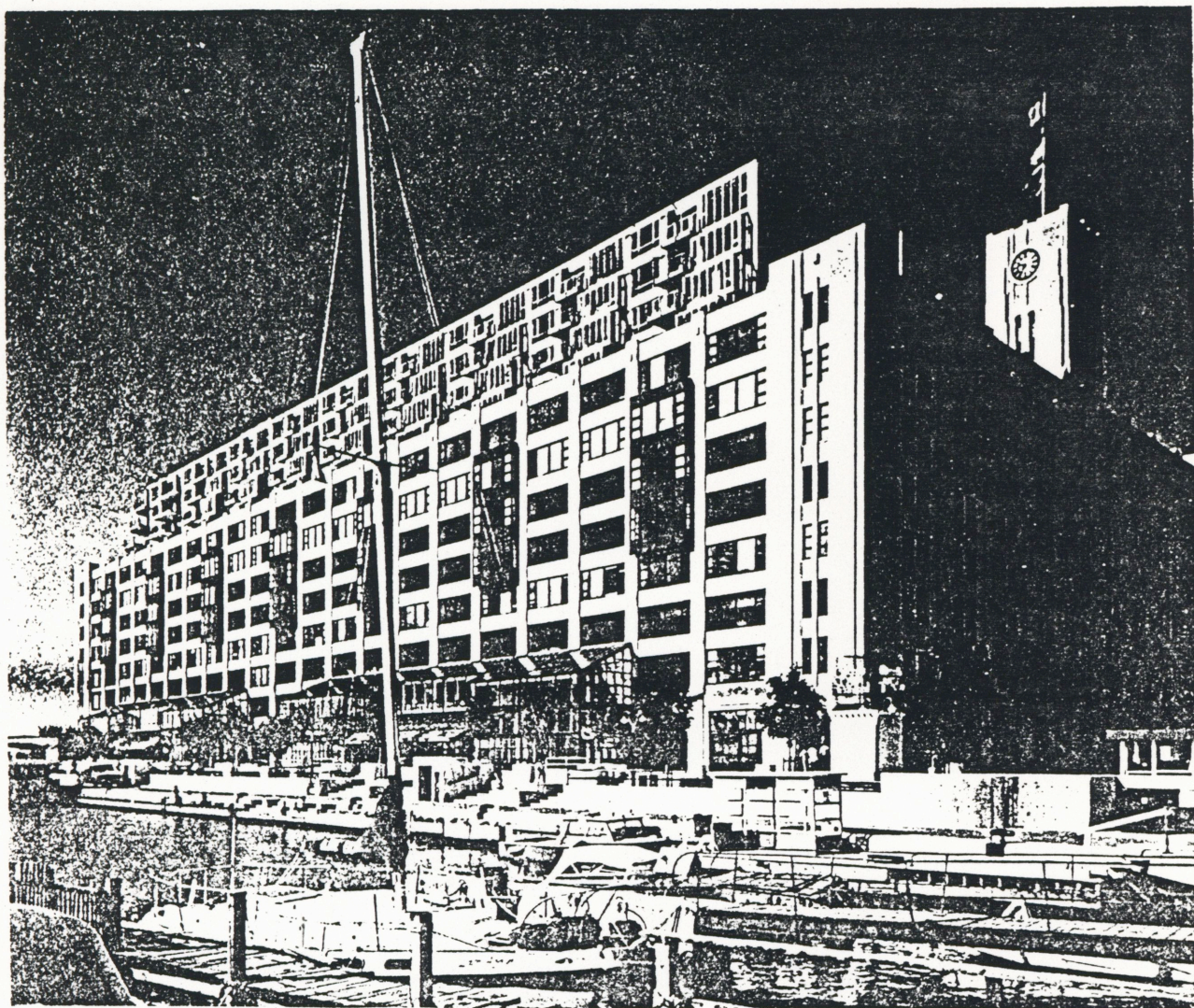
LEVEL 1 FLOOR PLAN

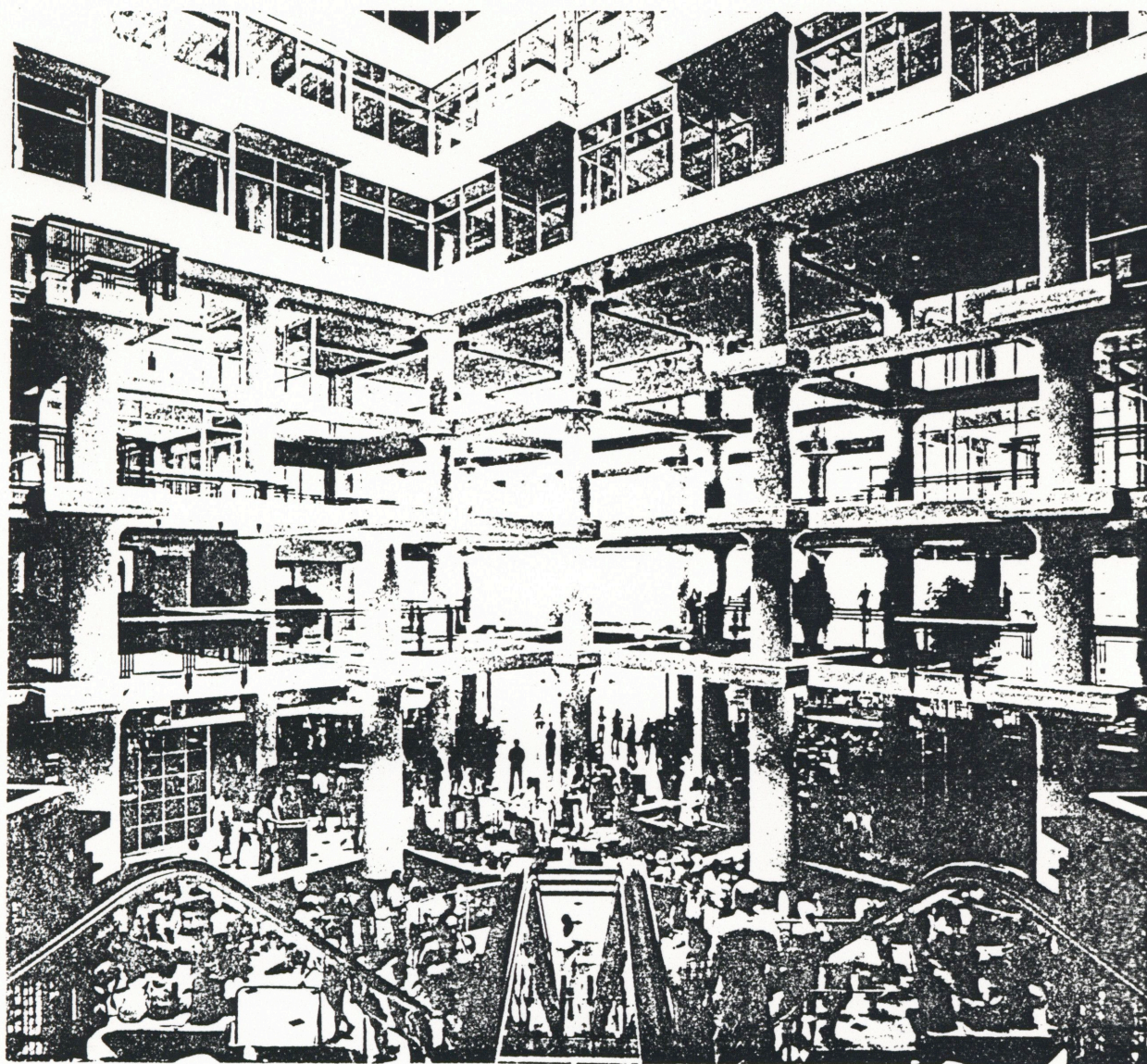
3



LEVEL 8 FLOOR PLAN

6



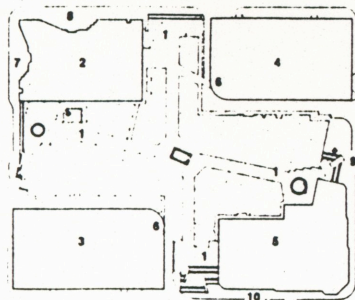


The Project: Santa Monica Place

The Site: 392,040

The Program:	1) Retail - 163 shops	285,000 sq ft
	2) Two department stores	280,000 sq ft
	3) Public Peck (Mall)	10,000 sq ft
	4) Parking @ 2034	407,800 sq ft
	5) Total	981,800 sq ft

Floor Area Ratio 1:3



MALL LEVEL PLAN

Legend

- 1 Entrance
- 2 Robinson's
- 3 South Parking Structure
- 4 North Parking Structure
- 5 The Broadway
- 6 Access to Mall
- 7 Second Street
- 8 Broadway
- 9 Fourth Street
- 10 Colorado Avenue

Project: Santa Monica Place,
Santa Monica, Ca.

Architects: Frank O. Gehry &
Associates; Frank O. Gehry, Hak
Sik Son (project designer), Greg
Walsh, Rene Ilustre, Stephen
Tomko, design team; Gruen As-
sociates, Inc., Consulting Archi-
tects.

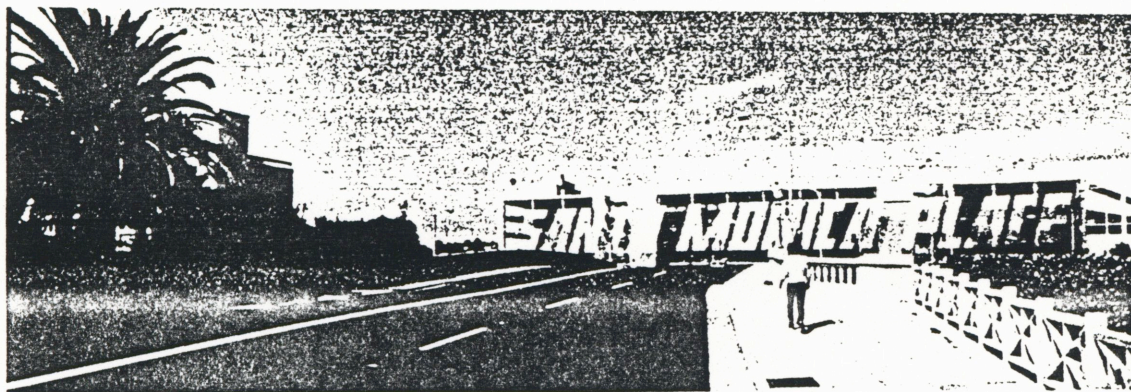
Program: urban shopping
center based on suburban type,
including 163 shops, mall, and
other amenities anchored by two
department stores designed by
other architects; total including
285,000-sq-ft leasable area,
10,000-sq-ft public deck, 2034
on-site parking spaces, and
280,000 sq ft for the two de-
partment stores.

