A DESIGN OF TROPICAL SEASIDE RESORT FOR THAILAND

by 1264

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INTRODUCTION

When people have to engage in their serious business for too long, they need relaxation to relieve their strain and a change of experience in order to revitalize themselves and become capable of continuing their work more actively and more productively. Resorts are one of the major solutions for this purpose. They generally serve three functions: relaxation, enjoyment, and most vitally the stimulation provided by change of atmosphere. Resorts are expected to emerge much more rapidly since population is growing, economy is expanding, and the average income for individual is rising. The trend is for an even larger sector of the public to allocate a large proportion of their income for travel and vacationing. The amount spent for travel increases at a rate quite comparable to income increase. This means that more tourists shall spend more time in their vacation. Resort business consequently tends to become bigger and more progressive.

As Thailand becomes more accessible to tourists, its tropical nature with the oriental atmosphere and magnificent cultural assets make it famous throughout the world. Thus Pattaya becomes one of the most attractive seasides in Southeast Asia. With the beautiful landscape, ample recreational facilities, and ideal location, Pattaya Beach is nearly an unbeatable seaside recreational area. It is only 94 miles from the capital city of Bangkok, the center of all the tourist activities. It is not only ideal for serving foreign tourists and citizens in Bangkok, but also is convenient for the large number of local people in this region whose participation would add the flavor of nativity to make the whole thing uniquely colorful.

The recreational area at Pattaya is growing extensively in proportion to the greatly increasing number of tourists. There are quite a few hotels,

motels, series of bungalows, and recreational facilities provided in the area, but still more resort accomodations are needed. It is no doubt interesting and inspiring to deal with the development program in Pattaya. "A Design of Tropical Seaside Resort for Thailand" certainly will serve the needs of tourists and provide them with much pleasure, and of course help the national economy. For such purposes, it is seriously designed as an indigenous architecture of unique character, at the same time is capable of furnishing the atmosphere of relief and fun. The design is based on the following considerations:

- The geographical and physical background of the country.
- The essence of seaside resorts in general.
- Integration with tourism in Thailand.
- The particulars of seaside resorts in Thailand.
- Content in context with Pattaya Community, Cholburi, Thailand.
- Factors affecting Design.
- Design consideration for tropical environment.

It is well understood that recreation is one of the basic elements of better living of all people, and resorts are symbolic of economic progress which, to say the least, provides jobs for local people and indirectly promotes economic growth of the country.

THE GEOGRAPHICAL AND PHYSICAL BACKGROUND OF THAILAND

Thailand, the land which was once known as Siam, is situated in the heart of tropical Southeast Asia, bounded on the east by Laos, Cambodia, and Vietnam, on the west by Burma and the Indian Ocean, and on the south by Malaysia.

It is located approximately between the parallels 5°37' and 20°27' north latitude, and between the meridians of 97°22' and 105°37' east longitude.

It covers an area of 200,140 square miles, making it almost as large as France and about four-fifths the size of Texas. The maximum distance from north to south is 992 miles and from east to west is 495 miles. It is vital to know that it has about 950 miles of coastline on the Gulf of Thailand, where the country's main harbors and, incidentally, most of the resort beaches are located.

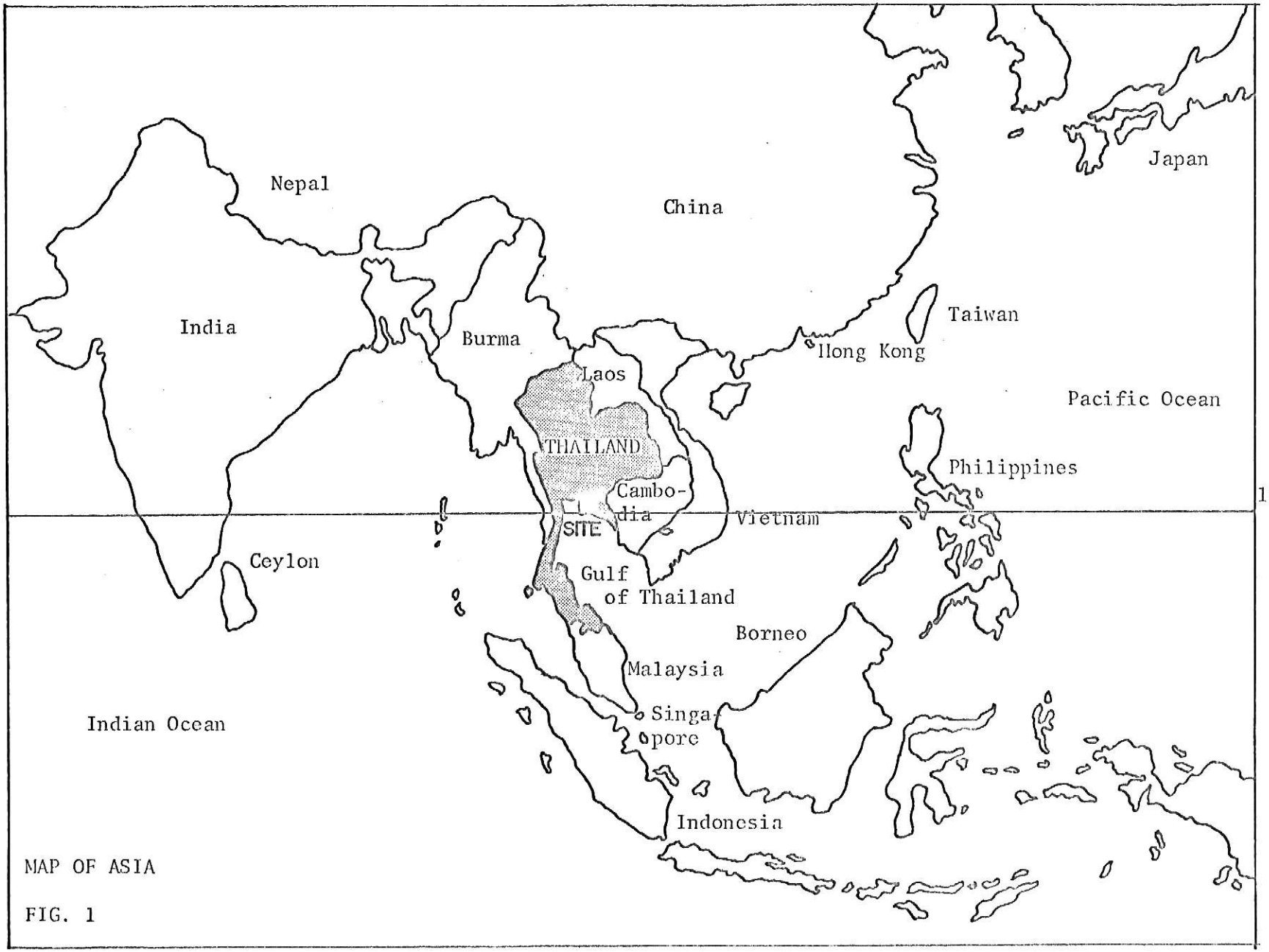
Thailand's total population is estimated at 33,000,000. Its area is divided into 71 changwads (provinces). Bangkok, the largest city, is the capital and the major sea port of Thailand.

Regions

Thailand may be divided into five physiographic regions: the Central Plain, the Northern Region, the Northeastern Region, the Southeastern Region, and the Peninsula.

The Central Plain

Lying on the basin of the Chao Phraya River, it is the political and economic heart of the nation. The alluvial plain beside the Chao Phraya River contains fertile soils that makes this area the main concentration of agricultural life. This region is one of the biggest rice-growing areas in the world.



MAP OF ASIA

FIG. 1

It is also the most heavily populated section of the country. Bangkok, the nation's capital, is located in this region. It handles most of the country's foreign trade. The other important cities in this region are Ayutthaya (the former capital), Lopburi, Nakorn Pathom, Petchburi, and Rajburi. By far this region is the most vital part of the country.

The Northern Region

This mountainous region is marked by a series of parallel north-south mountain ridges and deep, narrow alluvial valleys. It has four main rivers flowing southward to join the Chao Phraya River. The political and commercial center of the region is Chiengmai. It has great historical interest and is considered to be the most famous among many cities in this region. Other such cities are Chiengrai, Lampang, Nan, Phrae, and Sukothai. This region has a great teak growing area. It may well be the most beautiful part of the country, but it suffers from distance for tourist purposes.

The Northeastern Region

A large plateau, this region is bounded on the north and east by the Mekong River which partly serves as a border line between Laos, Cambodia, and Thailand. A sparsely populated region and poor in resources, this area is swampy during the monsoon, but lacks water in the dry season. Its long dry season and relatively scarce rainfall make it the least favored region in the country. The chief cities of this region are Korat, Konkaen, Nongkai, Ubon, and Udon. It has yet to be supplemented with human creation in order to become attractive.

The Southeastern Region

This region is limited on the west and south by the Gulf of Thailand, and

on the east by the Banthat Mountain Range which marks the Thailand-Cambodia border. The chief cities are Chandraburi, Cholburi, Rayong, and Trad. Along the coast of this region, there are white sandy beaches. Numerous rocky and forested islands resembling the coastal areas give beautiful natural scenery. The most characteristic tree of the beach ridge and the coastal sandy areas is the slender growing seapine (Casuarina equisitifolia). Perhaps, this is the region where additional seaside resorts could be planned for in the immediate future.

The Peninsula Region

The coastal region lies immediately north of the Thai-Malaysian border. The land varies in width from 10 to 135 miles. The economy is based on mining, rubber, and other tropical crops. The chief cities are Nakorn Srithamaraj, Pattani, Puket, and Songkla. There is a great possibility for this area to become the international tourist center that embraces both Thai and Malaysian cultural attractions.

Bangkok

Bangkok, the capital of Thailand, has a total population of more than 2,000,000. It is a richly decorated modern city, situated on the east bank of the Chao Phraya River about 23 miles north of the Gulf of Thailand. Founded in 1782, it serves as center of the nation's cultural, financial, commercial, industrial, and educational life. It is virtually a city of temples, and in regard to tourist interest, it is considered one of the most intriguing beauty spots of the Orient. Because of its unique features of numerous canals, elegant palaces, and colorful temples and shrines, Bangkok is often referred to

by westerners as the "Venice of the East." It is one of the major sea ports in Southeast Asia and certainly the principle international air-travel center in the Far East. There are 24 international airlines offering their facilities at Bangkok Airport and 42 companies of 12 nationalities have their ocean liners dock there.

Population

The total population of Thailand is approximately 33 million with annual growth rate of almost 3%. Between 85% and 90% of the people live in the rural villages. There are only two classified cities: Bangkok and Chiengmai. About 6% of the country's total population lives in this urban area, and its annual growth rate is in excess of 7%. Average population density in Thailand is about 114 persons per square mile. Bangkok is the most populated city whose density is obviously high but fortunately not yet among the highest of the major cities of the world. No specific figure is available at the moment.

The principle minorities are the Chinese, who make up approximately 15% of the population; the Thai-Malays of the Peninsula, forming a little over 3% of the population; and a small number of Vietnamese.

Four out of five Thai are engaged in farming. By 1990, it is estimated that the population of Thailand will be 54,600,000.

Government

Thailand is constitutional monarchy with a centralized government. The King is the head of the country. He exercises sovereign power through the three branches of government: the executive, the legislative, and the

judicial. The Thai government is organized into 13 ministries, all headed by the prime minister. For local administration, Thailand is divided into 71 provinces (Changwads). Each province consists of districts, communes, and villages, and is ministered by a governor appointed by the minister of the Interior. Local government is controlled and financed by the central government. All officials are appointed except the village headman who is elected by the villagers.

Religion

Buddhism is the established religion of Thailand. A very large majority of the population of Thailand is Himayana Buddhist (93.6%). Religion plays an important part of the daily life of the Thai people. More than one thousand wats (temples) are scattered throughout the country.

As for other religions of Thailand, 3.9% of the population is Islamite, 1.7% is Confucian, 0.6% is Christian, and only 3,000 persons are Hindus.

Language

Thai is the national and official language. It is influenced by other languages such as Chinese, Khmere, Mon, Pali, and Sanskrit, with Sanskrit being the major source of intellectual and philosophical vocabulary. Linguistically it may be divided into four major dialects: central Thai (official), Northern Thai, Northeastern Thai, and Southern Thai. However, Thai speakers have little difficulty in inter-dialect communication because most know the central official language.

Various Chinese dialects are spoken by the next largest group of people

in the country. 800,000 people in the southernmost provinces of the Peninsula speak Malay. Other minority languages of Thailand are spoken by the hill tribes of northern Thailand and in the west, along the border of Burma.

English is widely known in Thailand. It is taught in schools to fulfill the compulsory foreign language requirements. Many inhabitants of the main cities speak and understand English. Many people speak French but few speak German.

Currency

The unit of currency is the Baht (or tical), whose smaller denominator is stang (cent). The approximate rate of exchange is maintained at about US $1.00 to 20 bahts for the last twenty years.

Climate

Seasons

Thailand, like other southern Asian countries, is dominated by the monsoon, which is essentially seasonal winds blowing from one direction part of the year and the opposite direction the remainder of the year. On this basis, three seasons may be recognized in most parts of the country: the rainy season (July-October), in which the strong monsoon rains occur; winter (November-February), the mildest season of the year; and summer (March-June), a hot and humid season when tourism would be at its ebb if no extraordinary attraction is provided. Yearly temperatures normally vary about 35°F. The yearly rainfall is 45 to 55 inches over most of the country with still more in the coastal area.

Prevailing Winds

The prevailing winds of Thailand effect the rains. In the summer and rainy season the winds come across the Indian Ocean from the southeast and southwest, bring the moisture which becomes rains when it meets by the cooler air above the land. During winter, winds come from the northeast.

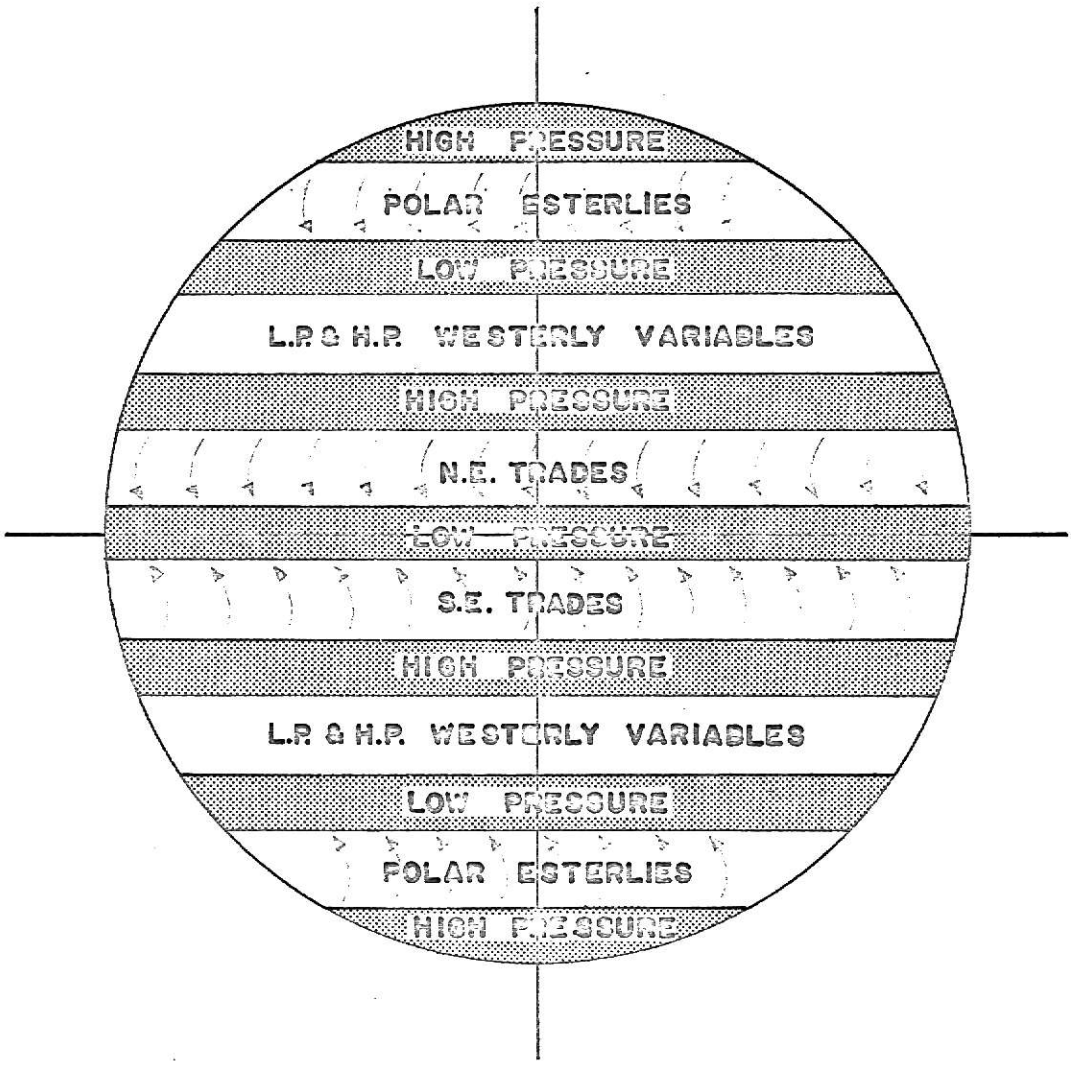
Solar Angles

Solar altitude is the vertical angle between the horizontal plane and a line from the sun.

Solar altitude in summer = 90° - latitude - 23 1/2°

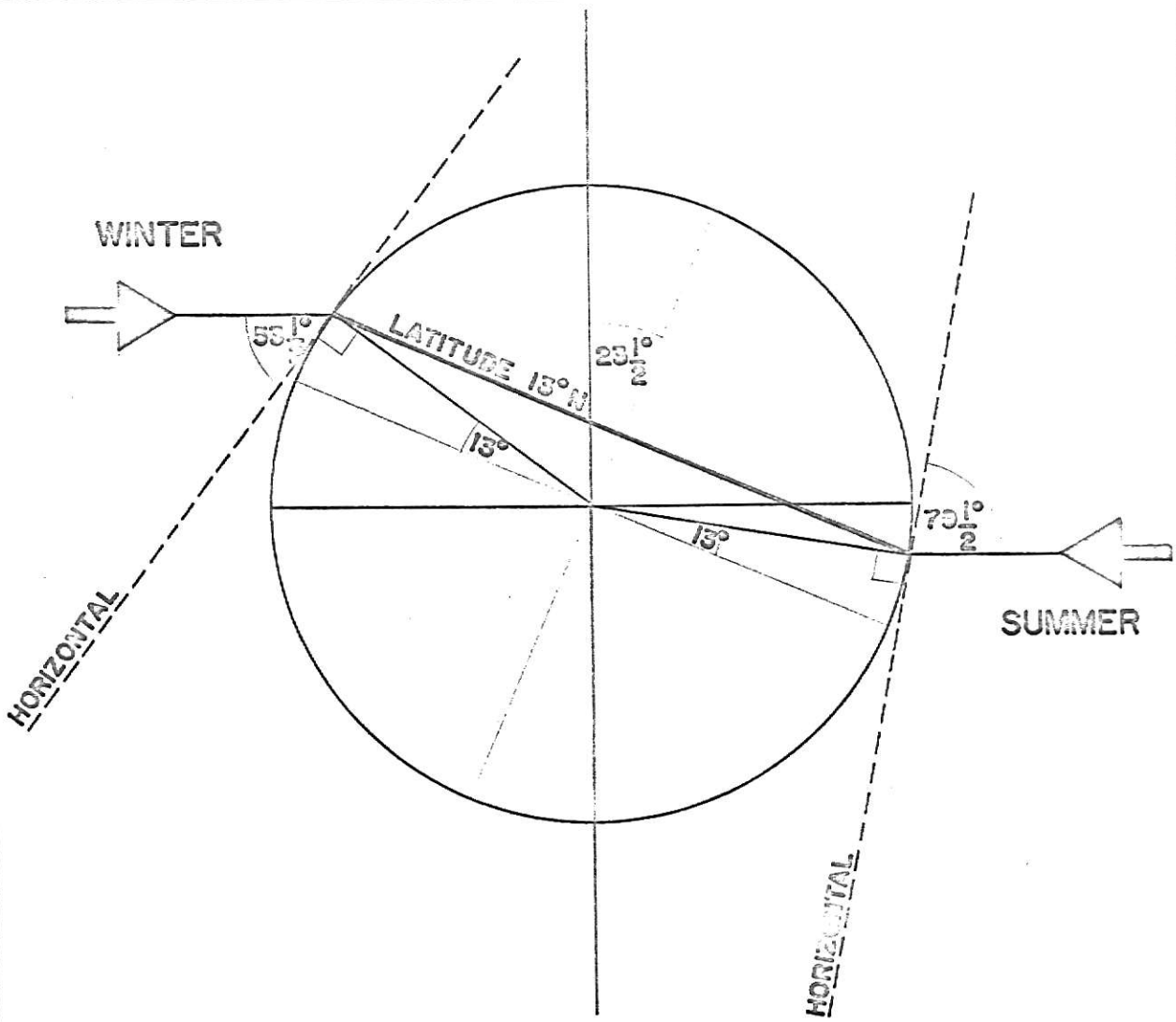
Solar altitude in winter = 90° + latitude - 23 1/2°

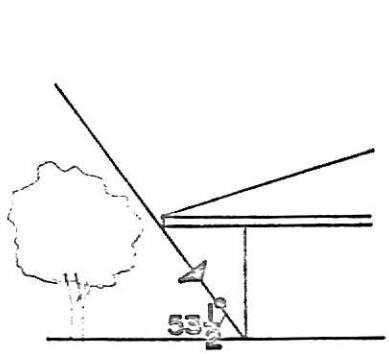
The difference of solar altitudes at summer solstice and winter solstice is so little. The continuity of a year round facility is obviously natural.

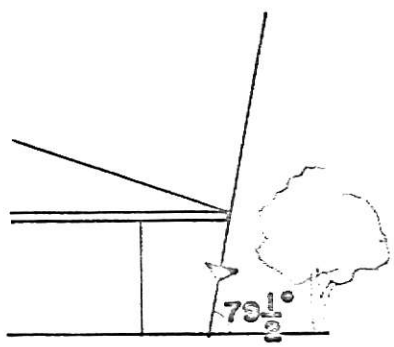


PLANETARY CIRCULATION OF THE WIND

Figure 2







CRITICAL SOLAR ALTITUDES

Figure 3

SEASIDE RESORT IN GENERAL

Basic Design of Seaside Resort

The seaside resort is intended primarily for visitors who have reached their temporary destination. It usually requires ample facilities for recreation. The success of seaside resort depends on the attraction of tourists. To reach this aim, one must plan well and design with good concept based on three criterias: good location, attractive presentation, and amenities at economical charge.

A resort must be located properly for tourists' purpose since good location is the dominant factor in attracting business. The quality and nature of the surroundings are important for the resort. Convenient transportation is the prime reason that draws tourists to the area. It is recommended that the resort should be accessible through a highway because the majority of tourists use cars. It should be located where the largest variety of recreational facilities are situated. Public utilities must be provided and availability of services rendered by the community nearby should be taken into full consideration.

A seaside resort must be attractive and helpful in creating an environment by being integrated into the landscape, and give its occupants a sense of place and peace. It should be unique and intelligible in design. The interior atmosphere must be pleasant. An efficient plan, a suitable deployment of materials to display design ingenuity, and good natural workmanship are all vital to the proper design and construction of resort buildings.

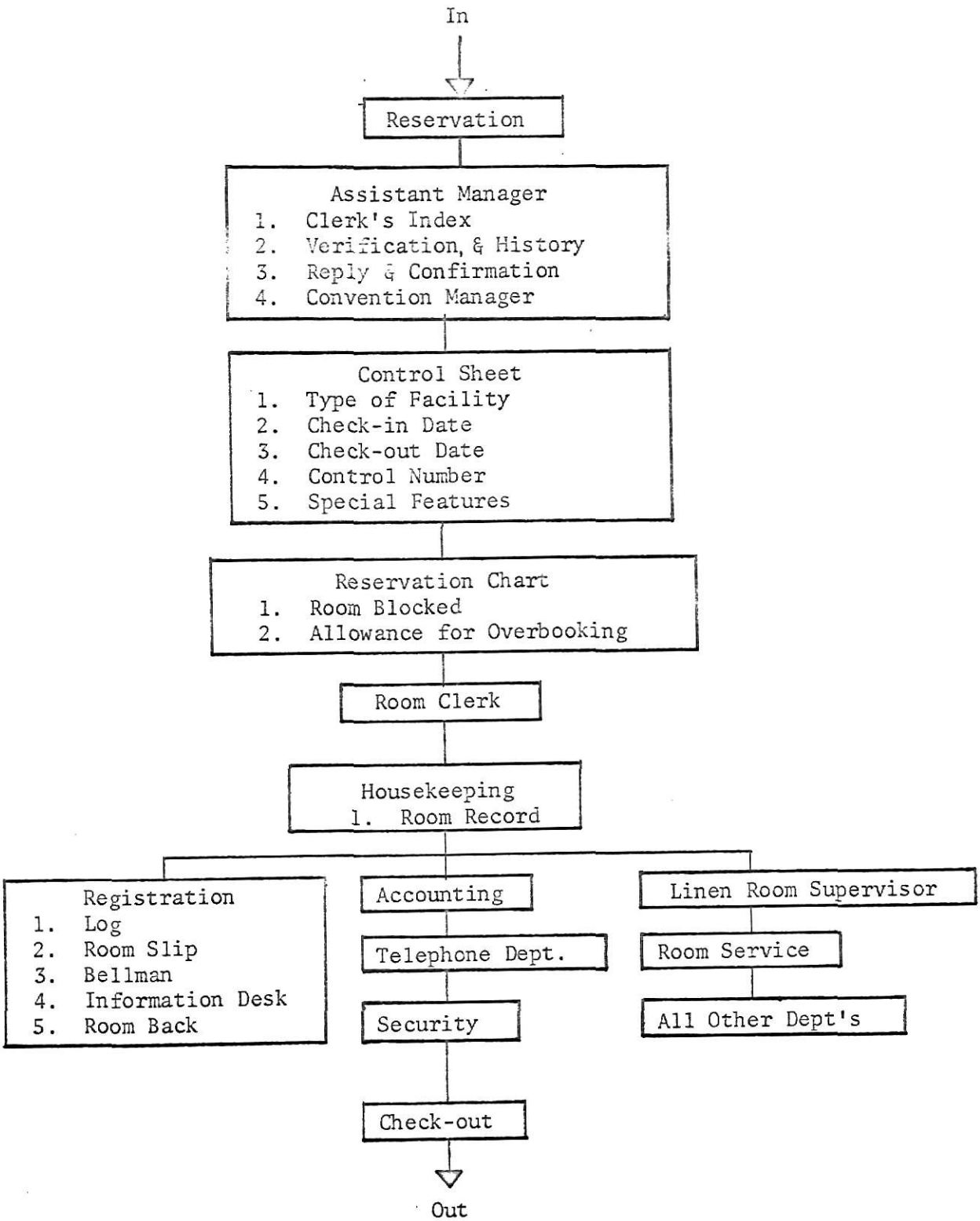
A resort must have its amenities and be essentially comfortable. It should be designed to take full advantage of the natural surroundings. Dining

room, cocktail lounge, and living units should be located so that they provide beautiful views of the area in which the hotel is located. The views of some pleasant activities, such as a swimming pool, are certainly required for the resort hotels.

To operate and maintain a resort facility, much more than for other kinds of hotels, professional management with skill and imagination is definitely needed if good functional performance is to become feasible. The manager must be educated in business law, market analysis, cost accounting, real estate development, and management in personnel and daily or festive function. Responsibility of control is sharply divided. The three major operating departments of rooms, food and beverage, and services must be independently responsible and accountable. The Front Office manager is responsible for sales and profit on all aspects of refreshments from dining rooms, bars, night club, coffee shop, and room service. Housekeeping involves services and cost control. To compensate for luxurious investment, other sources of revenue can be generated from leased concessions, shops, and services. The professional manager must watch over the integration of all of those toward the goal of overall success, satisfaction to the clients as well as profit for the total establishment. But he can only do this if he is armed with sub-section managers who know their jobs properly and understand their relation to the whole operation without any waste of time, energy, space, and material supply.

To serve the need of professional managers along the line of theoretical thinking, the University of Hawaii offers the exclusive Travel Industry Management Program in its College of Business.

ROOM RESERVATION FLOW DIAGRAM



Source: Abraben, E., Resort Hotels.

Communication Classifications

Front of the House

This is concerned with public service. The "Front of the House" staffs include:

Rooms Manager, Assistant Managers

Front Office

- Information and mail clerks
- Rooms clerks
- Reservation clerks
- Cashiers
- Bill clerks

Telephone Service

- Chief operator
- Operators
- Message attendants

Housekeeping Office

- Executive housekeeper
- Floor housekeepers
- Maids
- Housemen
- Cleaners
- Linen handlers
- Upholsterers
- Laundry service

Uniformed Service

- Superintendent of services
- Securitymen
- Doormen
- Elevator operators
- Baggage porters
- Lobby porters

The Financial Department

This may be attached to either the Front or the Back of the House. Its job is to keep all groups operating at a profit. Top man of the department is the controller or treasurer.

The Back of the House

This is more concerned with the necessities of life. It prepares and serves foods and drinks. It also provides music and entertainment to the guests. The "Back of the House" staffs include:

Food and Beverage Manager

Food Department

- Executive chef
- Cooks
- Butcher
- Vegetable men
- Pastry makers
- Bakers
- Pot washers

Stewarding

- Executive steward
- Assistant stewards
- Purchasers
- Storers
- Inventory men
- Pantrymen
- Silvermen
- Receivers
- Dishwashers
- Kitchen cleaners

Service (Restaurant, banquet, room service)

- Headwaiters
- Waiters
- Busboys

Partial adjustment of the above mentioned functional organization is probable since work differentiation in Thailand may be different from international conventional. The functional organization, terminology, and processes involved, however, should remain as it is in order to establish an internationally recognized identity of functional efficiency.

TOURIST INDUSTRY IN THAILAND

Tourist Attractions

Thailand is a land of great natural beauty. The land has been enriched by historical memories and cultural traditions which are depicted in archeological monuments and unique traditional Thai architecture. The beauty of the land and its many attractions make her seaside resorts very inviting.

To digest his rich experience in relaxation, a tourist needs only to take a two-hour drive to the coast of Pattaya from Bangkok, the main tourist center. The major road for this tourist traffic is the Sukhumwit Highway, a wide concrete "turnpike" that winds around mountains and spans over streams which occasionally also offers glimpses of the blue sea in the distance in a magnificent way.