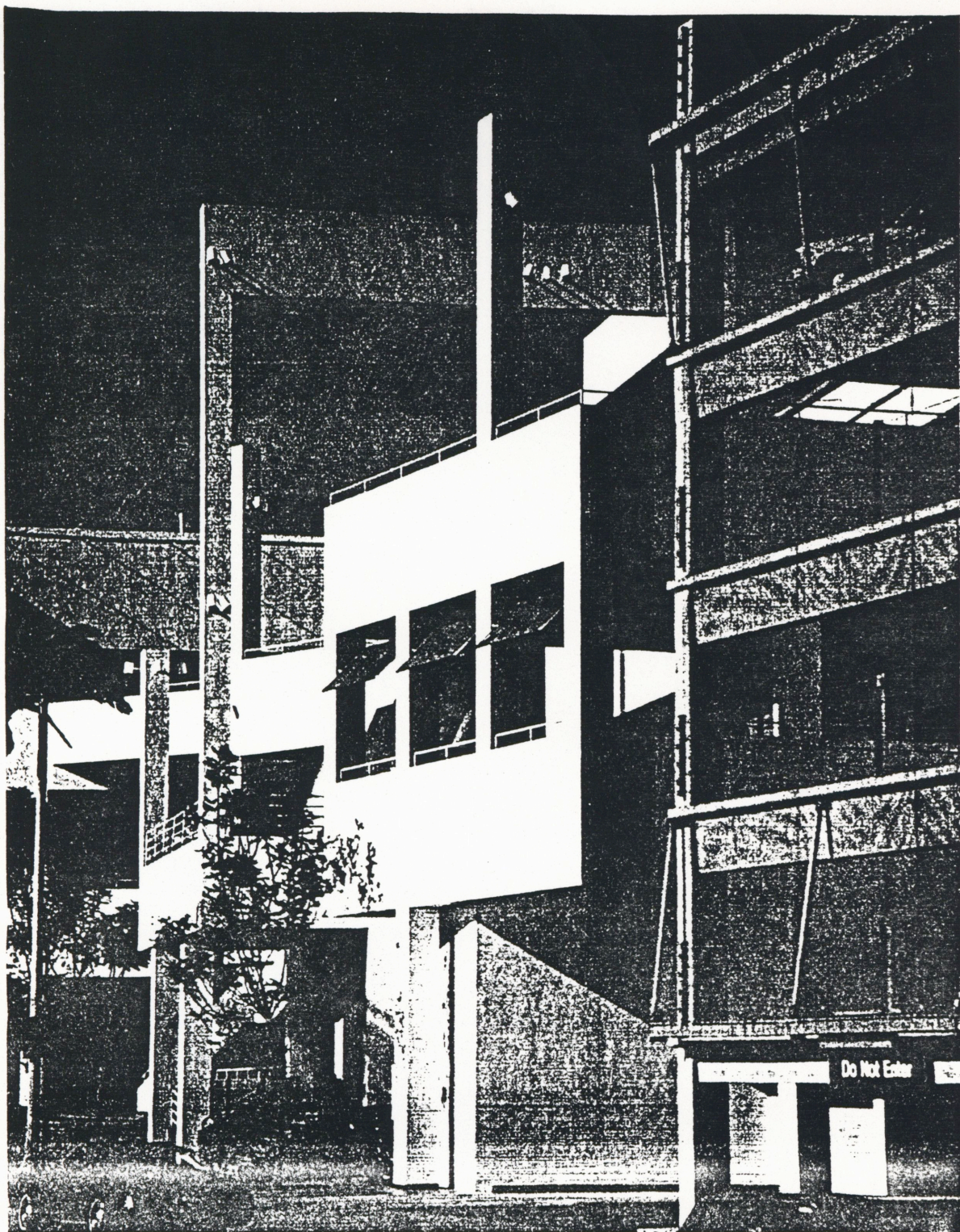
Site: two-square-block area of 9
acres in redevelopment area land
adjacent to existing pedestrian
shopping street.

Structural system: concrete
piles, poured concrete, and block
retaining walls at grades; struc-
tural steel and composite slabs
elsewhere.

Major materials: concrete plas-
ter and glass in aluminum
frames on exterior; gypsum
board interior cladding (see
Building materials, p. 168).

Mechanical system: rooftop
package air-conditioning units
with economizer cycle; no heat-
ing.





The Project: Troy Shopping Mall, New York

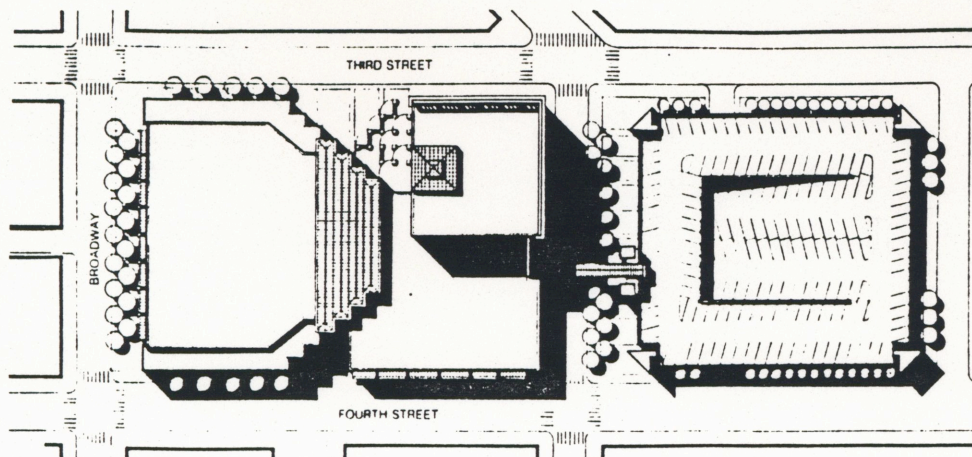
The Site:

185,000

The Program:	1) Retail (2 levels)	120,000 sq ft
	2) Department Store	40,000 sq ft
	3) Public Space (atrium)	17,000 sq ft
	4) Parking @ 550	110,000 sq ft
	5) Total	287,000 sq ft

Floor Area Ration

1:2



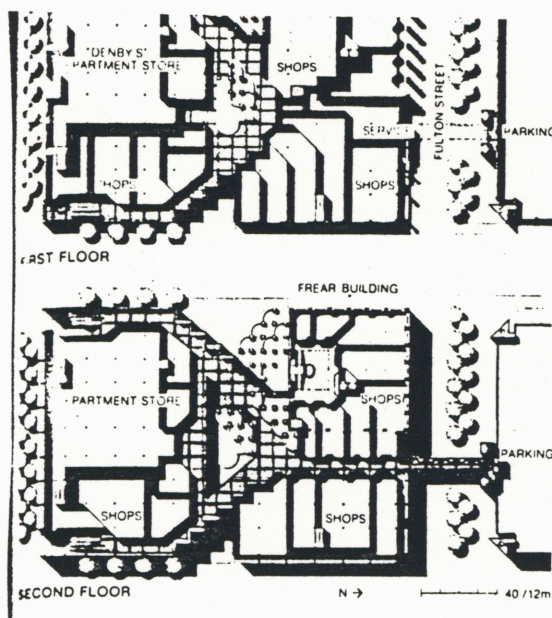
Architects: Geoffrey Freeman Associates, New York, and ELS Design Group, Berkeley (formerly Elbasani, Logan, Severin, Freeman, New York and Berkeley). Vincas Meilus, Leon Parham, project architects; Peter Aaron, Lynn Ross Malloy, assistant architects. Associated architects for commercial space: Harrison & Mero.

Client: City of Troy, John Buckley, City Manager.

Site: 135,000 sq ft on two parcels of land in downtown; existing 1890s department store, 50,000 sq ft adjoining. Remainder of site cleared by urban renewal.

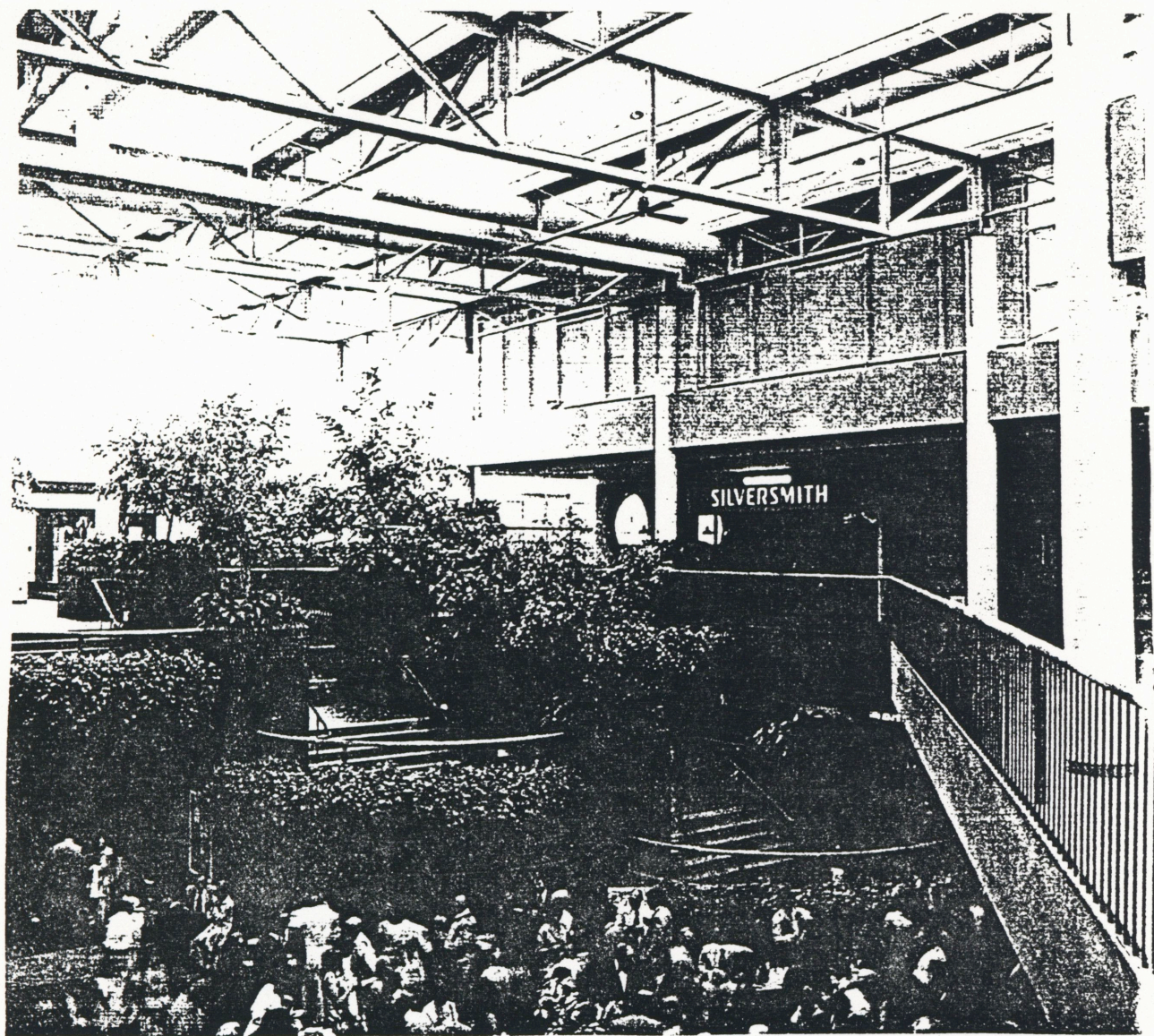
Program: parking garage for 550 cars; pedestrian bridge; department store of 40,000 sq ft; two levels of shops of 120,000 sq ft, and glass-covered atrium of 17,000 sq ft.

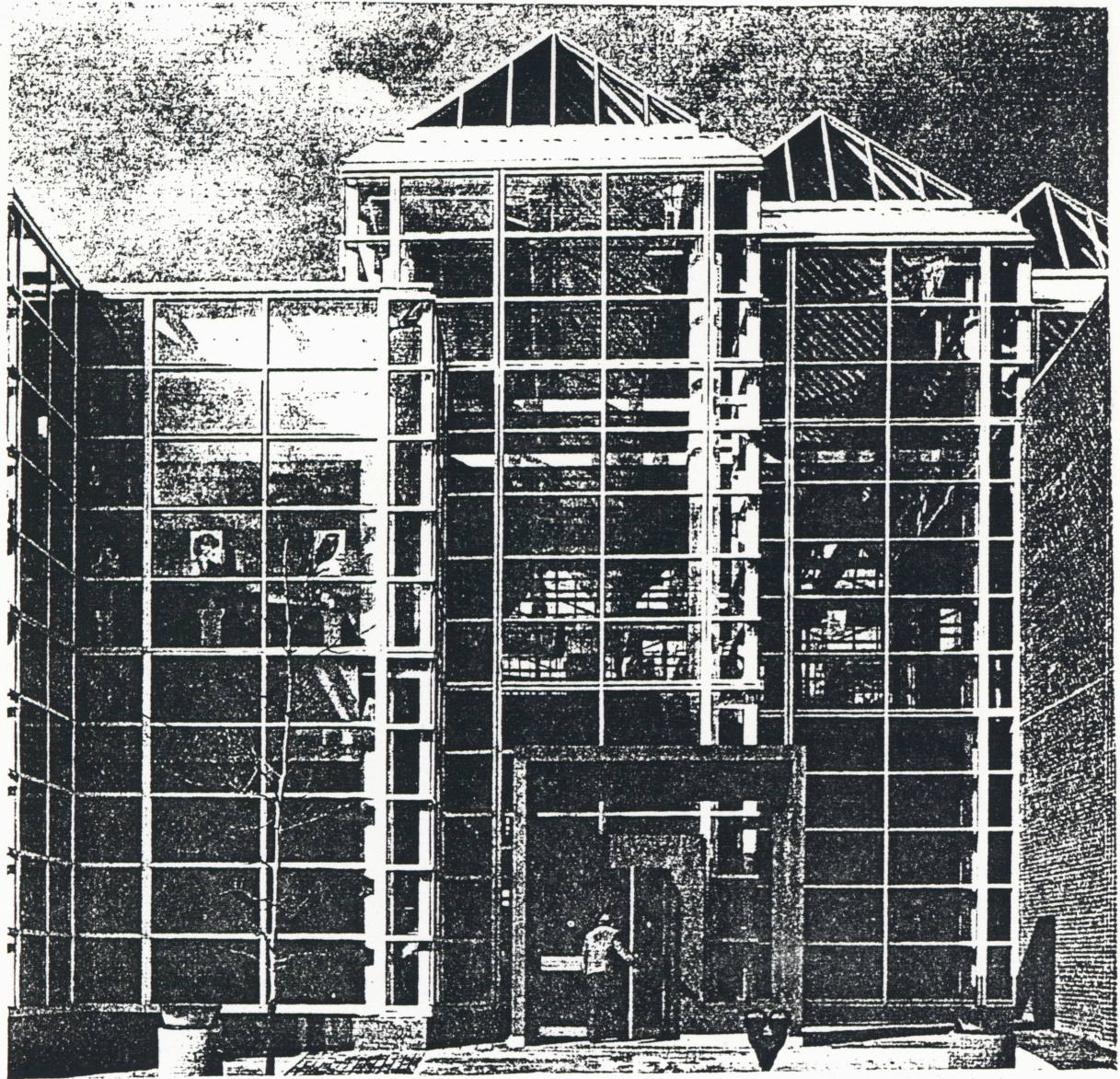
Structure: cast-in-place footings, fireproofed steel frame, metal deck, and concrete floors for shopping mall; reinforced cast-in-place footings and precast concrete girders, beams, columns and cast-in-place floor slabs for garage.



Major materials: brick cavity wall, 1-in.-thick green-tinted windows, aluminum-and-steel mullions, gypsum board on steel studs for interior partitions, brick floors, acoustic ceiling (see Building materials, p. 168).

Mechanical system: solar panels for partial heating; individual heat pump suspended from ceiling in shops; cool air from atrium circulated through stores.





The Project: Plaza Pasadero

The Site:

435,600

The Program: 1) 2 Department Stores

[5 levels]

302,043 sq ft

2) Retail

330,823 sq ft

3) Mall (food court)

113,696 sq ft

4) Parking @ 1987

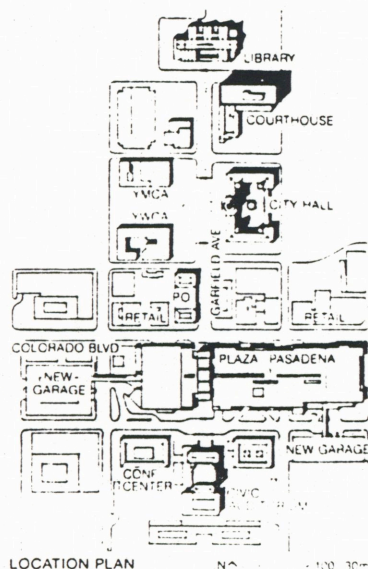
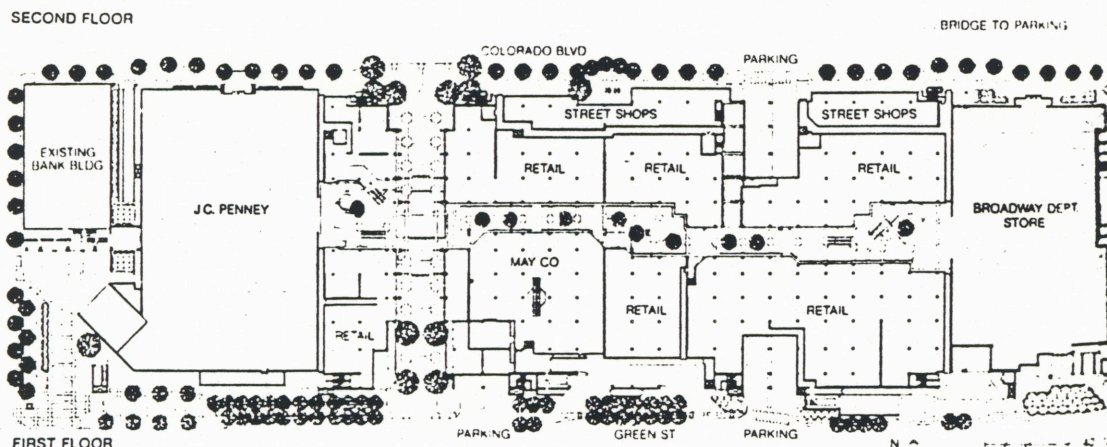
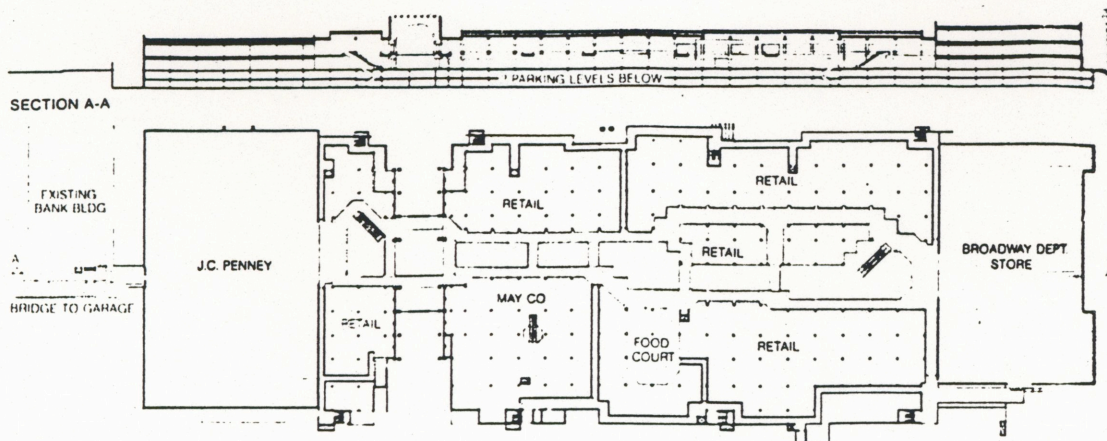
397,400 sq ft

5) Total

1,143,962 sq ft

The Floor Ratio

1:3



Site: 10 acres, assembled of 3 city blocks, along Colorado Blvd. (main commercial street) cleared of previous com-

mercial buildings, except for Security Pacific Bank Building and facade of Mordisco Drug Building.

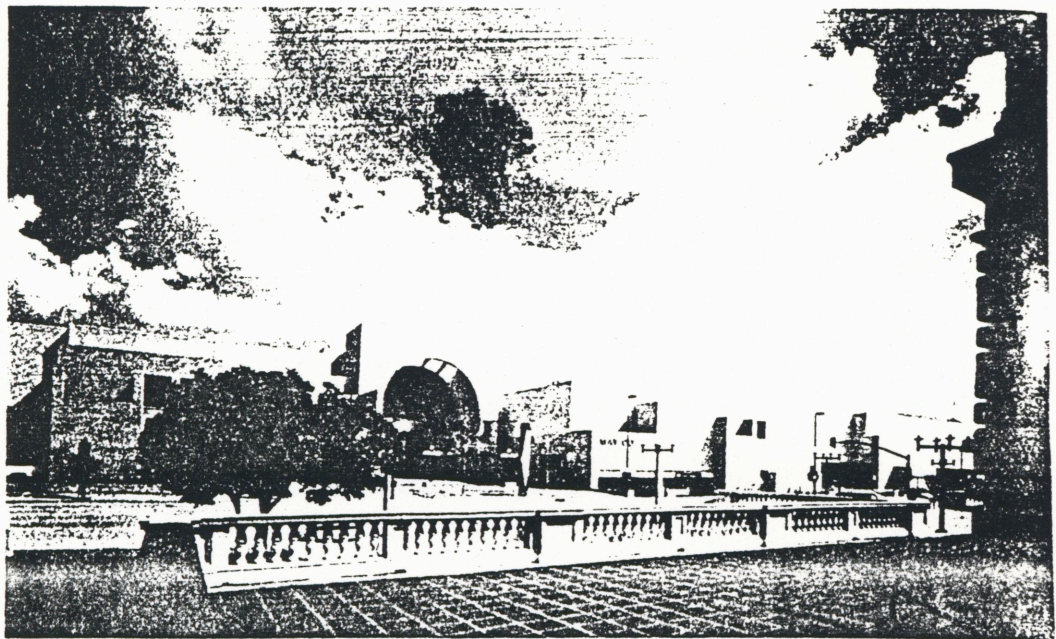
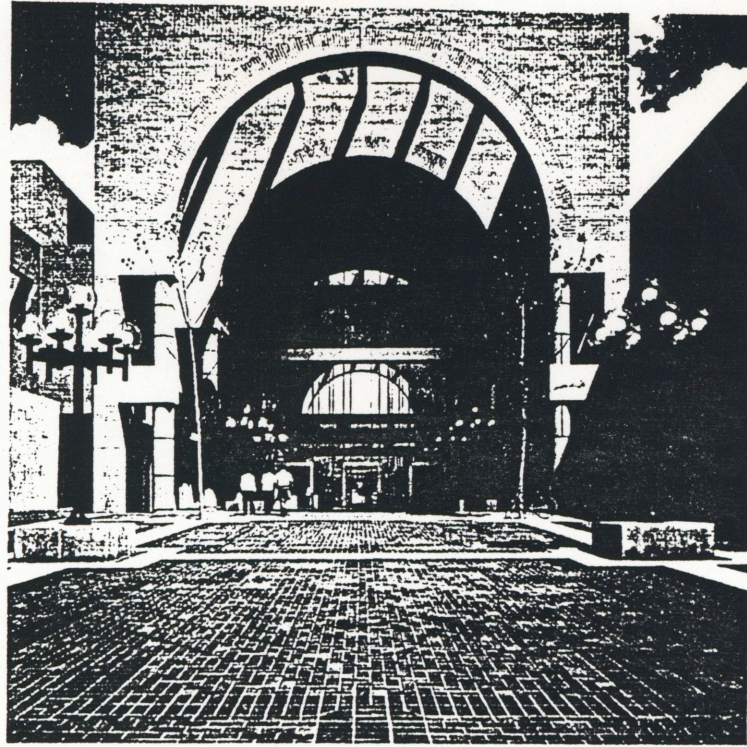
Program: two-level enclosed retail mall connecting two department stores, plus some street-front retail stores. As-built areas in sq ft (gross leasable/gross building): J.C. Penney (2 levels), 133,911/143,538; Broadway (3 levels), 152,547/158,505; developer stores, 292,298/330,823 (19,835 of leasable in street-front stores); remain-