The seaside at Pattaya is fascinating. The tropical atmosphere of deep blue sea, clear blue skies, bright sun, fine sandy beach stretching down from a background of cocoanut trees and lines of palms, green hills, brightly colored flowers, and other visual amenities make it an area of great beauty.

As the average temperature in the summer is 85°F and in the winter is 79°F, tourists can enjoy the seaside resorts at Pattaya all year round. The strong breezes from the ocean which keep the coast cool during summer and warm during winter are the reasons for this mild climate. The water is perpetually warm and pleasant in any season. Even the all powerful monsoon rains do not obstruct seaside recreation, for the rains last only one or two hours and are immediately followed by clear skies and a calm sea, perfect for many water sports.

Pattaya's seaside resorts offer ample recreation facilities such as

boating, fishing, sailing, skin diving, water-skiing, and most exceptional of all, hunting. Many seafood restaurants around the area are added attractions. Fresh marine fish, crabs, lobsters, shrimps, etc. are quite inexpensive. Other exotic sea resources such as rocks, corals, seaweeds, and shells are also available any time. Several gift shops take care of such supplies.

There are many bungalows but very few resort hotels along Pattaya Beach since hotel construction is prohibitively expensive. The five year tax incentive may help to promote more hotel construction and consequently low rental rate to popularize this resort area.

This promotion should be encouraged most fully since the inherent assets of transportation convenience and natural beauty otherwise would be unwisely wasted.

Tourist Statistics

Table 1

Number of Visitors (1957-1967)

	Year	Overseas Visitors	% Increase	Neighboring Visitors	% Increase
	1957	44,375		–	
	1958	55,210	24.4	–	
	1959	61,571	11.5	–	
	1960	81,340	32.1	–	
	1961	107,754	32.4	–	
	1962	130,809	21.3	–	
	1963	134,271	2.6	60,805	
	1964	158,588	18.1	53,336	– 12.2
	1965	189,620	19.5	35,405	– 33.6
	1966	207,111	9.2	78,006	120.0
FORECAST	1967	261,000	15.0	90,000	15.0

Source: 1957–1962 'Overseas Visitors' based a survey of hotel registration records, carried out with the cooperation of lecturers of the Mathematics Department, Faculty of Science, Chulalongkorn University.

1963–1966 Figures derived from embarkation and disembarkation records of the Department of Immigration.

Overseas visitors exclude :–

Cambodia, Malaysia, Laos, Burma and Vietnam.

Table 2

Foreign Visitors to Thailand
By Nationalities and Month of arrival 1966

Countries of Nationality	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
OVERSEAS VISITORS													
North America :													
U. S. A.	4610	5157	7126	7944	8379	6815	10269	8235	5770	10098	8422	7475	90300
Canada	284	212	278	319	268	182	336	265	186	447	314	208	3299
Europe :													
Austria	7	14	29	5	2	5	—	5	3	11	2	8	91
Belguim	16	17	38	12	7	4	4	3	—	11	5	10	127
Denmark	16	7	17	5	13	21	7	6	6	10	17	6	131
France	384	508	720	838	451	460	650	971	462	922	935	469	7770
Germany	629	1246	203	717	625	385	455	584	670	901	1001	562	7978
Ireland	7	—	—	4	1	2	—	3	2	4	2	2	27
Italy	179	168	227	219	238	138	163	334	250	353	275	183	2727
Norway	4	3	2	7	2	—	—	—	—	1	3	1	23
Netherlands	143	184	164	210	221	141	378	137	197	189	220	171	2355
Portugal	—	—	8	1	—	3	—	—	—	7	8	—	27
Spain	1	4	—	2	2	—	1	1	2	—	—	—	13
Sweden	188	135	196	199	112	81	127	85	181	144	288	234	1970
Switzerland	401	472	562	518	220	209	271	138	132	380	429	318	4050
U. K.	1541	1255	1746	1598	1483	1302	1336	1728	1448	1511	1822	1600	18370
Middle East:													
Israel	3	2	15	4	11	10	3	16	—	1	2	—	67
Iran	3	—	—	—	3	2	2	4	—	—	2	2	18
Pacific & Asia:													
Australia	707	61	695	839	749	650	719	976	755	812	761	921	9045
New Zealand	22	7	8	8	13	24	18	12	7	4	23	5	151
Ceylon	—	—	76	—	1	6	2	2	—	—	—	—	87
China	53	456	511	450	547	687	631	543	780	857	739	1871	8125
India	332	298	435	296	459	440	539	435	543	450	719	446	5392
Indonesia	164	217	186	321	245	405	425	366	536	401	307	371	3944
Japan	1403	1522	1129	1338	927	759	1156	1336	758	1542	1621	1444	14935
Korea	3	5	2	3	4	8	10	8	9	17	2	3	74
Philippines	65	255	344	414	627	646	602	479	436	294	676	1006	5844
Pakistan	1	13	13	2	13	25	24	7	6	25	27	6	162
Others	1448	455	1217	1736	1655	1012	1244	1703	1862	2732	2486	2459	20009
Total	12614	13073	15947	18009	17278	14422	19372	18382	15001	22124	21108	19781	207111
Neighboring-Countries :													
Malaysia	2649	2236	3258	3486	3808	3074	3736	3197	2724	3506	3618	3529	38821
Singapore	40	63	120	105	116	131	135	203	47	85	213	321	1579
Burma	40	1347	2140	606	37	1513	2093	1898	887	1584	1725	213	14083
Laos	1216	972	2086	1377	1959	2049	2477	2302	1247	2401	2508	2228	22822
Vietnam	33	15	50	45	43	59	67	49	30	44	102	164	701
Total	3978	4633	7654	5619	5963	6826	8508	7649	4935	7620	8166	6455	78006
Grand Total	16592	17706	23601	23628	23241	21248	27880	26031	19936	29744	29274	26236	285117

Source of information: Statistical Section, Tourist Organization of Thailand.

Method of collection : Frontier Check (by Immigration Division, Police Department).

Table 3

FOREIGN VISITORS TO THAILAND 1966
BY NATIONALITIES AND MEANS OF TRANSPORTATION

Countries of Nationality	Air	Land	Sea	Total
OVERSEAS VISITORS:				
North America:				
U. S. A.	84,251	1,573	4,476	90,300
Canada	3,013	63	223	3,299
Europe:				
Austria	7	63	21	91
Belguim	--	101	26	127
Denmark	8	54	69	131
France	6,451	295	1,024	7,770
Germany	7,220	404	354	7,978
Ireland	9	9	9	27
Italy	2,552	43	132	2,727
Norway	1	14	8	23
Netherlands	2,152	38	165	2,355
Portugal	—	15	12	27
Spain	1	5	7	13
Sweden	1,855	46	69	1,970
Switzerland	3,589	338	123	4,050
U. K.	15,387	1,705	1,278	18,370
Middle East:				
Iran	4	3	11	18
Israel	8	27	32	67
Pacific & Asia:				
Australia	8,206	524	315	9,045
New Zealand	8	128	15	151
China	6,523	729	873	8,125
Ceylon	76	7	4	87
India	4,491	452	448	5,392
Indonesia	3,892	9	43	3,944
Japan	13,713	363	859	14,935
Korea	31	1	42	74
Pakistan	11	65	86	162
Philippines	4,940	190	714	5,844
Others	19,176	202	631	20,009
Total	187,575	7,467	12,069	207,111
NEIGHBORING VISITORS:				
Burma	1,420	6,183	6,480	14,083
Laos	1,579	5,614	15,629	22,822
Malaysia	4,574	33,561	686	38,821
Singapore	127	1,423	29	1,579
Vietnam	2	42	657	701
Total	7,702	46,823	23,481	78,006
TOTALS	195,277	54,290	35,550	285,117

Source of information: Statistical Section, Tourist Organization of Thailand.

Method of collection : Frontier Check (by Immigration Division, Police Department).

Table 4

INTERNATIONAL AIR TRAFFIC AT BANGKOK AIR PORT 1965-1966

SOURCE: CIVIL AVIATION DEPARTMENT, ROYAL THAI AIR FORCE

Month	1965				1966			
	Disembarked	Transit	Total	Percentage of Disembarked	Disembarked	Transit	Total	Percentage of Disembarked
January	15,772	15,833	31,506	49.9	17,351	16,537	33,888	51.20
February	15,750	14,544	30,294	51.9	17,232	15,365	32,597	52.86
March	18,917	16,589	35,506	53.2	20,022	19,966	39,988	50.07
April	20,078	19,411	39,489	50.8	23,357	18,989	42,346	55.15
May	20,893	20,822	41,715	50.0	24,038	20,365	44,403	54.13
June	16,761	19,668	36,429	46.0	19,760	20,334	40,094	49.28
July	20,583	21,634	42,217	48.7	25,811	23,655	49,466	52.17
August	20,719	20,252	40,971	50.5	23,763	22,328	46,091	51.55
September	19,504	21,746	41,250	47.2	21,669	24,549	46,218	46.88
October	23,479	19,061	42,540	55.1	28,284	23,101	51,385	55.04
November	23,257	17,953	41,210	56.4	29,948	19,615	49,563	60.42
December	20,044	18,823	38,867	51.5	28,604	21,542	50,146	57.04
Total	235,757	226,336	462,093	51.0	279,839	246,346	526,185	52.98

Table 5

REVENUE FROM TOURISM

	YEAR	MILLION US$	INCREASED FROM LAST YEAR BY MILLION US$	PERCENTAGE
	1957	5.1		
	1958	6.7	1.6	30 %
	1959	7.4	0.7	10 %
	1960	9.8	4.2	31.75 %
	1961	12.5	2.7	28.71 %
	1962	15.5	3.0	23.50 %
	1963	19.7	4.2	27.09 %
	1964	21.5	1.8	9.1 %
	1965	25.3	3.8	17.6 %
	1966	* 37.5	12.2	
FORECAST	1967	* 46.3		

SOURCE : – The Future of tourism in the Pacific and Far East.

– *National Statistical Office.*

N.B. The average yearly increase from 1957–1963 is 19.96%

* Include expenditure spent by R & R, US$ 6.6 million & US$ 10.8 million in 1966 & 1967 respectively.

Table 6

COMPARISON OF TOURIST EXPENDITURE AND OTHER EXPORT OF THAILAND

SOURCE: Bank of Thailand.
National Statistical Office.

1964			1965			1966		
Rank	Exports	Millions of Baht	Rank	Exports	Millions of Baht	Rank	Export	Millions of Baht
1	Rice	4,461	1	Rice	4,376	1	Rice	4,021
2	Rubber	2,060	2	Rubber	1,998	2	Rubber	1,860
3	Maize	1,361	3	Tin	1,166	3	Jute	1,653
4	Tin	961	4	Jute - Kenaf	1,120	4	Maize	1,530
5	Tapioca	666	5	Maize	982	5	Tin	1,316
6	Jute - Kenaf	496	6	Tapioca	686	6	Tourism	750*
7	Tourism	430	7	Tourism	506	7	Tapioca	686
8	Teak	178	8	Teak	400	8	Teak	243
9	Kapok	124	9	Beans	118	9	Bean	133
10	Castor Seed	90	10	Kapok	112	10	Tobacco	113

* **N.B.** 618 millions of Baht from bonafide tourist.
132 millions of Baht from R & R.

Estimated Revenue from Tourism

Nowadays the total travel expenditure by all people of all nations in both domestic and international travel exceeds $70 billion annually. Tourist revenue in Thailand in 1967 was US $50 million, an increase of US $12.5 million over the preceding year. From the statistics on tourism in Thailand, tourists remained an average of 4.8 days in Thailand, spending a daily average of US $40, which are broken down as follows:

Room	25.4%
Food and beverage	38.8%
Shopping, entertainment	26.8%
Domestic transportation	4.5%
Miscellaneous	4.5%

From these figures, the tourists main expense is room and food, which is classified in hotel income as high as 64.2% of the total revenue from tourism. As was mentioned previously, tourist income in 1967 was US $50 million, therefore approximately US $32 million are from hotel business. A portion of the national revenue will come from the expenditure of the seaside resort in Pattaya.

SEASIDE RESORT IN THAILAND

Seaside Resort Activities

There are numerous potential seaside resort areas on the beautiful long coasts in the southern and southeastern part of Thailand. The famous seaside areas which provide hotel accommodation and recreation facilities are at Bangsaen, Hau-hin, Pattaya, Puget Island, Samila, and Sriracha. They are all located at places accessible especially by cars. Some of them can be approached by trains, ships, or planes through the cities nearby. People spend their weekends at resorts for water sports and relaxation all year round because the very low temperature change on the coast allows them to enjoy this exclusive continuity.

Seaside resorts are one of the attractions for tourists. The number of tourists visiting Thailand has been growing about 12% a year. The growing rate is expected to double when "jumbo jet" planes begin flying there in about mid 1971. The development of tourism in many countries of the world has been a major factor in building international understanding and is now considered as a major source for generating increases national and local income. It also provides jobs from labor to professional level. The government, realizing these facts, encourages the establishment of hotels by collecting no import duty on materials used for hotel construction, and no income taxes for the first five years of operation. The Tourist Organization of Thailand are also working on the programs of hotel development by arranging conferences on hotel management and introducing the systems and new techniques with the help of hotel experts, some of them from abroad. So far, there is no standard school of hotel management in Thailand.

Finance

The cost of construction and expense are important in planning. For standard resort hotels, the average cost of construction is approximately $10,000 per living unit. In the more luxurious resort hotels, in Hawaii for example, the cost of construction may be as high as $100,000 per living unit. In Thailand, however, the average cost of construction is substantially less than the average $10,000 per living unit.

The average rental rates of resort hotels are usually considered to be 1/1000 of the construction cost of each living unit. In Thailand the average rental rates per day are quite close to international rates. They are as follows:

Standard room	$12.50
Deluxe room	$17.50
Suite	$25.00
Deluxe suite	$30.00

In general, the gross operating profit of the resort hotel management is computed as follows:

Cost of Goods Sold and Departmental Wages and Expenses	
Rooms	14.9%
Food and beverages	38.8%
Administrative and general expenses	10.6%
Repairs and maintenance	7.0%
Light and power	3.0%
Telephone	2.0%
Advertising and business promotion	5.0%
Total	81.3%

Total Sales and Income	
Rooms	49.4%
Food (including sundry income)	35.3%
Beverage (including sundry income)	10.9%
Telephone	1.4%
Other departmental profits	1.5%
Other income	1.5%
Total	100.0%
House profit	18.7%
Store rentals	1.5%
*Gross operating profit	20.2%

Developing and operating a resort hotel for profit is a calculating real estate venture. 60% of the living units must be occupied at all times for balancing expenses. Labor expenses are an important variable in profit realization. In the countries where labor is expensive, a gross operating profit of 25% is considered good. In Thailand, as well as other Asian countries, labor cost is relatively very low, therefore, the gross operating profit can run as high as 45%. Low labor cost may well be an attraction for foreign involvement beyond tourism.

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*The profit before deducting depreciation, insurance, taxes, interest, rent, and amortization.

A STUDY OF PATTAYA AREA, CHOLBURI, THAILAND

Geographical Background

Pattaya is located on the east coast of the Gulf of Thailand, 94 miles southeast of Bangkok, and 34 miles from the Cholburi metropolitan area. It is a community in the Banglamung district, one of the eight districts in Cholburi.