der of mall building 6101 (food court)/113,696; total, 584,957/746,835. Subterranean parking (2 levels, under all new construction), 845,453 sq ft, 1987 cars. Off-site public parking, 2 structures (4 and 5 levels) totaling 431,000 sq ft, 1241 cars.

Structural system: precast concrete, parking levels; steel frame above.

Major materials: face brick, plaster on metal stud walls, gravel on capsheet roofing on fiberglass insulation (see Building materials, p. 168).

Mechanical system: package electric VAC units for mall. Variable volume AC for tenant stores, by groups. Food service spaces on separate system. Central exhaust for toilets, service spaces, etc.



PROGRAM

MULTI-USE COMPLEX

Garden Square

KUALA - LUMPUR - MALAYSIA

PROGRAM

From the precedent study I made with the plot ratio 1:5
the program for this mixed, used project is as follows:

SITE AREAS 2.9 acres
126,324 sq ft

Proposed

OFFICE 45%
RETAIL 20%
RESIDENTIAL 15%
PARKING 15%

Note on Parking

- >Provide 1 parking space for every 300 sq ft of retail area.
- >Provide 1 parking space for every 1000 sq ft of office area.
- >Provide 1 parking space for every residential unit.

PROGRAM - SUMMARY

	<u>SQ. FT.</u>
1)Retail	120,000
2)Offices	320,000
3)Residential	100,000
4)Parking	
>400 space for retail	
>320 space for office	
>120 space for residential	
	820 CARS --- 250,000
TOTAL AREA	800,000

PROGRAM - DESCRIPTION

Shopping Center 120,000

>These percentages are derived from the previous
precedent study.

Department Store 25%

Supermarket 15%

Retail and Hops 45%

With Food Court5%

Mall (public space) 10%

Parking - provide 1 car space for every
300 sq ft

Department Store30,000

>A department store is a comprehensive program of
a retail business.

>Varieties of goods such as clothing, footwear,
household items, and other goods will be sold.

Retail Shops 54,000

>Will consist of specialty shops, service shops
and a variety of other shops.

>Specialty stores sell only a limited range of
related merchandise such as women's apparel or
men's wear, or a single type of merchandise.

-Street markets are considered as a part of retail
program.

-Divided into 2 groups.

1)Food Stalls - requires cooking space, set up place
for people to eat, and storage.

2)Hawkers - Requires space to display goods. A
storage compartment is also
required.

-Space required for each stall or or hawkers usually
from 300 - 500 sq ft

Mall - Public Space 12,000

>Will be used as as open public space for a
special occasion or festival.

Circulation 10,000

>10 - 15% of the retail space.

Parking

>1 car for every 300 sq ft of retail space.

Offices 320,000

>Will accommodate a wide variety of users and
space requirements have 3 types of offices

1)Professional Office for

- Lawyer
- Insurance Agent
- Accountant
- Real Estate Agent
- Doctor

>Specialty use for 1 - 2 people

>200 - 500 sq. ft.

2)Large Professional Office

- Architects
- Marketing Agency
- Interior Designer
- Artist

>This office will require a large area per person.

>Depends on number of employees.

3)Corporate Site Office

- For head of branch offices: oil and tin companies along with law, engineering, and architecture firms.
- Usually requires an open office, conference, and administrative area.
- Often takes more than 1 story of office space in high rise buildings.

Parking - will be provided for every 1000 sq ft of leasable office area.

Residential

- >The residential units should be programmed for singles and group married couples.
- >Group of people that enjoys the city life and need a living place that is close to work.
- >These residential units will be divided into 2 types.
 - 1)1 bedroom units @ 650 sq ft
 - 2)2 bedroom units @ 1000 sq ft

SHOPPING CENTER

Recommended areas/precedent study

<u>Convenience Goods</u>	<u>Sq. Ft.</u>	<u>Cl. Ht.(ft)</u>
Grocery	32,000	16
Hardware	7,200	14
Drug Store	2,700	12
Laundry	2,700	10
Bakery	1,350	10
Commercial Laundry	6,700	15
Delicatessen	900	19
Shoe Repair	900	10

Transitional Goods

Health Foods	1,800	10
Books	1,800	14
Stationery/Gifts	3,500	10
Candy	1,200	10
Fabrics	2,520	10
Hi-Fidelity/Records	3,024	10

Services

Photo Studio	3,600	10
Art Shoppe	3,200	10
Theater	8,100	varies
Offices	7,200	10
Restaurants	15,600 (2,000 each)	10

Comparison Goods

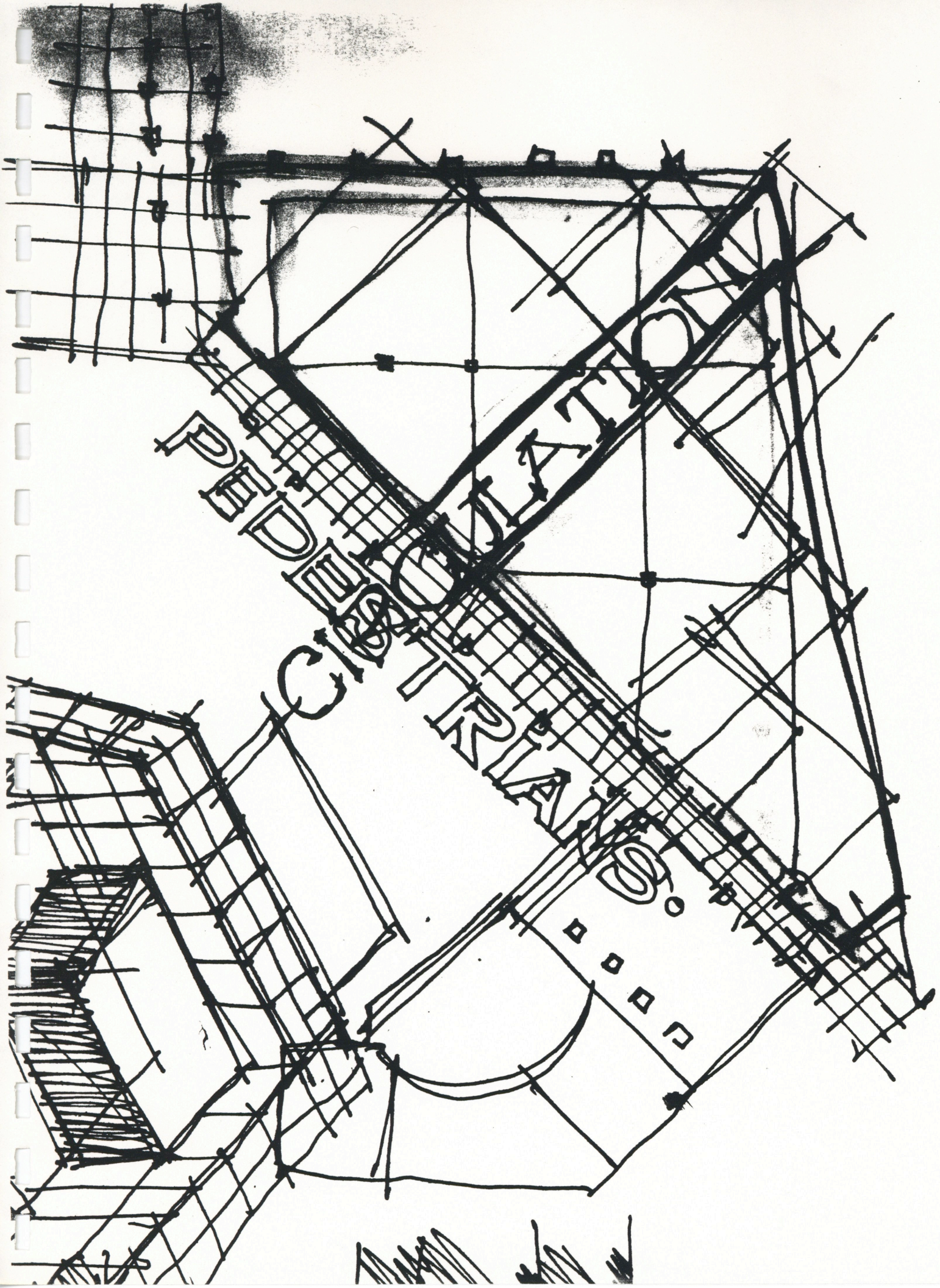
Department Store	64,800	16
Jewelry	1,800	8
Boutique	1,800	8
Women's Clothes	3,600	12
Men's/Women's Clothes	7,200	12
Children's Clothes	2,700	10
Fashion Accessory	2,700	10
Shoes	2,700	10
Lingerie	1,800	8