The general area is a high plain covered with forest and plantations. On the west is the coast of gently sloping beaches of fine sand with green Pattaya Hill in the background. Three off-shore islands: Ko Krok, Ko Lan, and Ko Sak make the seaside area more attractive. Pattaya community includes 5 bays (Ao): Ao Pattaya, Ao Hat Yao, Ao Wong Prachan, Ao Chek, and Ao Noi.

Population

Most of the people in this area are native Buddhist Thai. By trade, most of them are engaged in fishing, forestry, industry, agriculture, and working on the resort facilities, etc. With adequate schools, and many jobs available, the morale of the people is high and the standard of living of the people is satisfactory and stable. The average earnings of the people are in the middle income bracket.

Economic Background

The economy of Cholburi is based on agriculture, forestry, fisheries, industries, irrigation and various kinds of trading. The natural resources and resort activities of Pattaya also increase Cholburi economic growth.

Agriculture. Cassava and sugar cane are the most important crops. They also cause the establishment of factories which create many jobs. Much of the cassava and sugar produced in this area is exported.

Fisheries. Marine fishing is carried out mainly along the coast of the

Gulf of Thailand. It is a source of much-needed protein foods and a means of livelihood for a large portion of the Thai people. It is also a major export.

Forestry. Realizing the fact that both for construction and for fire wood, the rate at which timber is being cut down is faster than the rate of replacement, the government has undertaken projects of forest conservation and protection of five areas in this region.

Industries. The many natural resources in this area produce the raw materials for a large number of establishments in many major industries. There are 900 factories in Cholburi. The outstanding one is an oil refinery which also produces asphalt. Other factories produce cassava flour and meal, sugar, salt, fish products, and lumber. Domestic industry such as weaving has been enhanced in this area.

Irrigation. There are no rivers or large canals in this area. Only a canal in the Pantong district and reservoir at Bang Pra are provided for irrigation and water supply.

Trading. Close proximity to Bangkok and convenient transportation give this area a large trading business.

Transportation Feasibility

Sukhumwit Highway is the main road that runs from Bangkok and serves Cholburi, Pattaya, Sattahip, and other large communities and towns in this region. Traffic is heavy because it is the most convenient way to go to the seaside.

Water transportation is another possibility since Pattaya, Bangkok, and some other towns can be reached by water. Air transportation other than helicopters so far has not been activized.

Recreation Facilities

The fantastic tropical nature of the coast of the Gulf of Thailand makes this area a successful seaside resort area. There are many famous seaside resorts located in this area such as the beaches at Bangsaen, Banglamung, Ao Wong Prachan, Ao Hat Yao, Pattaya, Sattahip, Sriracha, and Ko Lan. A large golf course surrounded with beautiful green hills is located at Bang Pra. There are also some private beaches and areas for camping.

Recreation facilities offered at this seaside area include boating, diving, fishing, hunting, golfing, sailing, and water-skiing. Seafood restaurants and nightclubs are also major facilities that draw people to the beach.

FACTORS AFFECTING DESIGN

Climate

Seasons

The climate of the Southeastern Region is affected by the long coastal line and the mountain ranges which cause more rains. There are three seasons in this region: the rainy season (May-November), winter (November-February), and summer (February-April).

The rainy season. This is the longest season in the Southeastern Region. The greatest quantities of rain fall in this area in September and October when the southwest monsoon sweeps in from the Gulf of Thailand and strikes the high mountains.

Winter. The cold weather is mitigated by the northeast monsoon winds which blow warm air from the continent, as well as warm steam from the ocean.

Summer. The strong winds from the sea cool the west coast during summer; therefore the west coast of this region is one of the best seaside resort areas of the country.

The yearly average temperature in this region is 81.9°F. It is neither too hot in summer nor too cold in winter. The average temperature in summer and in the rainy season is 82.4°F - 84.2°F, and in the nominal winter, 78.8°F.

There is a wide range of rainfall in this region. The eastern coast of the region, with no high mountain ranges, has less rainfall than other parts of the region. The total mean rainfall on the coast is 60 to 80 inches.

Prevailing Winds

Wind is the most useful natural means for ventilating a building in tropical regions. When designing buildings without provision for constant air-conditioning, the buildings should allow for the maximum passage of air. At the coast, the winds blow from the sea to the land during the day and from the land to the sea during the night. The best orientation for catching the cooling and dehumidifying breeze and dispersing the heat, obviously, is to design the buildings with long opening sides facing the wind directions.

Humidity

The yearly average humidity of Thailand varies little; it is between 75% to 85%. Because of the high temperature and high humidity amidst heavy rainfall, most buildings are built very open with overhangs and sunshades not merely to cut the glare of the sun and its heat from penetrating into interior space, but mainly to protect the interior space against rain and consequent humidity infiltration while at the same time allowing dehumidifying ventilation to go through windows or louvres under the protection of the great overhang.

Building Materials

Local Materials

Wood. Because of the many huge areas of forests, wood is the general building material being used in Southeast Asia. Almost 60% of the total area of Thailand is covered by woods. These are distributed all over the country with the exception of the Central Plain. Woods are divided into three grades by quality.

Teak (Tectonia grandis) is the most valuable timber; it has the highest

quality (grade A) among the preferred kinds of woods because it has a beautiful long grain with smooth and fine texture. It rarely shrinks after having been seasoned and is highly resistant to termites. This is one of the factors for its being preferred over other distinguished woods. Besides, the high oil content of the wood along with its great durability, makes it possible to use teak in direct contact with steel without fear of rust. Teak needs a deep, well-drained soil. It thrives in the foot hills and the lower mountains up to elevations of about 2,000 feet. It is found mostly in the northern part of the country. The richest teak area has 360 mature teak trees to the square mile. At present, though, teak has been cut down rapidly; the supply is not meeting market demands. Its great scarcity affects the price; during the last few years prices have more than doubled. For these reasons, instead of being used for construction work, it is now being used only for furniture and finishing work. Parquet teak floors are commonly used.

Redwood (Xylia dolabriformis or Kerii) is one of the finest timbers; it is grade B. It has long grain and beautiful color. It is popular for use in both construction and furniture. It has little tendency to shrink after having been seasoned. It is used for interior construction members such as beams, floors, and wood panels to show its beautiful grains and color.

Teng, Rang, Maka, and Takhain woods (Shorea obtusa, Pentacme siamensis, Afzelia xyclocarpa, and Hopea odorata) are in grade B also. They have short grains and a little white in their texture, and they show little tendency to shrink. They are used only for structure parts such as beams and posts because of their strength and rough texture. The takhain tree also yields a resin of high value, the dammer, used in the manufacture of varnishes.

Krabak and Yang woods (L. Calyculata, and Dipterocarpus alatus) are in

grade C, which is the lowest quality among the woods used in Thailand. The wide range of relative humidity in Thailand causes dimensional changes in these kinds of timbers. They are easily destroyed by termites and moisture; therefore, they are used only for temporary buildings and sometimes as inside members of a wooden partition. They are more widely used as wooden piles because they are cheap and of course more durable in water than in the air.

Bricks. These materials have been used in Thailand for a thousand years. They are made from different kinds of soils and clay combined with a chemical solution and then baked. The standard size is small: 10" long, 5" wide, and 1 1/2-2" thick. There are two kinds of bricks in Thailand:

1. B.B.T. (Bang-Boa-tong) are the initials of the place where the brick is made. They are the best among the bricks used because they can stand much pressure. They have a beautiful color and fine texture. Their principle use is for decorative exterior walls.

2. Morn Bricks are made from low quality soil, mixed with clay, with inferior workmanship. They cannot stand much pressure because they are made to be very light and have many perforations. They are used for light construction work such as walking paths, fences, and one-story walls covered with plaster and other filling purposes.

Sand. This is the major material used in mixing concrete. Only the sand found near fresh-water, rivers, and streams is used in construction. Sand found near salt water is fine grained and high in salt content which will erode steel and weaken concrete. A large quantity of this sand is from Ratchburi and other locations along the Chao Phraya River.

Stones. These local materials are found in mountainous and coastal areas. They are used in mixing concrete. Beautifully colored and fine textured

stones are popularly used for decorative walls and floors.

Aggregates. These inexpensive local materials are also used for decorative walls and outdoor floors.

Concrete. This has become the main building material in Thailand. The first cement factory was established in 1913. At present, there are several large cement factories in the country. In 1966, it was estimated that 1,000 tons of cement were produced a day. In the near future, the estimated cement production will be 3,000 tons daily and 1,200,000 tons annually. The cement industry has developed a large export trade with neighboring countries such as Vietnam, Laos, and Malasia.

Reinforced concrete, because of new techniques in construction methods, and in production, is widely popular. Pre-cast concrete, prestressed concrete, ready mixed concrete, shell concrete structure, floating concrete foundation, and assorted reinforced concrete piles, etc. have been widely used in construction during the past ten years.

Cement blocks. These are made of a mixture of cement and sand. They are quite satisfactory in the tropics for ventilation, sun control, and protection from rain. They are designed to stand much pressure, but they are light in weight. They are easy to join together with cement mortar. Because of their construction they are versatile and economical.

Asbestos cement sheet. This is also produced by cement factories. It is used for ceilings and partitions in the less expensive buildings. It is fireproof and its acoustical absorption value is high.

Terra-cotta and glazed tiles. These materials have been used for almost 400 years. Terra-cotta tiles are popularly used to cover floors. They are produced in many different shapes and various colors. Glazed tiles have been

used as roofing materials on residences and temples. Presently, since new modern materials were introduced, glazed tile has been used more for decorative walls and floors. It is still being used for roofs of temples and of Thai traditional buildings and in decorating furniture as well.

Roofing materials. Terra-cotta and glazed tiles have been used for roofing materials. They are made in 8"x12" size. The shingles are small and overlapping. They have small spaces between the overlaps through which the rains may overflow under the covering shingles into the buildings if they are not high-pitched in order to drain the rain more quickly. New roofing materials have been introduced on the market to make more practical and economical roof constructions. These new materials, composed of cement and asbestos, are designed to function as a rafter system with wavy corrugation running lengthwise. Their composition and design allows them more lightness and strength than older glazed tiles.

Plywood. Plywood is very popular; it is used for ceilings, partitions, and furnitures. It has different thickness and textures. The most popular kind in use, however, is plywood whose structural thickness is made up by low cost Yangwood while the surfacing is made of teak.

Imported Materials

Aluminum products. These materials are popularly used in modern Thai architecture as grills, sun louvers, doors, and window frames because they require less labor. It is susceptible to marine atmosphere, but pure aluminum of "alcad" is most corrosive resistant. Most of the aluminum products are imported from Japan, Taiwan, and the USA. England and Australia are now competing for the market, also.

Iron and steel. Thailand produces some of these building materials.

Total production is about 4,500 tons of pig iron and 1,100 tons of steel a year, an amount far from sufficient to meet the country's need.

The Siam Cement Company has operated a small iron and steel work since the end of WW II. The operation is quite uneconomic; fuel appears to be the major problem because there is no coal mine in the country. Thailand imports all her building steel supply from Belgium, England, Germany, and Japan.

Glass. The glass industry has only been recently established in Thailand. Because of a lack of skilled labor, the quality of glass has been below standard. Presently, glass is listed as the fourth largest material used in construction in Thailand. Both clear and tinted glass are progressively more widely used.

Resilient tiles. The quality of the resilient flooring tiles made in Thailand is of average quality. Most of the tiles used in construction are imported from Germany, Japan, and the USA.

Steel rods. Reinforced concrete is actively used in construction and promotes highly developed techniques. High tension steel wires for prestressing are as common as ordinary steel bars in construction. Though there are a large quantity of steel rods produced in the country, there is still a need to import. Thailand imports steel rods from Japan and Taiwan at a cost of as much as 5-7 million dollars a year.

Finished materials for flooring. Glazed tiles, mosaic tiles, and polyestered tiles are commonly used for flooring different spaces. Italian marble is popular for commercial and prestigious buildings.

Hardware and sanitary equipment. Both building hardware and sanitary equipment are imported from Belgium, England, Japan and the USA.

Paints. Thai architects try to avoid use of paint because of the

necessity for maintenance and repair; however, aluminum pigmented paints are quite satisfactory in the tropics. Most of the paints are imported from Germany, Japan, and the USA. Polishing oil, wood oil or lacquer which are produced in Thailand are widely used because of good quality and low price.

Public Utilities

Electricity

Electricity is relayed from the sub-station at Sriracha, which is supplied by the Central Electricity Board, Electricity Organization of Thailand. Standard electricity supply is of 220 volt, 3 phase, 50 A.C. current.

Water Supply

Water supply is operated by the Water Work Department, Municipality of Banglamung District, Cholburi. It is supplied from the reservoir at Bangphra. Charges are based on bulk system.

Gas

Gas usually comes in tanks, but it will be supplied by mains in the next few years.

Sewage Disposal

A public sewage system is lacking, and sewage is disposed of through septic tanks on each site in areas where the underground is not saturated with water.

DESIGN CONSIDERATION FOR TROPICAL ENVIRONMENT

Climate is one of the most important factors affecting design in the tropical areas. For building design purposes, warm climates may be classified as: warm humid, intermediate, hot-dry, and cooler-upland. They are sometimes divided merely into hot-humid or hot-dry. The elements which create distinct climates are: the direct radiation of the sun together with a variable proportion from the sky; humidity, temperature, pressure and movement of the air; and cloud and rain. The climate of Thailand is classified as hot-humid.

The problem of design for warm climates is different from that of cool climates. Buildings when occupied perform two thermal functions. They provide shelter from the harsher features of climate: rain, wind, glare, and radiation. They also impede the dispersal of heat developed inside them. In a cool climate both functions are useful, but in a warm climate, people need buildings to shelter themselves against the harsh elements and buildings which, at the same time, do not hinder the rapid dispersal of heat from inside. As a matter of fact, it is not so much the heat that bothers people. It is the subjective feeling of warmth due to a combination of static heat and humidity when air movement is lacking that is uncomfortable.

Among the factors which cause tropical climates to vary are wind, rainfall, the relationship of land to water, the height above the sea level, and the presence and absence of vegetation.

With some understanding of climatic conditions it is possible to secure a comfortable environment without the necessity of expensive air-conditioning. Aside from the choice of location, orientation is the first consideration in planning. North and south sides of the buildings need much less protection from the sun than the east and west sides; therefore the best orientation for

reducing the solar heat gain in the building is to plan its long axis east-west. In some cases, the architect may have to consider orientating of buildings for the sake of shading or breezing. If screens are provided to protect the buildings against sunlight, they must not create darkness inside, and they must not obstruct the breeze, which is so desirable in hot-humid areas. The quality of the moving air will be cooled by the presence of vegetation. At the same time planting is helpful in the functional and aesthetic development of the land.

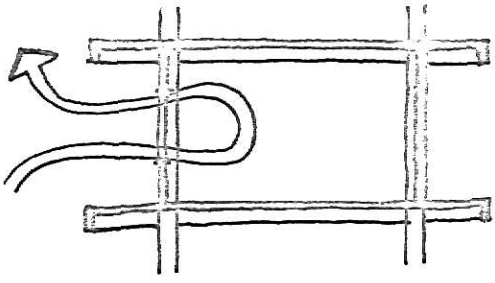
Buildings in Thailand should be thoroughly ventilated and shaded against the sun and the monsoon rain. Horizontal or vertical louvers (fixed or movable), overhangs, canopies, and varandahs must be liberally adopted. They will allow for cross ventilation through windows, which may remain open even when it is raining. Windows facing west should be avoided whenever possible.

In hot-humid climates, discomfort arises mainly from glare in the sky; in hot-dry climates, considerable discomfort is caused by surface glare. The amount of solar radiation, which is reflected from the pavings surrounding the building, is also discomforting. An unprotected pavement may register 110°F when the surrounding air temperature is only 90°F. Grass and other vegetations can help decrease solar radiation to a substantial degree. Nature is harsh and gentle at the same time.

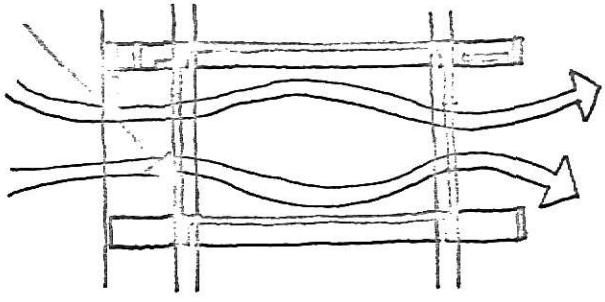
The reduction of solar radiation in a roof is most desirable because it is the area of the buildings most exposed to the sun. The problem is to reduce the penetration of solar heat and to prevent it radiating into the buildings at night. The solution is to produce low temperatures in the ceiling slab and to disperse excess heat rapidly. This may be designed by double roofs with a space for air to pass through between them. The roof is sloped one way which

allows the warmer air to escape at its upper end. Its upper surface is made of highly reflective material such as white materials. High ceilings do not reduce the heat in the buildings, but they do increase the wall area and the cost of the buildings. A ceiling height as low as 8 ft. is recommended in hot-humid climates.

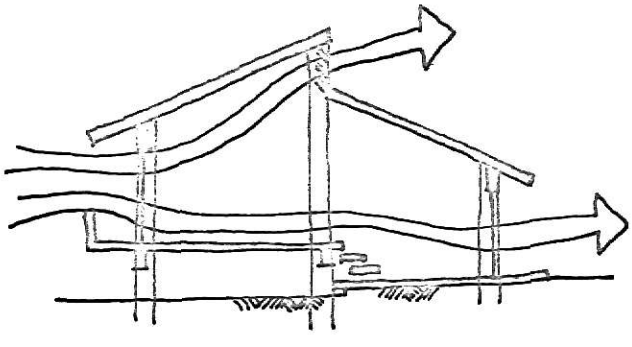
Ventilation is of the prime importance in hot-humid climates. In these areas, the air outside an occupied room is normally cooler and drier than the air within it; the need for ventilation may be acute when there is little or no wind late in the afternoon. Natural ventilation can be facilitated by the careful positioning of lower and upper openings which together are functioning on the principle of the stack effect to remove warm air at the top of the building and replace it with cooler air from outside at the bottom.



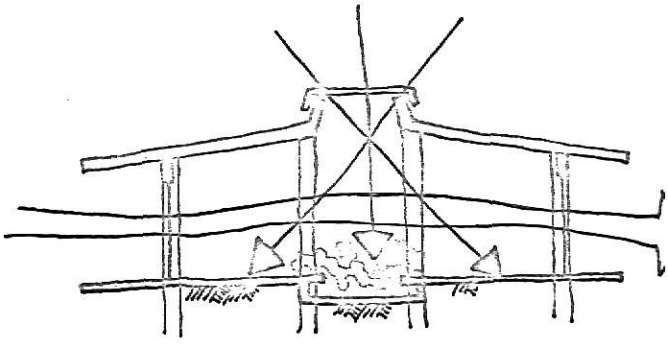
With only one side open, fresh air will not be allowed to circulate.



Sunshades and louvers will protect the room from solar heat and rain. Openings on two sides of the room will enhance cross ventilation.



A clearstorey will provide both light and cross ventilation.



A skylight will provide adequate sunlight for the large room.

ENVIRONMENTAL PROBLEMS IN THE TROPICS
FIG. 4

MATERIALS AND METHODS OF CONSTRUCTION

The factors which effect the selection of materials are availability, cost, requirements of building regulations, the ability of the materials to stand up to prevailing climatic conditions, and the standard of workmanship. As communications and transportation improve in Thailand, the range and choice of available building materials increase. Since the cost of imported materials, due to shipping, insurance, and custom charges is high, there is a marked tendency towards the protection of local materials. This is evident in the case of cement, with resulting greater use of concrete and concrete products. The cost of buildings in Thailand is based on the rates of labor cost, both for construction and manufacturing of materials, which is usually low in most tropical countries such as Thailand. The cost of a building, however, should not be estimated exclusively on the basis of its initial cost. The cost of maintaining its integrity while exposed to harsh conditions is also a vital factor for consideration.

The standard of workmanship affects the performance of any material. Many imported materials or components may require special skills in fixing. Supervision may be needed to guide inexperienced labor.

High temperatures in Thailand can cause fundamental changes in organic materials such as paints, plastics, bitumen, and rubber which can become embritted. Temperature fluctuations can cause thermal movement resulting in cracking, distortion, or discoloration. Prolonged high humidity promotes mold or algal growth. Wide daily range in relative humidity causes dimensional changes in timber. Although Thailand, like other tropical areas, has less atmospheric pollution, there are other factors to contend with such as the problem of termites, sea-salt in the atmosphere of maritime areas which

promote the corrosion of metals and degrade paint films, and of expansive clay soils on which a method of tied and combined foundation on piles may be needed.

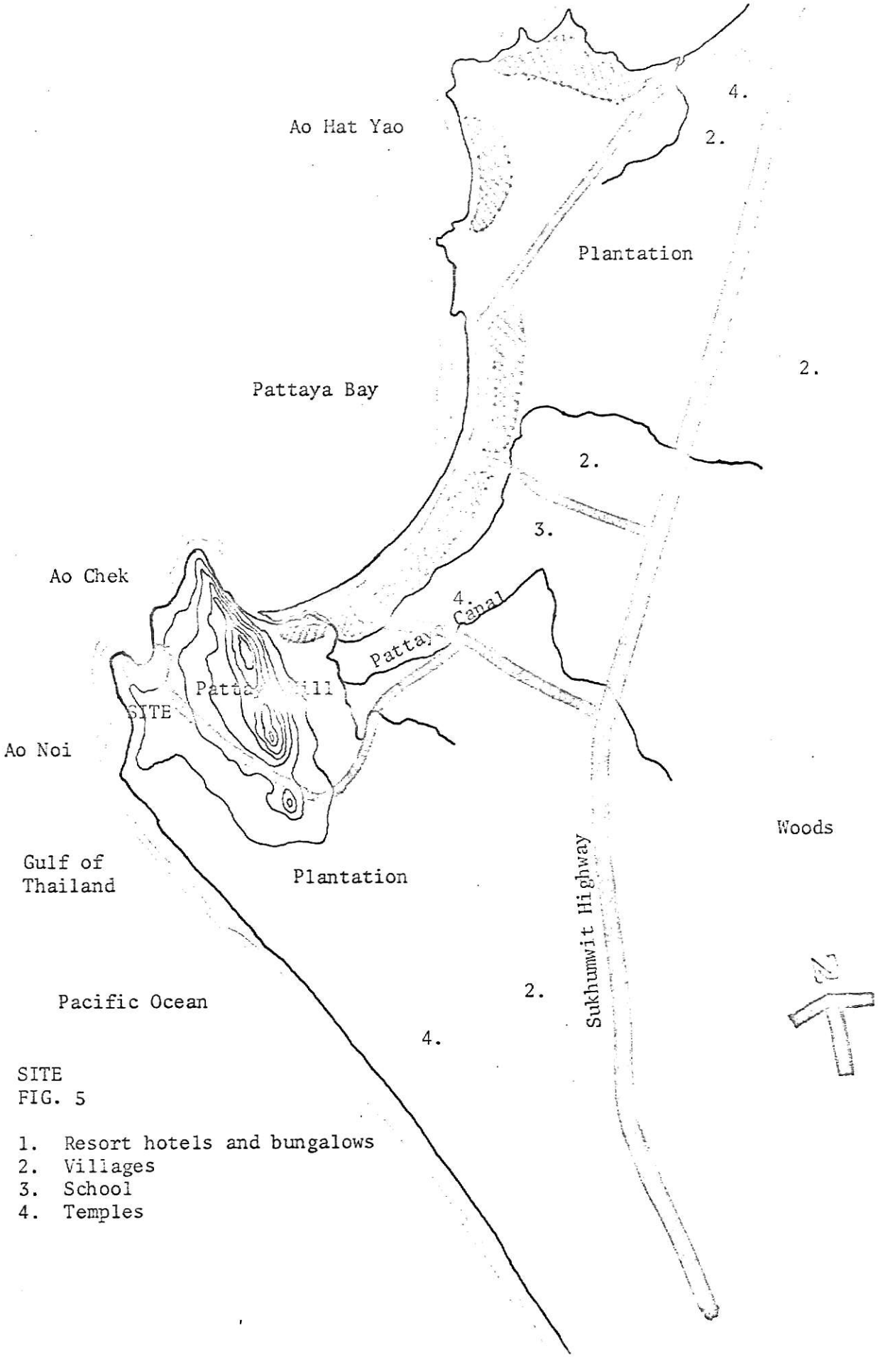
A DESIGN FOR A TROPICAL SEASIDE RESORT AT PATTAYA, CHOLBURI, THAILAND

Site Study

Our choice of a seaside resort to be located in the famous recreational zone 94 miles southeast of Bangkok is obviously an excellent one since, we repeat, it can be reached by cars and boats. Its convenience could be further improved when the new four lane Sukhumwit Highway, which shortens the total distance from Bangkok about 25 miles, is expanded to help reduce traffic problems. The construction of an airport at Bangna is scheduled to be completed in 1975. It is assumed that this betterment of transportation will bring about progress to the seaside recreation area in this part of the country.

The site of about 42 acres is to be allocated on the south side of the 330 Pattaya Hill. It is bounded to the north by the Gulf of Thailand with its remarkable coast. To the west, the land, which is covered with cocoanut trees, gently slopes toward the beach. To the east and south is sloping terrain. The exit road from Sukhumwit Highway to Pattaya Bay feeds the new site on the south by a distance of only 3 1/2 miles.

The area seems to be ideal for future expansion of seaside recreation since the resorts at Pattaya Bay on the other side of the hill are overgrown, already. The plantations surrounding the area seem to be feasible for change into added seaside recreation areas, also. It has a low slope beach with the beautiful views of three off-shore islands, the mountains, and the bay of Sattahip on the south. It is therefore decided that the design should take full advantage of the natural setting, which is an amenity, indeed. A design with changing levels is considered in order to create aesthetical values by



SITE
FIG. 5

1. Resort hotels and bungalows
2. Villages
3. School
4. Temples

level variation and to avoid horizontal conflict to split scenic views at various levels and to give privacy. The location of the buildings should allow for these physical and visual functions.

Since the coast is facing northwest, the wind, during the hot day, is from the north and northwest and, during the night, is from the southeast. Air-conditioning will be used in the design for convenience, but cross ventilation shall basically govern the design since, to begin with, the resort needs to relate itself with nature. The length of the buildings will be perpendicular to the direction of the winds.

Sun control is a major problem, especially during the harsh afternoon hours. To synchronize with the needs of views from many windows and cross ventilation, it is logical to orient the buildings to face north or northwest. Long cantilevers will be used in the design to create shadows and to obstruct the monsoon rains. Cantilevers do not obstruct pleasant views or the winds. Screens, louvers, and fins will be used supplementarily in some parts to obstruct the sun and the rains. The surrounding trees also help obstruct the sunlight, reduce the heat, and increase the wind velocity while the nearby landscape is enhanced.

Project Requirements

The seaside resort will have 6 main space divisions, classified according to function:

1. Public space
2. Living quarters
3. Food and beverage service space
4. Managerial service space
5. Concessional and subrental spaces
6. Recreation space

Public space

- Lobby
    a. Public telephone
    b. Public toilets
- Front office
    a. Reception
    b. Rooms clerks
    c. Reservation service
    d. Cashier and bill clerk
    e. Transportation service

Living quarters

- Single-bed rooms
- Double-bed rooms
- Suites
- Family units

Food and beverage service space

- Restaurant
- Bar and cocktail lounge
- Banquet and ball room
- Coffee shop
- Night club
- Kitchen
    a. Receiving
    b. Food storage
    c. Preparing food
    d. China, glass, and silverware storage
    e. Serving counter
    f. Dishwashing
- Employee's dining room
- Toilets

Managerial service space

- Executive manager
- Secretary
- Accountants
- General office
    a. Convention assistant manager
    b. Rooms assistant manager
    c. Typists
- Service quarter
    a. Housekeepers' rooms
    b. Maids' rooms

c. Linen and service room

d. Employees' lockers and toilets

e. Mechanical room

f. Workshop and storage

g. House tank

Concessional and subrental spaces

- Display area
- Beauty salon
- Barber shop
- Dress shop
- Post office
- Convention hall
- Shopping arcade

Recreational area

- Indoor games
  a. Billiards, pool, and snooker
  b. Table tennis
  c. Cashier
  d. Public toilets
- Outdoor games
  a. Swimming pool
     Showers and lockers
     Pump room
  b. Marina
     Lounge