DESIGN

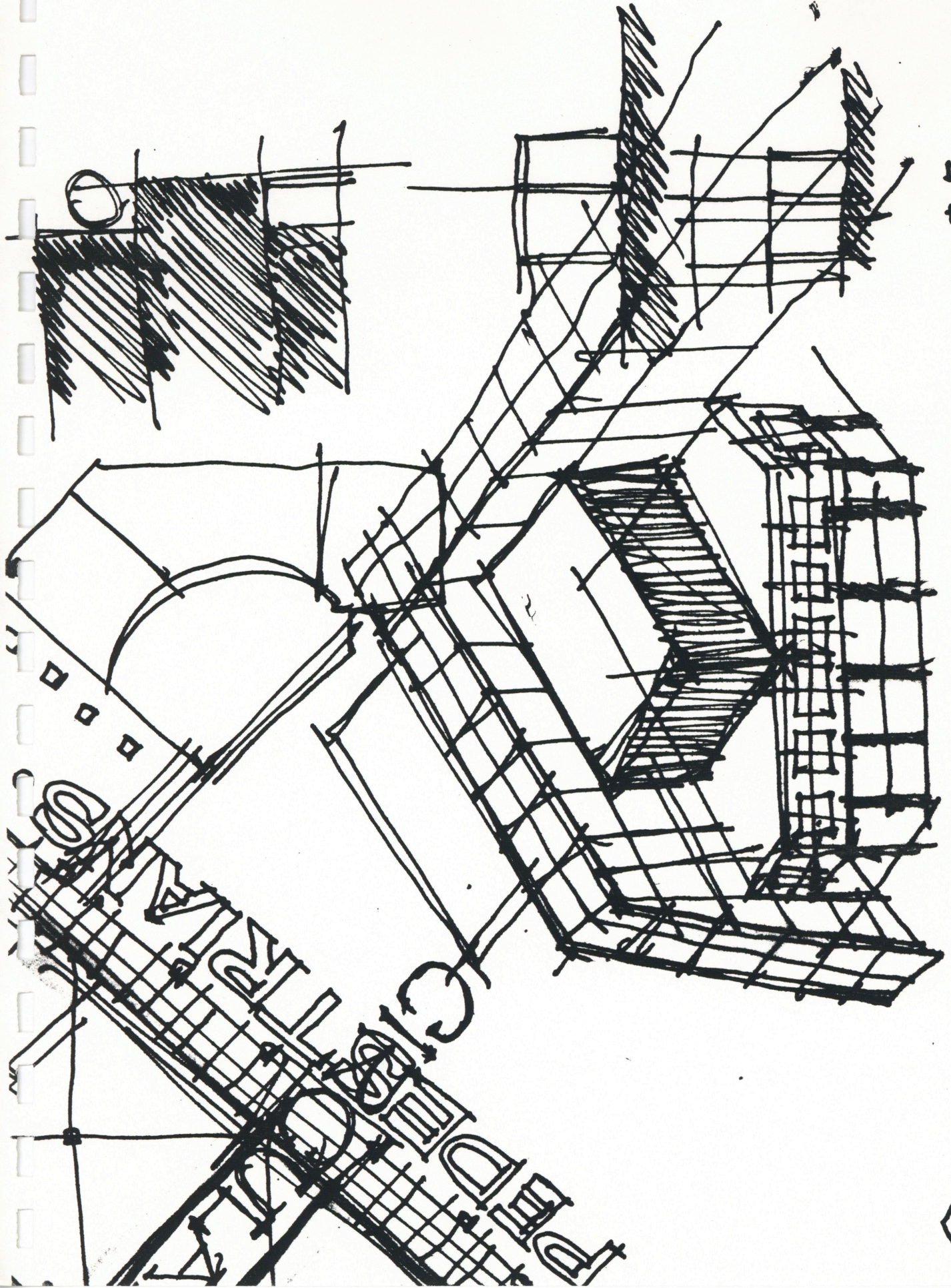
MULTI-USE COMPLEX

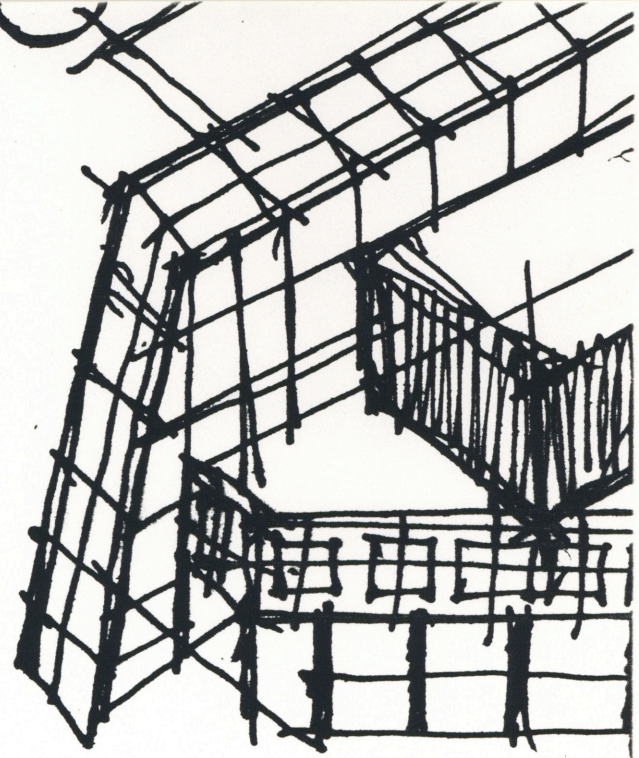
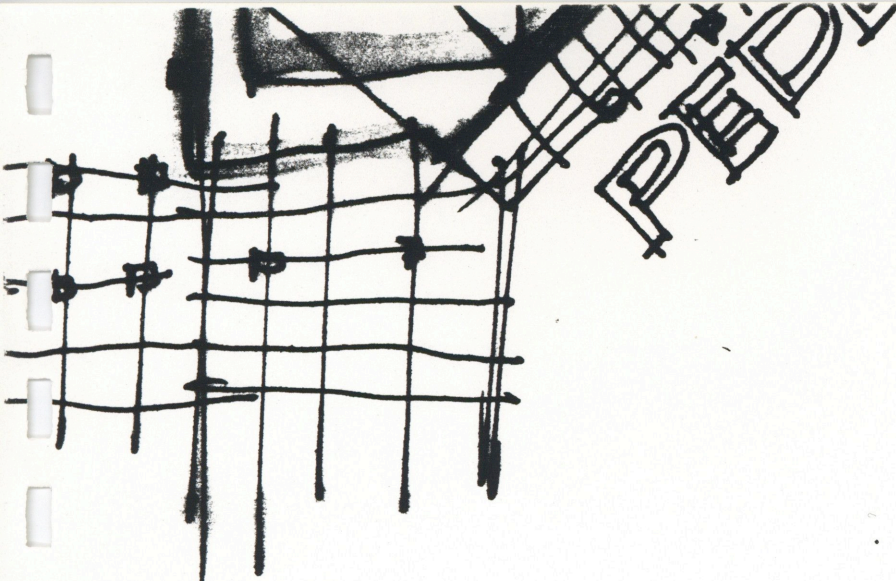
Gayatri Square