Snack bar

Kitchen

Water-sport renting service

Supply room

Dock piers

Boat storage

Washing area

Repair shop

Manager's room

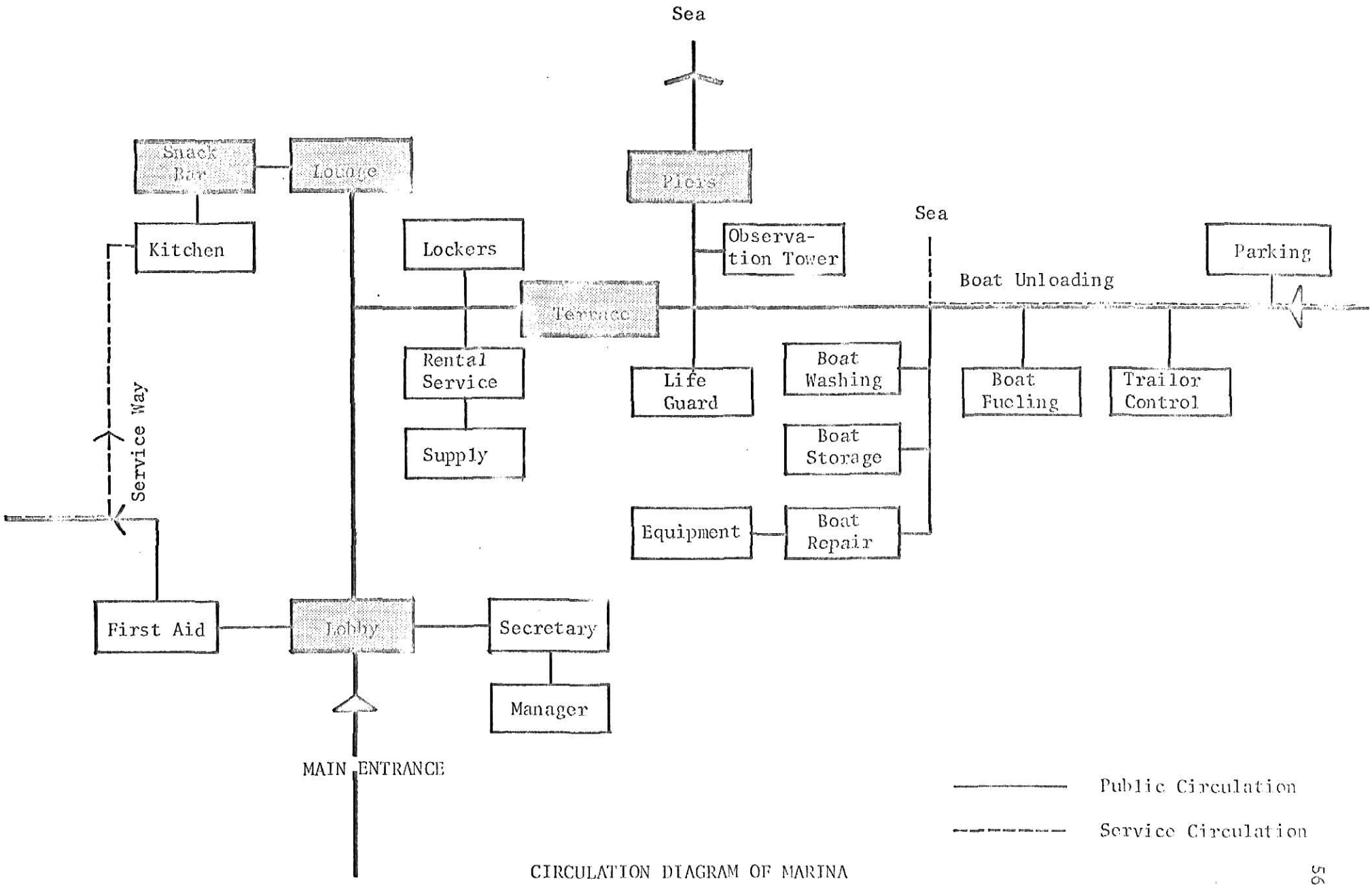
First aid room

Life guard room

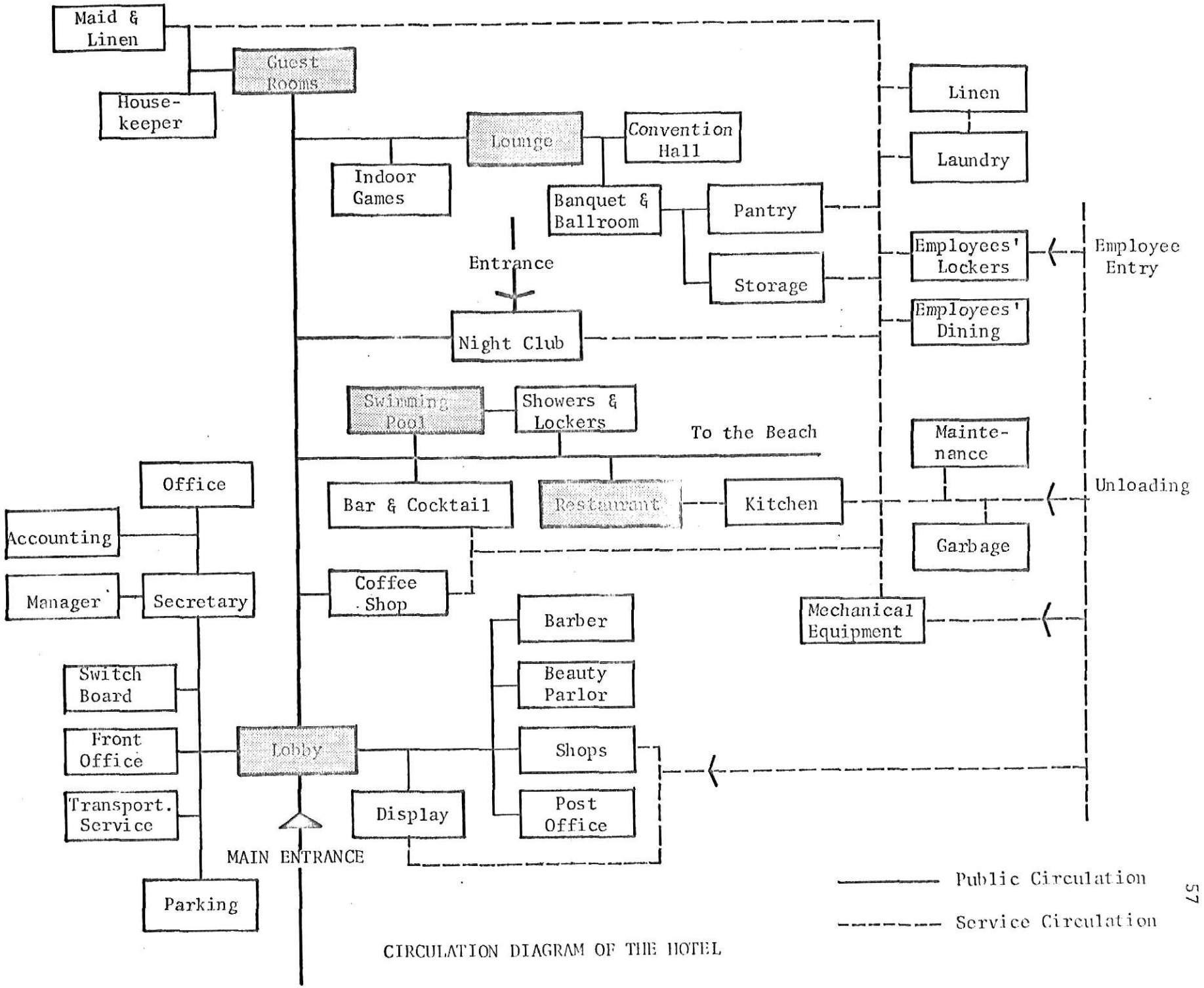
Observation tower

c. Tennis courts

d. Miniature golf



CIRCULATION DIAGRAM OF MARINA



CIRCULATION DIAGRAM OF THE HOTEL

Landscape

Landscape plays an important role in the design of a seaside resort. First of all, the buildings should enjoy the view of the wide ocean. To assure this, low-rise buildings should not be located at the back of the taller hotel. For the same simple reason, the hill should be the background of the buildings. In planning the site, the existing seapines and cocoanut trees should be kept intact in the site as much as possible since they are beautifully pleasant in a seaside and their slimness does not obstruct the view. For the safety of tourists, the recreation areas and the beach should be definitely separated from any space accessible by cars.

Since the site is on the slope at the seaside, the surface water from rains will drain into the sea and be partially absorbed by the sandy ground. The problem of surface water drainage will be solved by grading and the provision of drainage gutters along the hill above the site.

Besides establishing a pleasant environment, plants, especially trees, should be instrumental in dealing with solar heat and glare as well as creating shades and perhaps coziness in outdoor space.

Materials

The considerations in selecting materials used in the design of seaside resorts will be based on availability, durability, structural compatibility, and ease of maintenance. Concrete will be used in this design because of its durability and structural types used. It is considered economical to use local materials in a design. These include stones, rocks, and woods besides reinforced concrete in this case. The contrast of materials by their colors

and textures creates attractiveness and seaside character. High quality woods will be used for decorative works and furniture.

Some of the imported materials such as hardwares and sanitary equipments will be used to ensure the quality standard at international level. Other imported materials, which are easily maintained, will be used in this design as well. Corrosion resistant materials will be used in the design, exclusively.

Structural Compatibility

Concrete will be used the most in the structure of this seaside resort since it is the most enduring for the tropical climate and the marine atmosphere, and concrete is highly resistant to fire. Simple post and lintel concrete construction will be used in most of the design. Long cantilevers will be aptly adopted to provide protection from the rain and the hot sunlight and to reduce the bending moment of the interior beams, while the technique of prestressing concrete will be utilized to further the reduction in size of the structural members. A cable structural system will be used exclusively for the marina and the restaurant which have long cantilever roofs. This gives the character of the seaside atmosphere. It is hoped that the beautiful structure of this long cantilever shall be an element of excitement in this environment.

Bearing walls will be used structurally in some parts only when it is significant and worth the expense.

Wooden frames will be used in small members only since they are least durable due to the severe stress of heat and dryness.

Environmental Technology

Acoustics

Two types of rooms in the seaside resort require acoustical designing: public and social rooms, such as lobby, restaurant, banquet hall, convention hall, and guest rooms. The major acoustical problems are to exclude the outside noise and suppress the noise generated inside. The arrangement of rooms, isolation, and insulation are methods to exclude the penetration of sound from outside. Construction and the application of sound-absorptive materials and sound reflective materials will provide the optimum conditions for sound within the rooms. The first step in acoustical designing is to select the acoustical criteria of the rooms.

The lobby, common space where private conversation may prevail, should have "medium" acoustical environment. Flutter-echo from continuous horizontal reflections must be eliminated by designing non-parallelism of wall surfaces and applying absorptive materials. Carpeted floor, pierced brick wall, and Wainscot wooden slap panels will be used to reduce noise levels in the lobby.

Quietude in the restaurant is important. It is considered an aid to digestion and good health. Conversations at the dining table should be encouraged and not drowned out by the noise of clashing dishes, noise from adjacent tables, and noise from the kitchen. Sound lock is needed between dining space and the kitchen. Absorptive materials should be applied to provide the required "medium" room environment. To prevent noise from outside, the dining room wall should be able to provide a transmission loss of not less than 50 db.

The banquet hall requires "medium" acoustical atmosphere. Application of sound absorptive materials to the ceiling and walls is needed.

The convention hall requires "medium live" acoustical environment. Horizontal reflective ceiling and splayed overhead reflector will be designed to reinforce sound transmission to the rear of the room. The splayed side walls will also be designed for reflection of sound to the side of the seats. Acoustical tile should be applied to the ceiling and the wall surface where sound reflection should be terminated.

The required acoustical environment of guest rooms is "medium dead". To prevent transmission of noise, guest rooms should be located away from the intruding noise source, such as through streets, marina, and mechanical equipment room. Parking can be isolated from the guest rooms by planting. The transmission of noise between adjacent rooms in the hotel may occur with structureborne and sound-borne noise, therefore the soundtransmission loss of partitions, floors, and doors are extremely important; they should be not less than 45 db. Doors of the guest rooms should be made of solid panel and fitted tightly. The floors of all corridors should be concrete slab and covered with sound absorptive materials. All pipes and ducts should be isolated from walls and solid structure by acoustical blankets.

Type of acoustical materials available.

Acoustical materials used include:

- Prefabricated units. These contain acoustical tiles, tile boards, certain wall boards, absorbent sheets, and mechanically perforated units backed with absorbent materials.

- Acoustical plaster and sprayed-on materials. These materials comprised of binder agents and plastic and porous materials applied with a towel.

- Acoustical blankets. These materials are made of mineral, wood wool, glass fibers, kapok batts, and hairfelt.

Air Conditioning

In this tropical area, heating is not needed, but air conditioning is considered a necessity for comfort and health of the guests. Besides cooling the rooms, air conditioning controls the gentle movement of the air and eliminates smoke, bacteria, fumes, odors, and excessive moisture.

The total refrigeration load should be calculated on the basis of maximum occupancy and critical exposure. Tourists spend their times in the resort hotel for regular relaxation as well as late hour enjoyment. It is therefore essential to assume that air-conditioning will operate almost 20 hours a day during the weekends and in the summertimes.

Two basic areas in the buildings to be considered in the design of air-conditioning are: the interior and the peripheral exterior areas. The interior areas within the center of the buildings are not influenced by outdoor elements. These areas have constant load from lighting and negative radiation from people. The periphery exterior areas which may extend from 12 to 20 feet inward from the outside wall also shoulder the load from direct radiation and heat transmission through walls and roof. For cooling economy, the design of the buildings should be so oriented that most of the glass areas would face north and south to absorb the least of solar heat. Overhangs and sun breakers should be liberally adopted in order to reduce the cooling load.

Two types of air-conditioning systems will be used in this seaside resort: the central air-conditioning system in the hotel and window units systems in the family units and some rooms in the marina.

The central air-conditioning used will be chilled water system because of the following advantages:

- Mechanically, it could be centrally managed.

- Less space is required for chilled water system. The use of water to facilitate transmission reduces the quantity of space needed for distribution of the coolness to each room.

- Each room will be controlled individually through a fancoil unit to provide its own thermal environment as dictated by the guests.

- A very important factor is that it operates quietly because all refrigerator equipments are remotely located.

The refrigeration unit should be located such that piping area will be minimized. A loading dock must be provided for removal of machinery in need of repair. A cooling tower, with large openings for ventilation, which is used for reducing heat will be located nearby.

The elements of outdoor conditions and inside conditions of the load behavior involved should be coincided so that unpleasant shock and chilliness will not occur when entering the room.

Modulating control will be used in the areas such as restaurant, bar, cocktail lounge, and night club which are occupied only at certain times. Proper exhaust and intake of fresh air must be designed to control the odors of food and heavy smoking from polluting the air.

Ventilation should be able to prevent odor absorption by walls and solid finishings, particularly in the kitchen where greatest concentration of heat load and odors exist. To adjust ventilation between the dining room and the kitchen, the dining room should be under positive pressure while the kitchen and the pantry areas should be under negative pressure. It is under these conditions that the air will flow from the dining room to the kitchen. Exhaust hoods and fans will be used in the kitchen to ensure its negative pressure in

order to eliminate heat, odors, and moisture gains.

Independent systems will be used in the public spaces such as lobby, restaurant, bar and cocktail lounge, and night club.

Lighting

Lighting integrates with the design elements of architecture. It illuminates the space, expresses structure, and enhances surface characteristics. In the interest of aesthetics, lighting should be designed to harmonize with architecture and to define function in a revealing manner.

Both natural light and artificial light will be used together in this design. Because of psychological and economical reasons, natural light will be predominantly used in the design. Liberal glazing, windows, skylights, and clear-storeys will be designed to invite natural light to come in. The problem of glare from natural light can be solved by using screens and overhangs. Trees and shrubs may help, also.

Natural light will be used in spaces such as guest rooms, family units, and the marina where contact with nature is direct and immediate.

A 24 hour artificial light source will be used to secure lighting conditions because weather variations call for such a provision. Artificial light is preferred in lobbies, restaurants, bars, night clubs, convention halls, banquet halls, and ball rooms.

Proper design of lighting will establish comfort and expose the aesthetical quality of an environment. The lobby should have an adequate level of general illumination. A lounge should have softer treatment of lighting. Dining areas should be dimly lighted for cozy effect. Special lighting combined with colors, variations of intensity, and distribution pattern will be

designed to establish moods on some particular elements such as mural decorations, shops, displays and some areas in a lobby or night club. The choice of luminaires and lighting features is dependent upon the expression intended.

Recommended standards of Illumination for Hotel

	Foot-candles
Lobby	10
Dining room	5
Guest rooms	10
Kitchen	20
Corridors	2
Writing room	20
Bookkeeping, typing, and accounting	30
Conference room	10
Desk work-intermittent, reading & writing	20
Filing and index conference	20
Elevators	10
Toilets and washrooms	5
Storage rooms	5
Automobile garages	2

Design Concept and Content

Public Spaces

The public spaces mainly serve resident guests. They will be located on the main floor. The public space will consist of lobby, lounge, front office, and public restrooms.

The lobby must be centrally located. It should be designed to invite and to impress prospective guests. The reception counter and the telephone booths will be included in this area.

The front office should contain reservation, transportation and communication services, and the counter for room clerks, cashiers and bill clerks.

Lounge and public restrooms should be close to the lobby. The sun deck and roof garden will also be included in the public spaces.

Living Quarters

This seaside resort is comprised of two types of living accommodations for different purposes: high-rise hotel and detached family living units.

The high-rise hotel makes it possible to take full advantage of the ocean view and surrounding landscape. It will be of first class quality that meets international standards. It will provide 176 guest rooms for overnight and weekend guests.

Room accommodation requirements are comprised of 20% conventional single rooms, 35% conventional double rooms, 35% conventional twin rooms, and 10% one bedroom suites. All rooms will provide bathrooms and air-conditioning. Bedrooms will be well protected from the sun and given maximum privacy. Two elevators and two fire escape stairways are required on every floor. Parking area for 100 cars will be provided.

Detached family units are designed for developing the landscape which will be an interesting part of the design. The topographical lay-out of the living units gives an informal feeling. Closely related to nature, they also create a quiet and cheerful living area. They accommodate 48 families at one story height with priority of parking 64 cars in the parking lots which are directly accessible to the detached family units. The parking area is

designed to have one car for each two bedroom unit and two cars for each three bedroom unit.

Unit accommodation requirements are: 34% three bedroom units and 66% two bedroom units. Each unit will consist of bedrooms, living room, dining room, kitchenette, and patio.

Food and Beverage Service Spaces

Restaurant. The restaurant for the resort hotel is to accommodate both resident and non-resident guests. It therefore should be located where it is easily accessible and it should have an exterior character of a restaurant. It should face the ocean and it should be adjacent to the swimming pool. Outdoor dining on the terrace will be provided. It should create an interesting atmosphere even when it is operated on an overflow capacity basis.

The air conditioned restaurant will provide tables for 200 persons. Finishings and furnitures should be easy to maintain. High standards in food and service are expected.

The kitchen should be designed to serve restaurant, coffee shop, bar and cocktail lounge, and other facilities such as banquets. It includes all areas used for receiving and storage of food, preparation for cooking and cooking proper, utensil washing and storage. The required kitchen area is at least 45% of the dining area. For convenient service, both the dining area and the kitchen should have aisles wide enough for easy two way passing with loaded trays. Service sets such as trays, glasses, and silverwares should be easily reached.

A rear entry will be included for employees, deliveries, and garbage removal at the proximity of which uniform lockers and toilets for employees will be located.

Coffee shop. The coffee shop will be located on the main floor, and it will provide quick food service at moderate prices. It includes both counter and table service for 75 guests. Food will be served from the main kitchen to the coffee shop by dumbwaiter.

Bar and cocktail lounge. This will be located near the swimming pool. Liquor storage and a rear entry for deliveries will be included.

Banquet and ballroom. It will be located near the convention hall. The banquet and ballroom facilities include dining area, dancing area, and pantry which will be served from the main kitchen by service elevator. Storage for chairs and tables within an area 1/10 the size of the banquet hall will be provided.

Private dining rooms. Private dining rooms could be provided with great flexibility by dividing the banquet hall with sound absorbing folding or sliding partitions.

Other facilities include night club and employee's dining room which will be located in the basement. Food will be served to these rooms directly from the main kitchen.

Managerial Service Spaces

The managerial service spaces should include administration office and service quarters.

The administration office will consist of the manager's office, the secretary's office, the assistant manager's office, the accounting office, and the telephone switchboard.

The service quarter will have rear entry and unloading spaces. This area should contain rooms for housekeeper, maids, storage for linen, laundry, lockers and restrooms for employees, maintenance shops, general storages,

house tank, and mechanical equipment space.

Concessional and Subrental Spaces

These areas, located on the main floor, should be designed to have informal and relaxing spaces. The concessional space should contain a postal office, display area for native productions and some of the sea resources of the area, and a convention hall which will be located in a quiet zone. The subrental space should include: drugstore, sports shop, beauty parlor, barber shop, dress shop, newsstand, and Thai antique and novelty shop.

Recreation Area

Marina. The marina is provided for recreation, and it is to be equipped with water-sport facilities which are the major interest of all the tourists. It definitely should be attractively designed to have a close relationship with the sea and its coastal landscape.

The lounge and the snack bar should have easy access and a good view toward the sea so that tourists may enjoy watching water-sports and the pleasantry of the sea while relaxing. It would be good to have a terrace overlooking the sea.

Sport services, lockers, dressing rooms, showers and toilets should be located near the renting service center and conveniently accessible to dock piers and the beach.

Fueling facilities for boats should be located close to sea for convenience of service, and it should be separated from the public area for fire prevention. Storage for 36 boats and a washing area should also be close to the sea. Shop space for boat repair of minor or an emergency nature should include working space for sailboats and outboard motorboats up to 21 feet in

length, and it should have storage space for parts and equipments. The ceiling height for boat storage should be approximately 14 feet. Other requirements include a manager's room, a lounge, a first aid room, a life guard room, and a life guard observation tower which will also function as a light house.

The floating piers are used in this design to solve the problem of high and low water of the sea. The gulf is naturally a shelter for wave breakage.

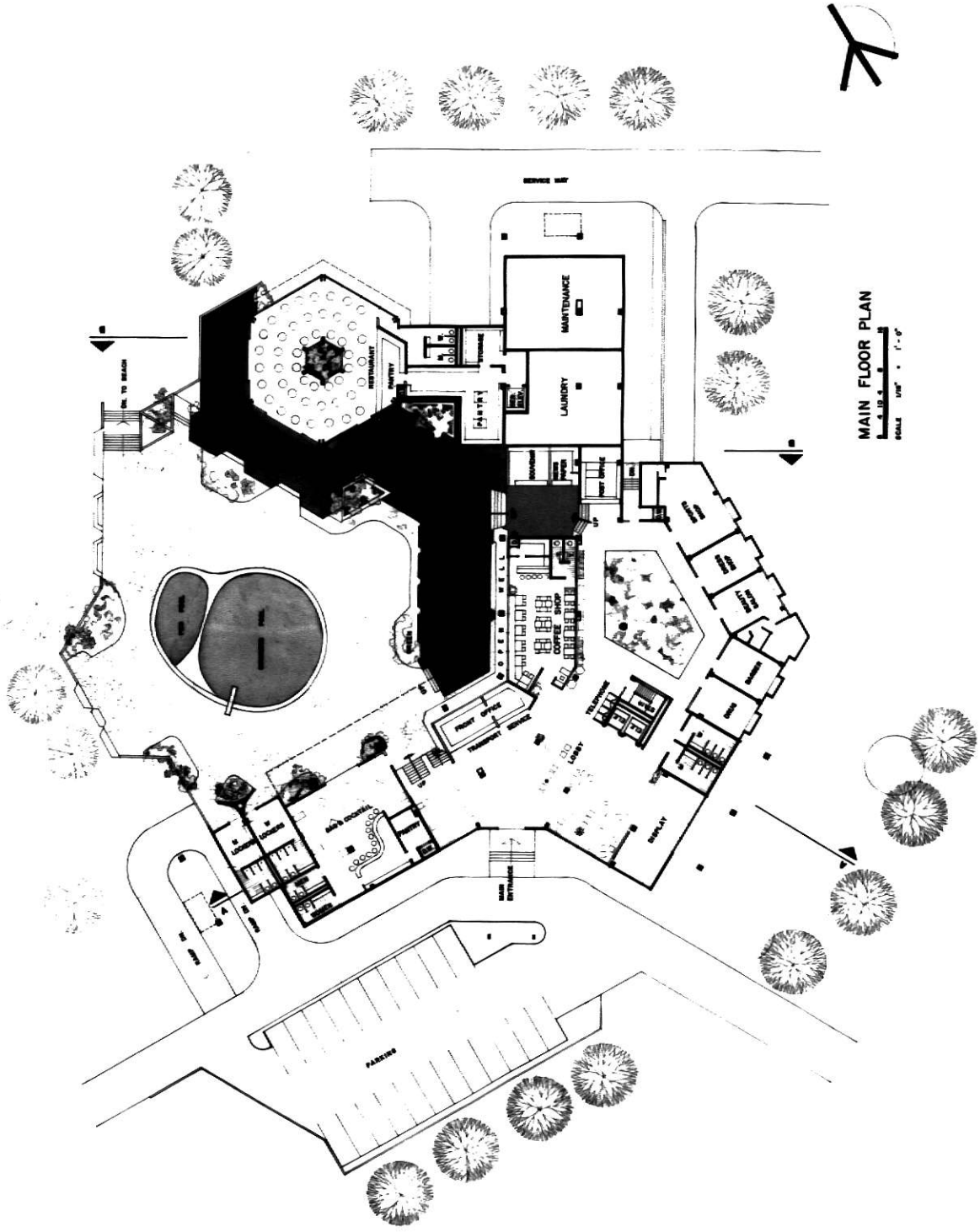
Swimming pool. Swimming is one of the tourist attractions. A swimming pool at a seaside resort is provided for freshwater swimming. It will be located on the split level of the main floor and the second floor so that the guests may go to their rooms directly from the pool without passing through the main lobby.

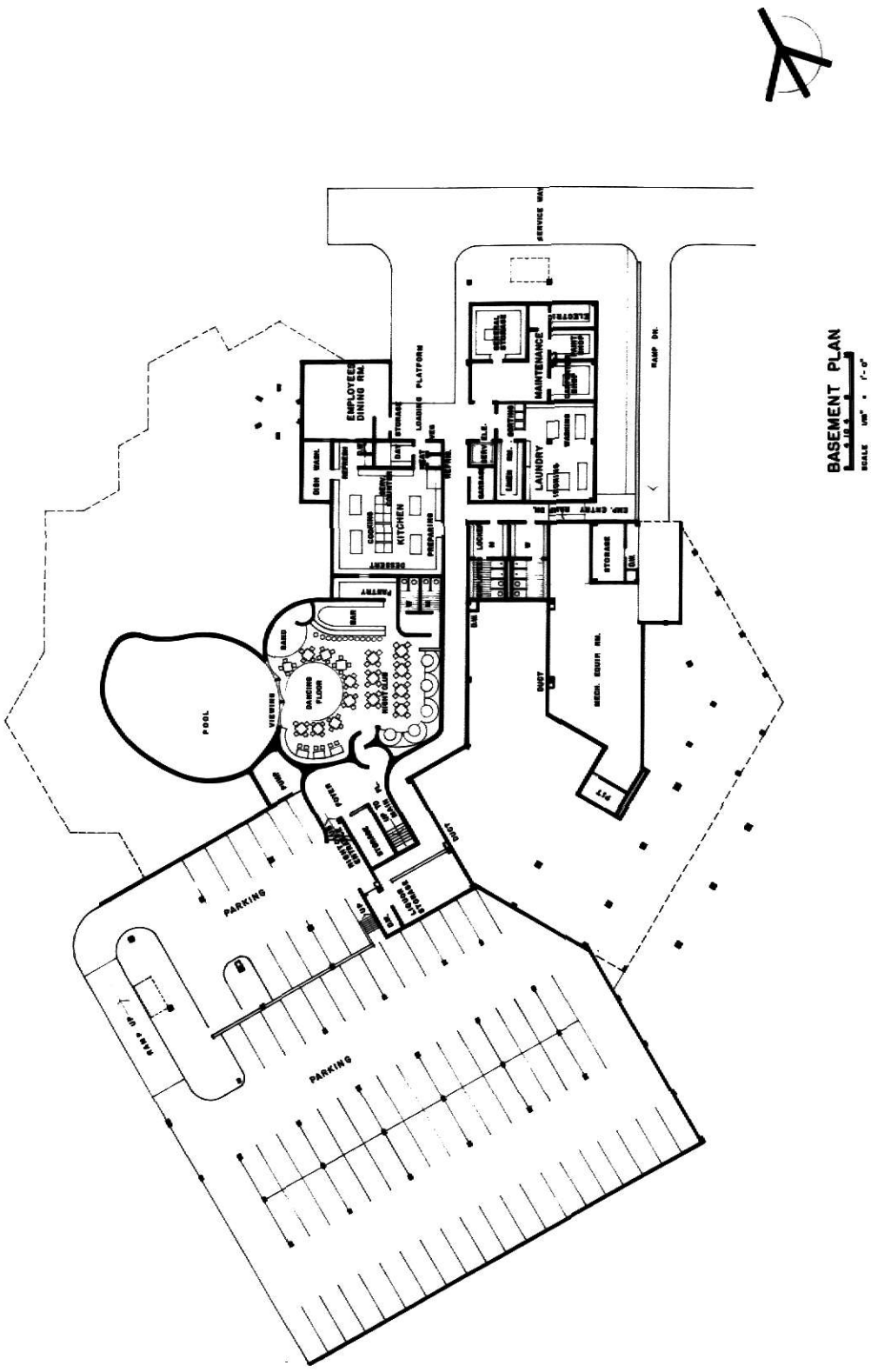
A shower room and a pump room should be provided nearby. An attractive terrace for convenient gathering of nonswimmers is a necessity.

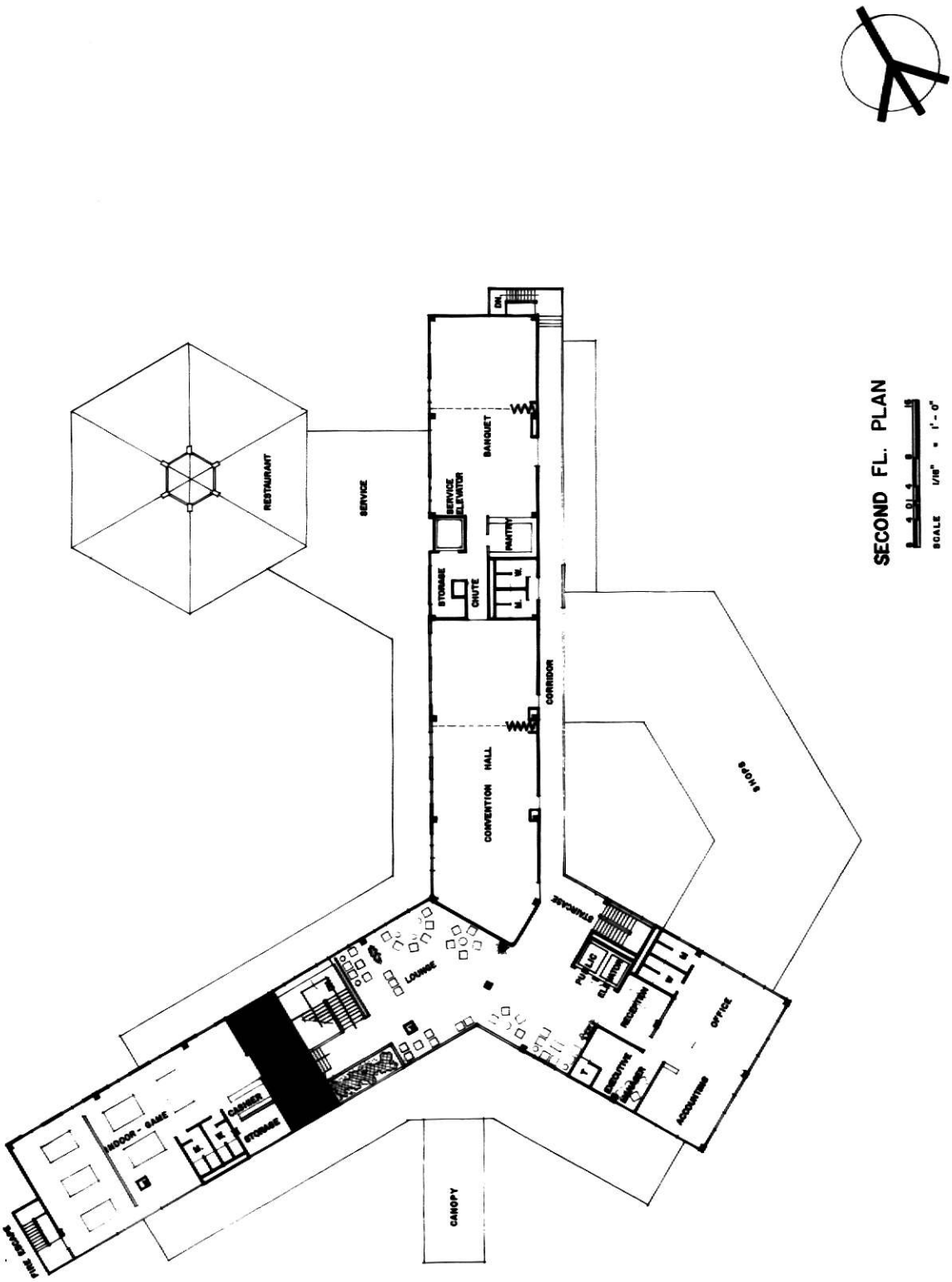
Other recreational facilities to be provided include: playgrounds, tennis courts, miniature golf course, and space for indoor game rooms.