KUALA LUMPUR - MALAYSIA

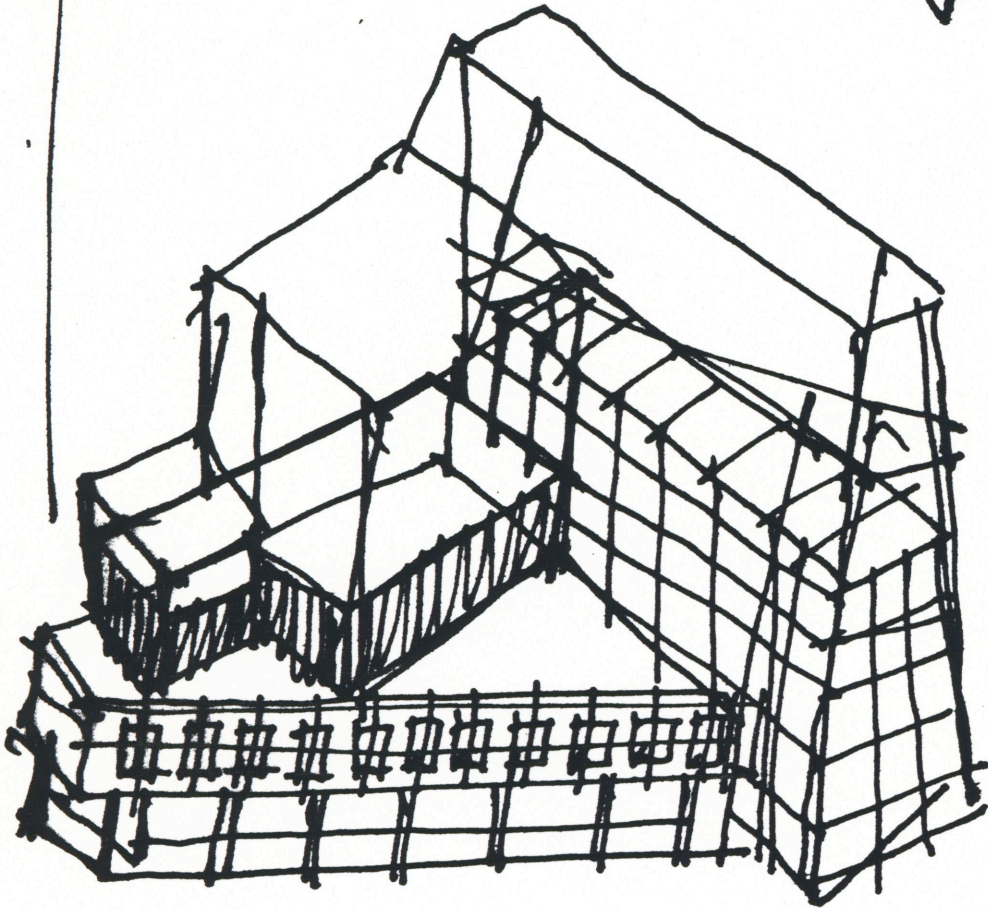


DECOMPOSITION



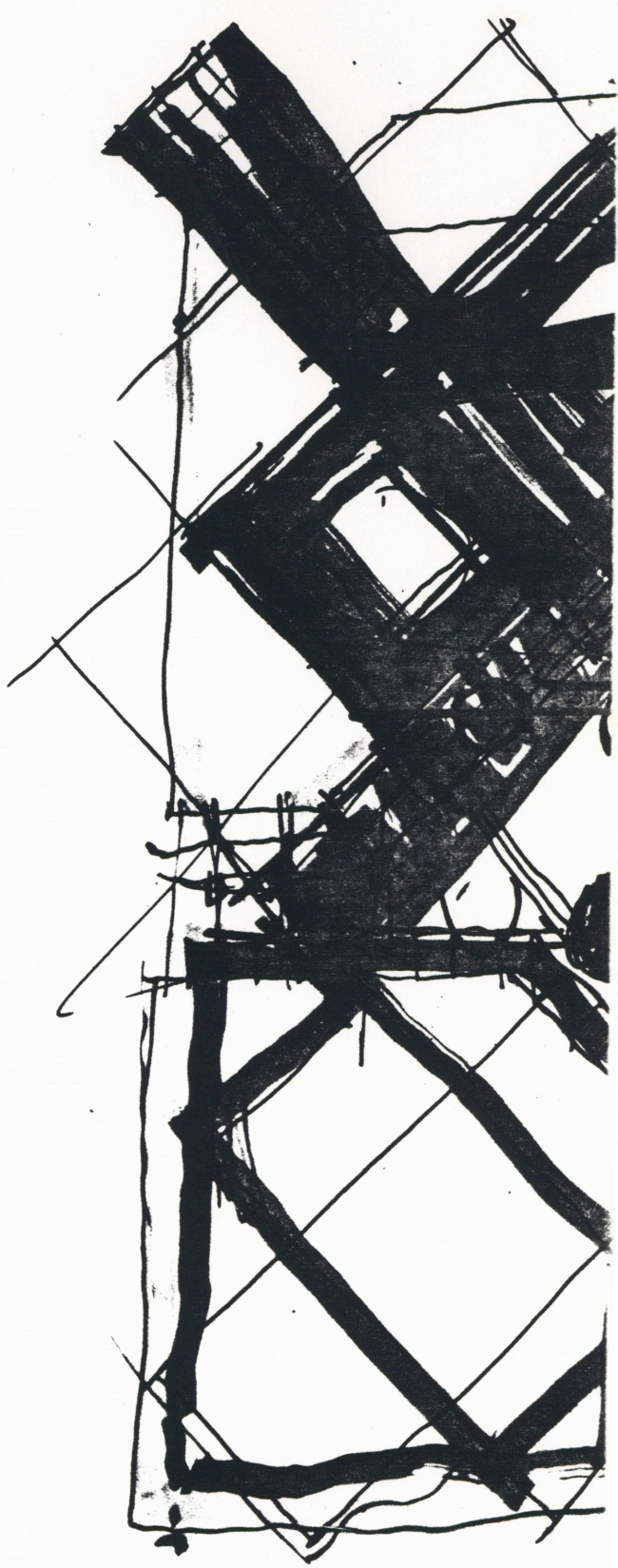
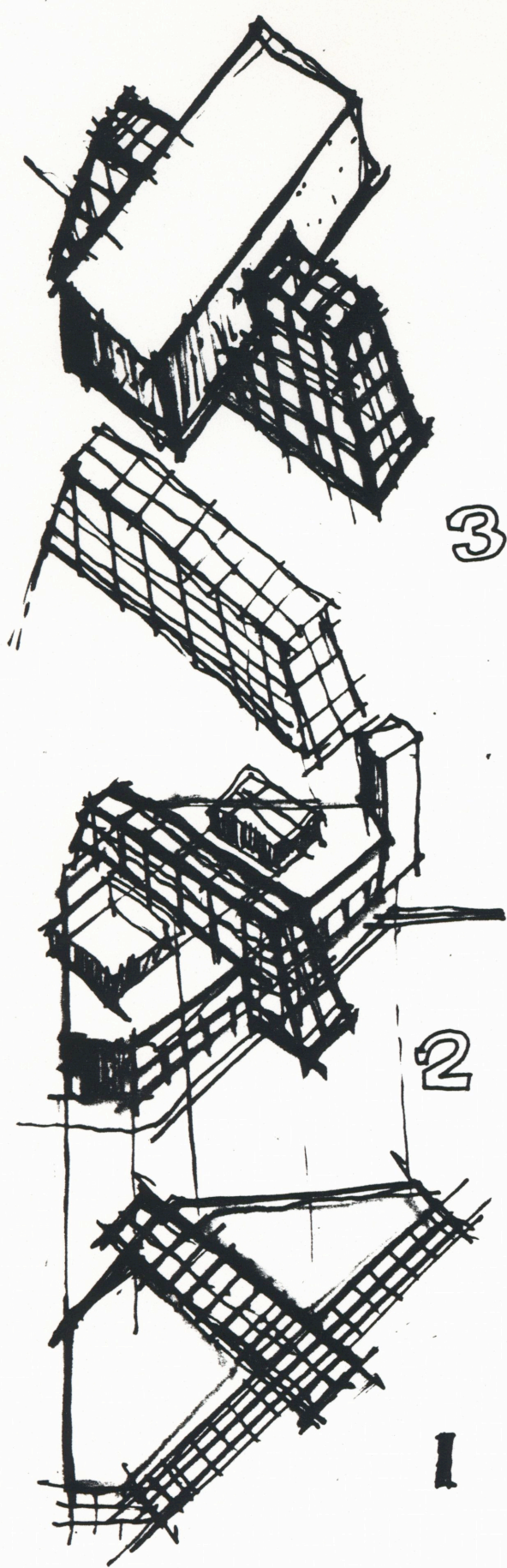


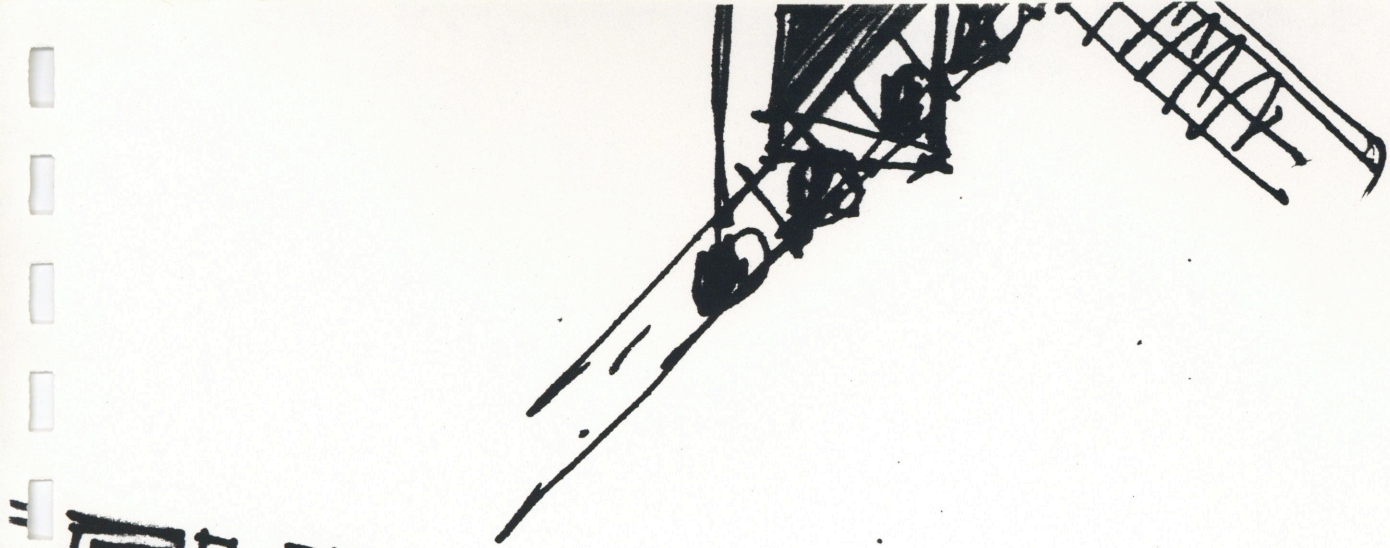
DECOM



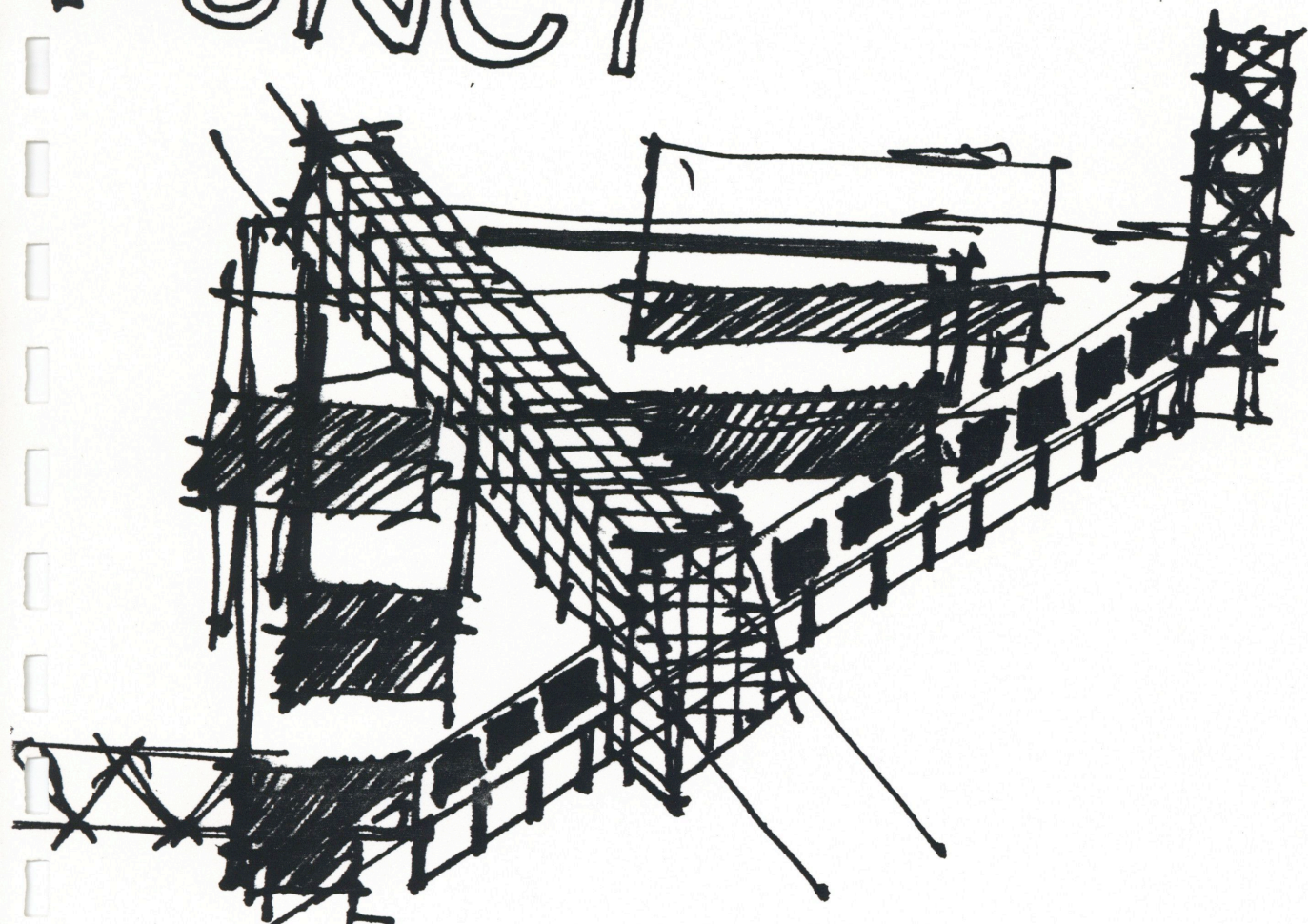
SPINAL



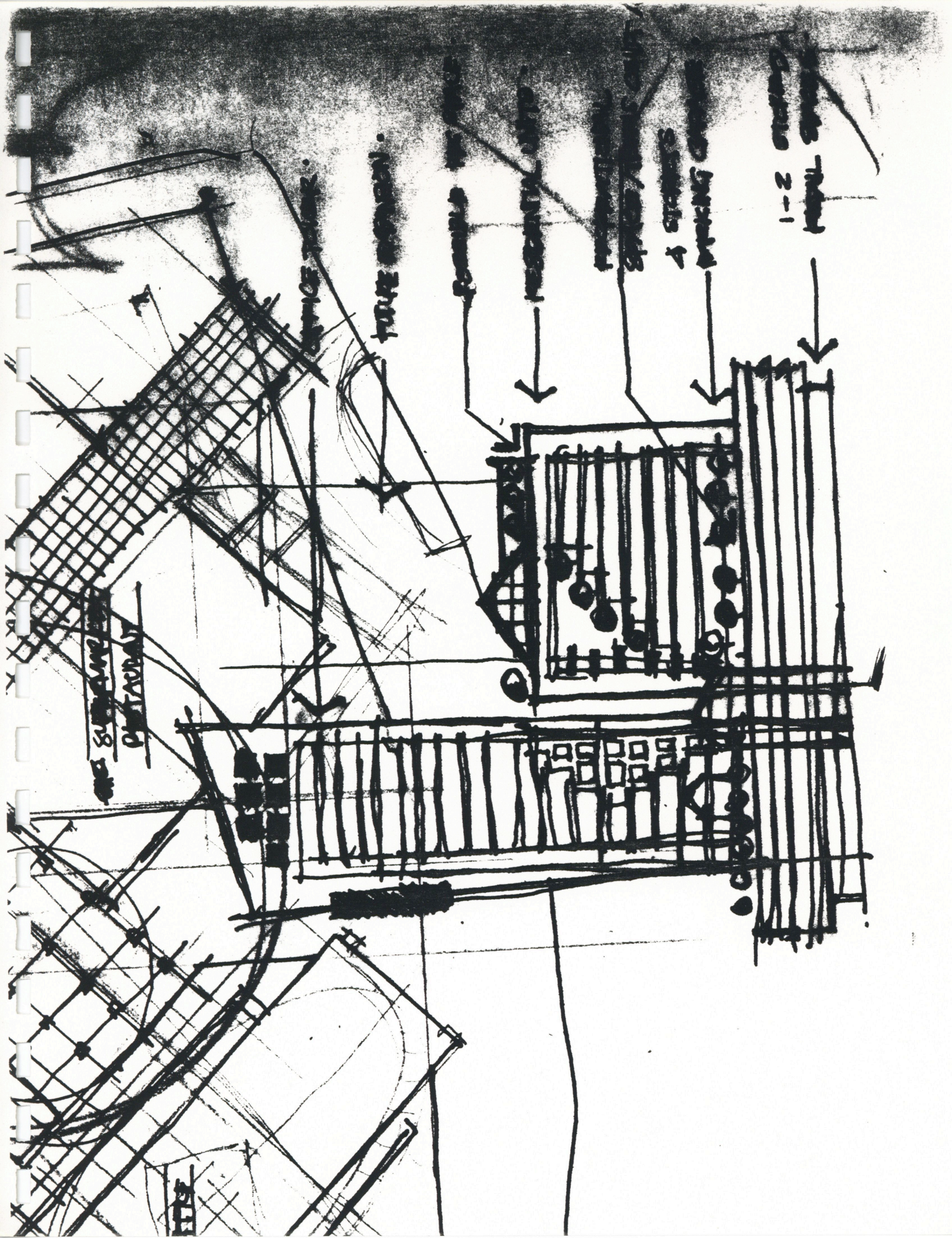




FUNCT



ERN!



1-2 stories
main structure

4 stories
parking structure

parking structure

main structure

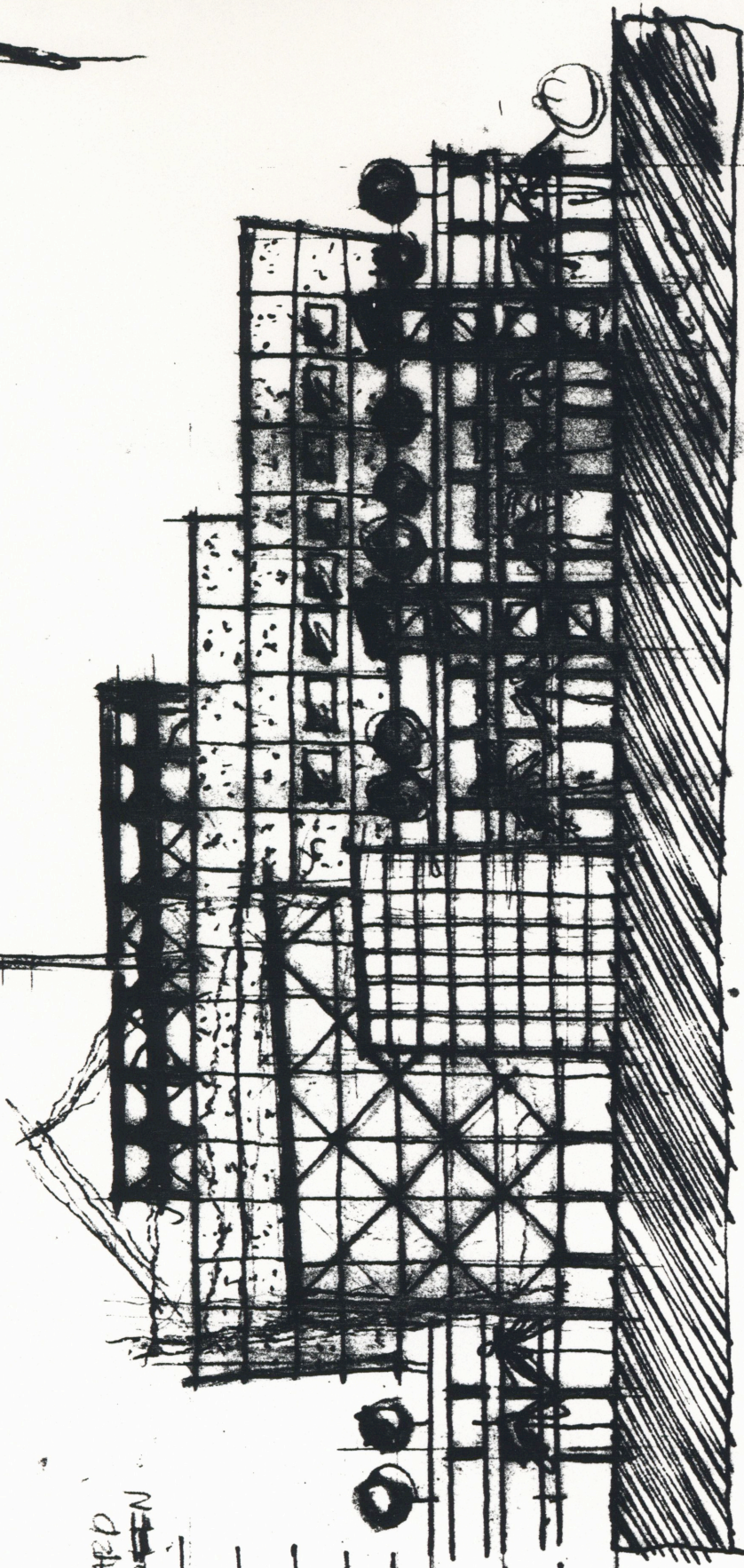
main structure

main structure

main structure

main structure
parking structure

main structure



FRONT · E ·

82N BOARD
R16 SCHEEN

DEPT 8

DEPT 7

DEPT 6

DEPT 5

DEPT 4

DEPT 3

DEPT 2

DEPT 1

22 MARCH

21 MARCH

20. APT

19. APT

18. APT

17. APT

16. APT

15. APT

14. S. POOL

13 MARCH

12. APT

11. APT

10. APT

9. APT

8. APT

7. APT

6. APT

5. APT

4. MARCH

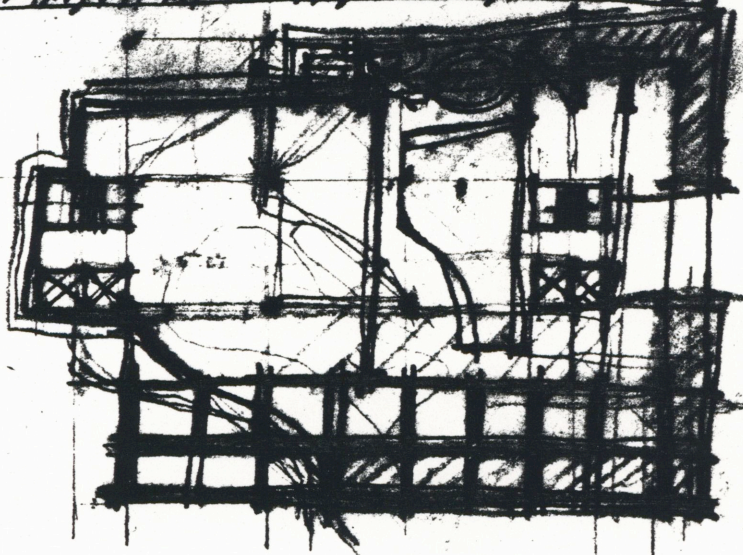
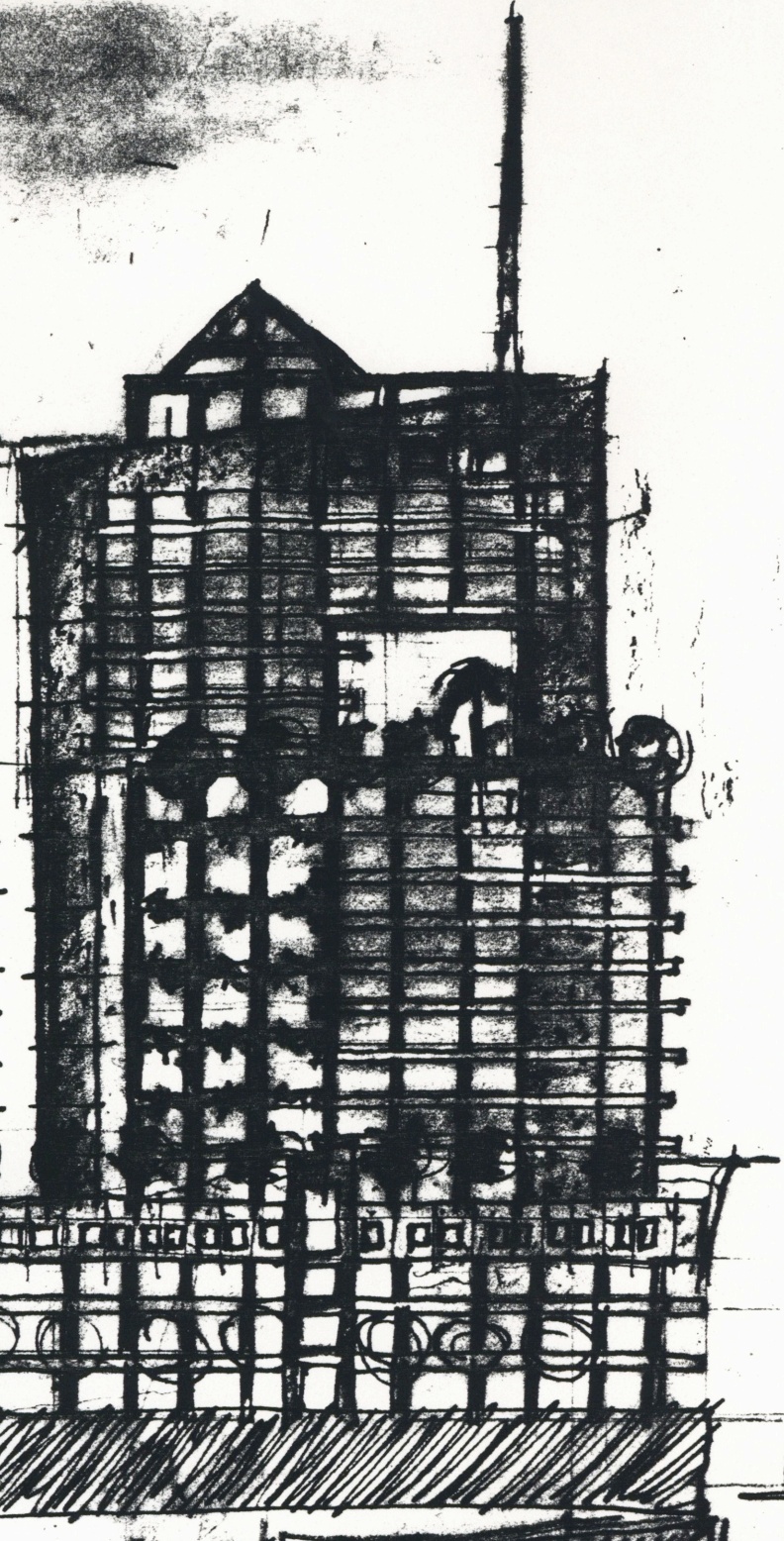
3. GYMNASIUM

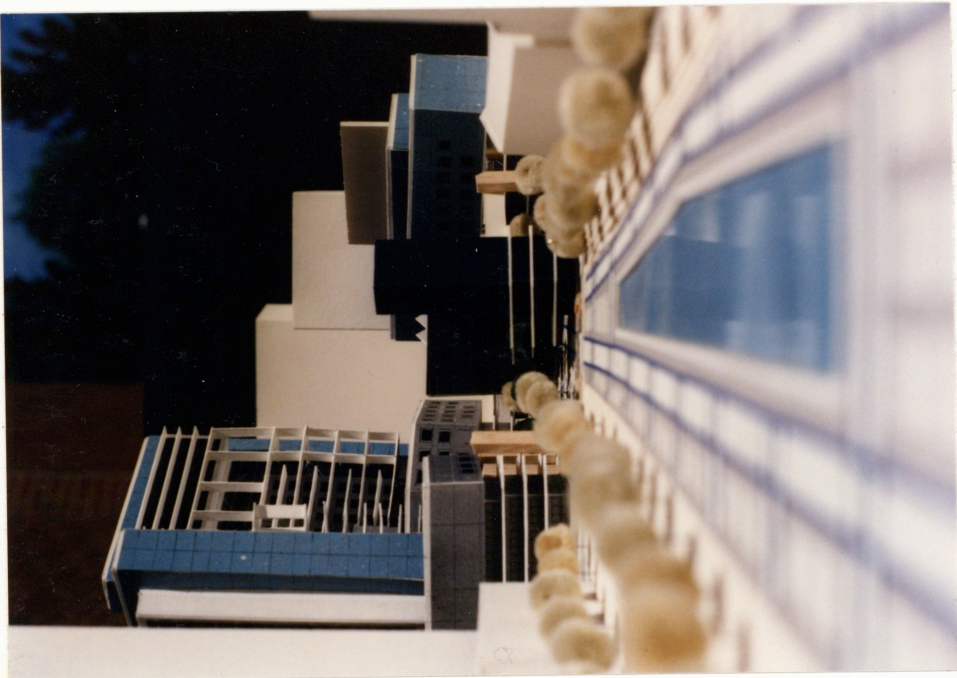
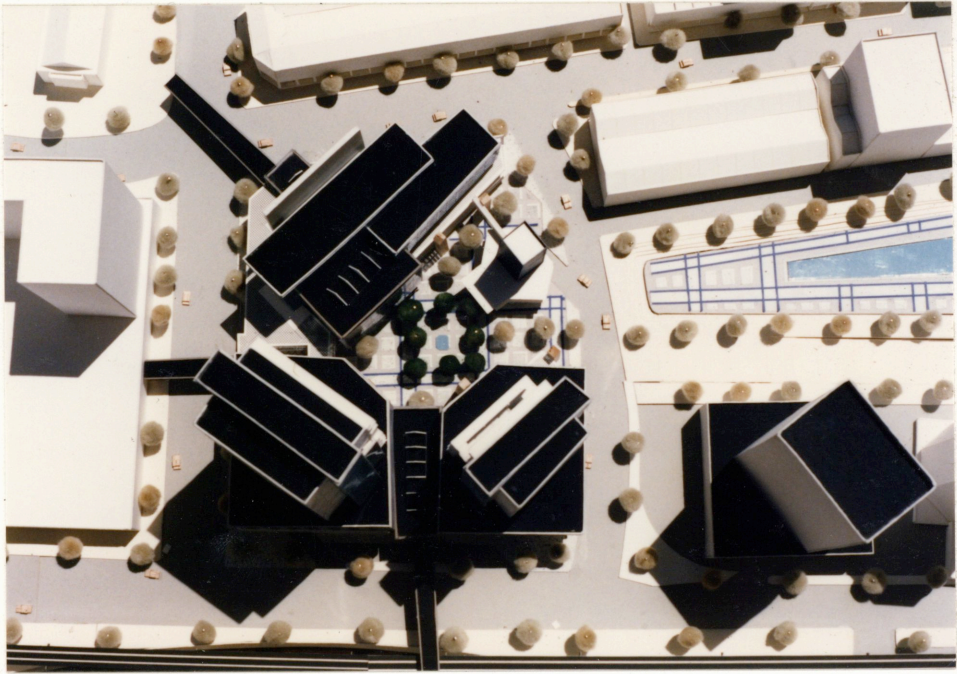
2. COMM.

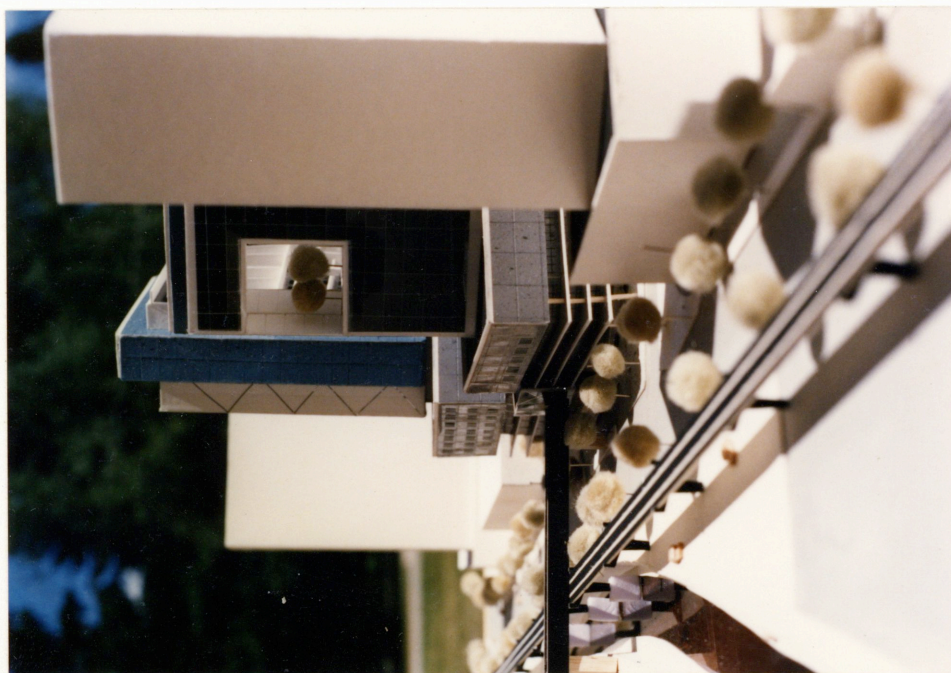
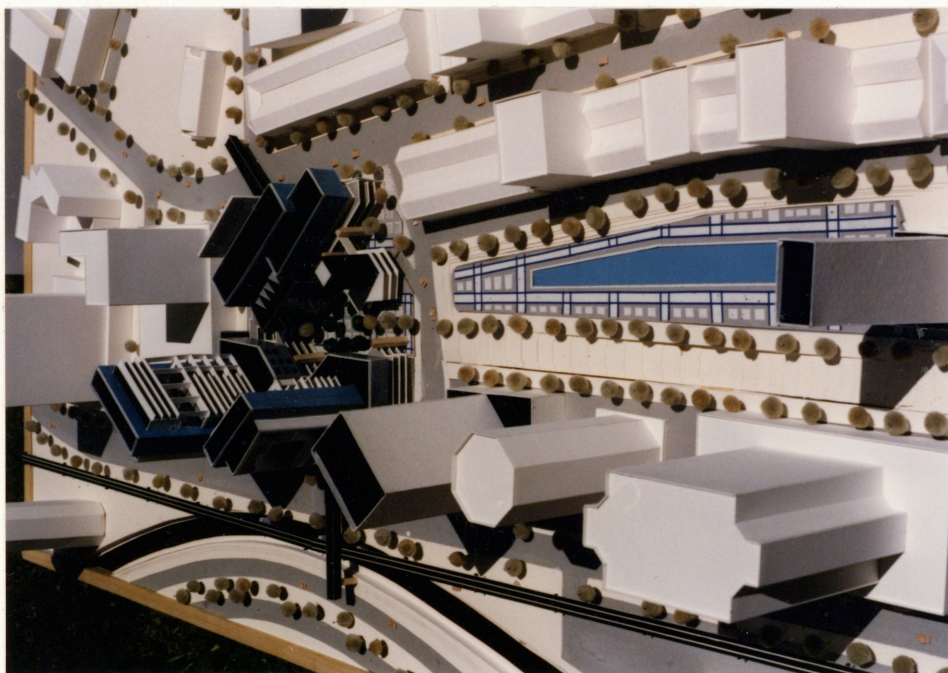
1. COMM.

1. COMM.

1. COMM.









BIBLIOGRAPHY

MULTI-USE COMPLEX

Gayatri Square

KUALA-LUMPUR-MALAYSIA

BIBLIOGRAPHY

- A.S.L.A. Foundation. Landscape Planning for Energy Conservation. Virginia: Environmental Design Press, 1977.
- Danz, Ernst. Sun Protection. New York: Frederick Praeger, 1967.
- Dean, Andrea A. "Cairo's Growth as a Microcosm of Developing Urban." Architectural Record, (January 1985): 26-37.
- Dewan Bandaraya Kuala Lumpur. Kuala Lumpur Structure Plan. Kuala Lumpur: Dewan Bandaraya, 1984.
- Dunster, David. "Vernacular, Pastiche, Modernism? In Search for Malaysian Architecture." UIA International Architecture, (Issue 6 1984): 1-48.
- Editorial. "Urban Environment of Developing Countries." Architectural Record, (May 1976): 95-160.
- E. Evans, Benjamin. Daylight in Architecture. New York: McGraw Hill, 1981.
- Konya, Allan. Design Primer for Hot Climates. London: Architectural Press Ltd., 1980.
- Lam, William M.C. Sunlighting as Formgiver for Architecture. New York: McGraw Hill, 1986.
- Olgyay, V., and Olgyay, A. A Solar Control And Shading Shading Devices. Princeton: Princeton University Press, 1963.
- Ping, Ho W. "Development of Kuala Lumpur." UIA International Architecture (Issue 6 1984): 48.
- Schmertz, Mildfred F. "Study in Urban Decline." Architectural Record, (May 1985): 91-93.

MONTANA STATE UNIVERSITY LIBRARIES



3 1762 10060261 2