PRESENTATION


A DESIGN OF TROPICAL BEASIDE RESORT FOR THAILAND
KASETSART UNIVERSITY
COLLEGE OF ARCHITECTURE AND DESIGN
A MASTER'S THESIS NOV. 1989
MAJ. PROFESSOR: DR. AMOS L. CHANG
ARCHITECT : BOPAHPID AHANDRIK
HOTEL
TENNIS COURTS

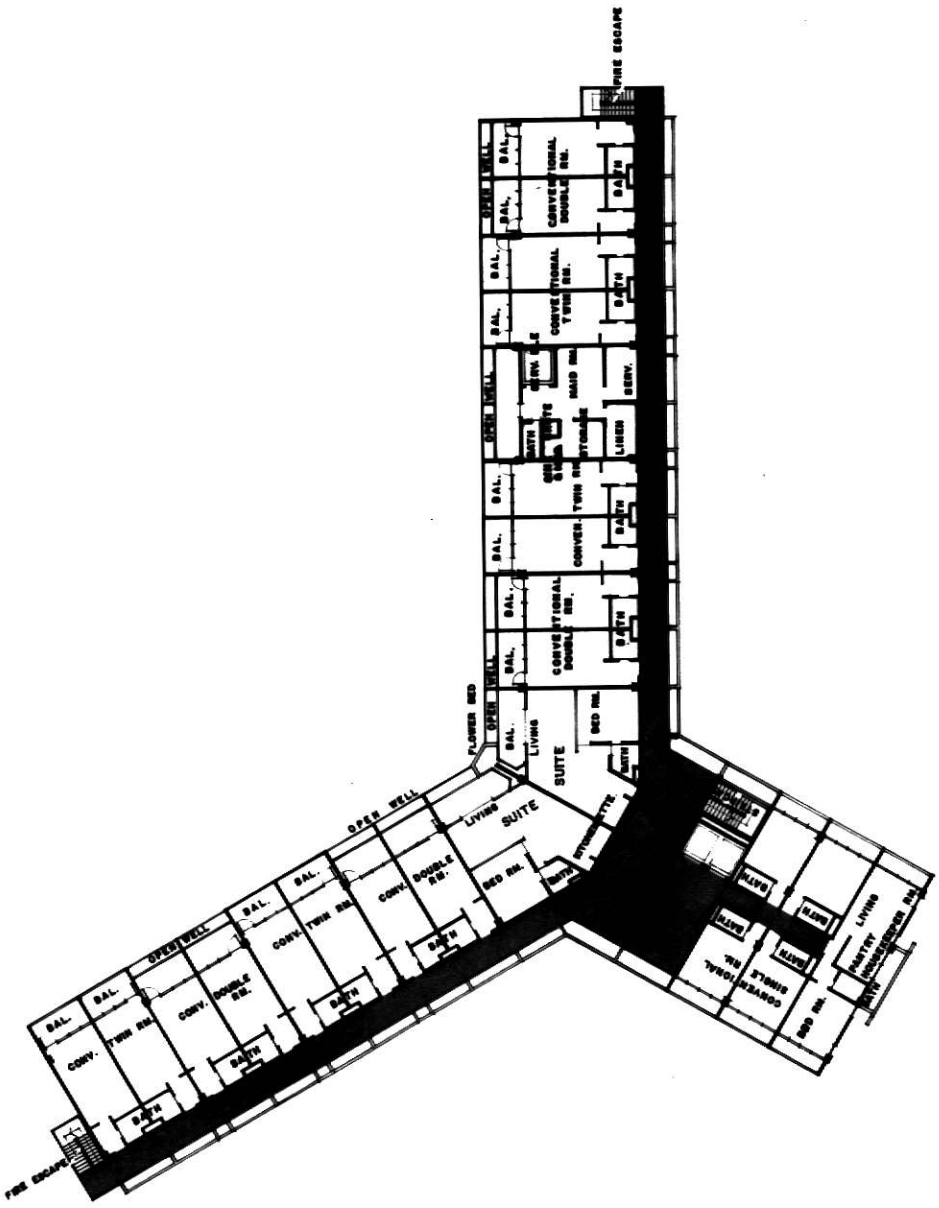

MAINTENANCE
LAUNDRY
RESTAURANT
PANTRY
KITCHEN
COFFEE SHOP
FRONT OFFICE
RECEPTION
LOBBY
MEN'S
WOMEN'S
DISPLAY
PARKING
MAIN FLOOR PLAN


SERVICE WAY
RAMP IN.
EMPLOYEES DINING RM.
STORAGE
LOADING PLATFORM
MAINTENANCE
LAUNDRY
KITCHEN
COOKING
PREPARING
DISH WASH.
DRESSING
STORAGE
POOL
DANCING FLOOR
BAND
BAR
VIENNESE
PARKING
PARKING
LOAD
DUST
MECH. EQUIP. RM.
PIT
BASEMENT PLAN



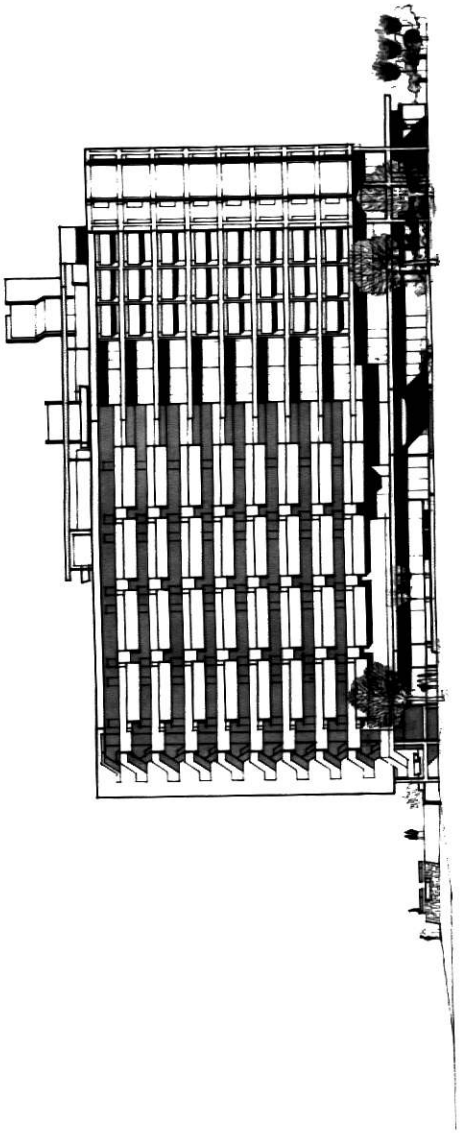
SECOND FL. PLAN

SCALE 1/16" = 1'-0"

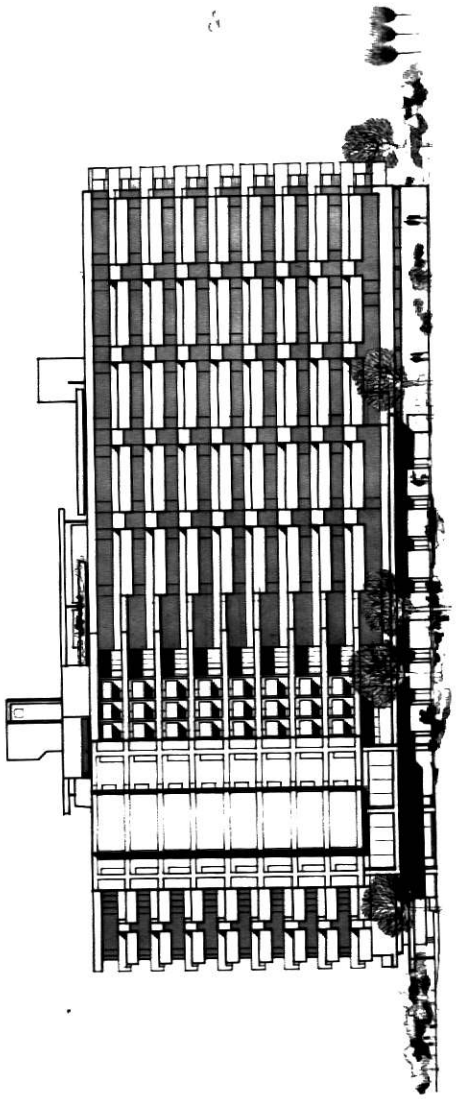


TYPICAL FLOOR PLAN

SCALE 1/16" = 1'-0"

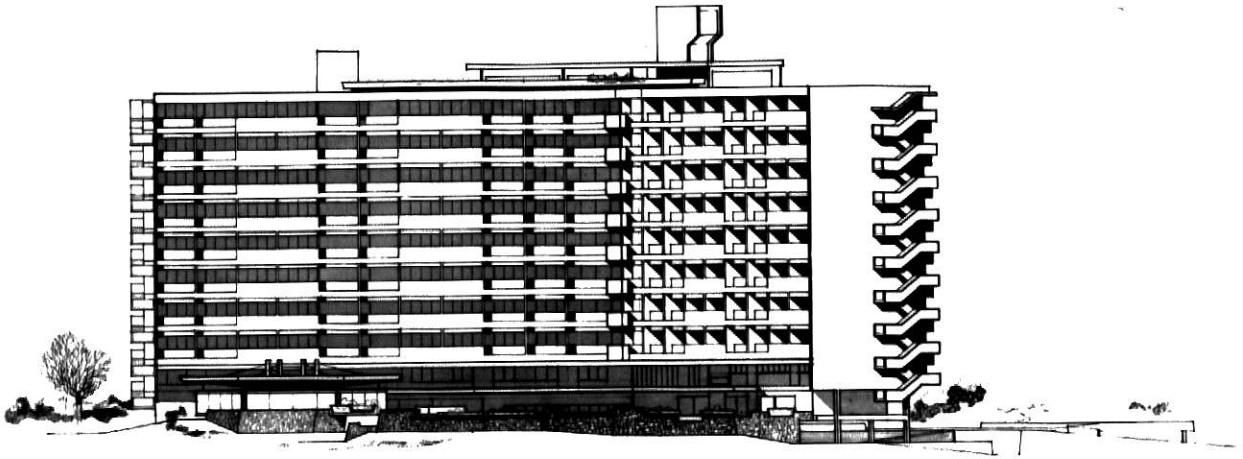


SOUTH – WEST ELEVATION

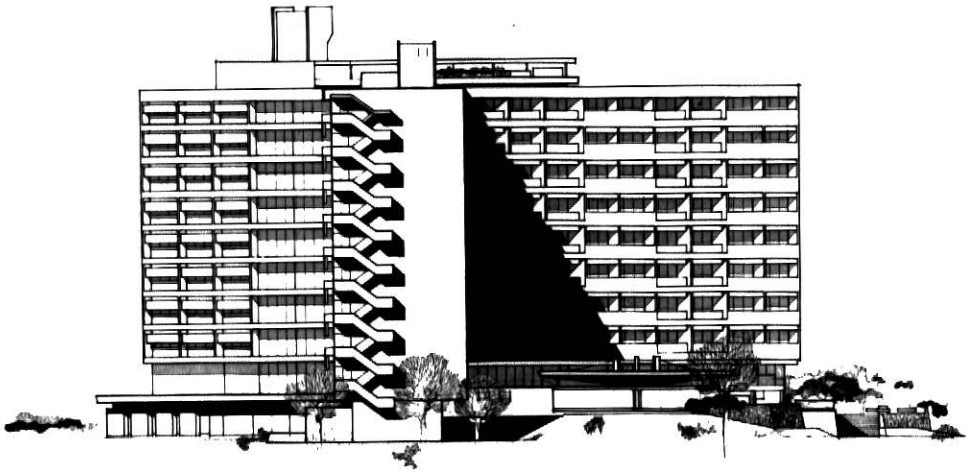


SOUTH–EAST ELEVATION

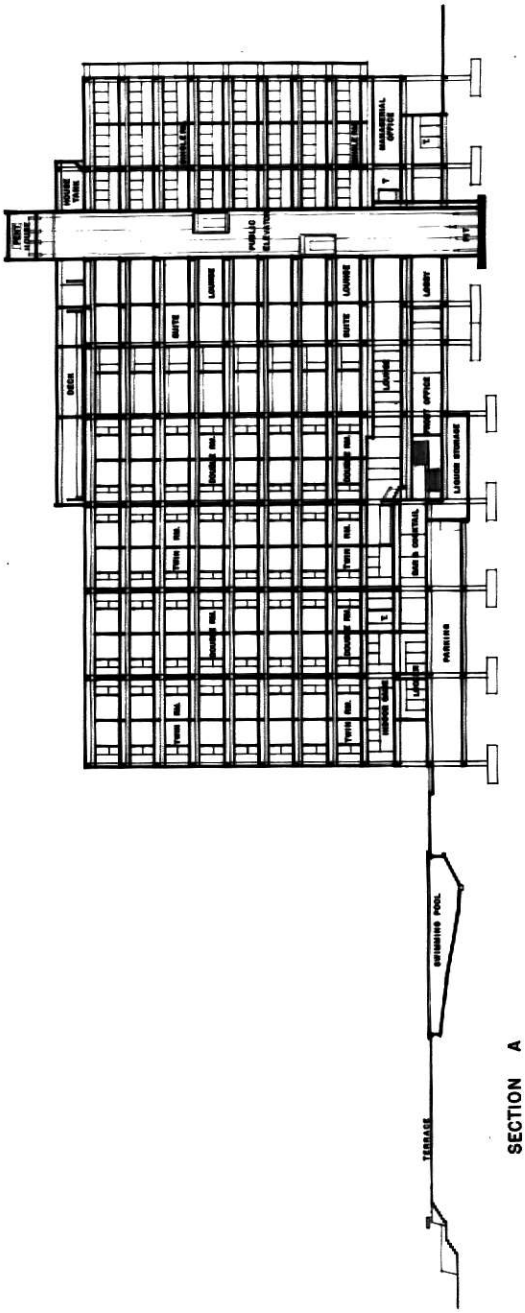
SCALE 1/8" = 1'-0"



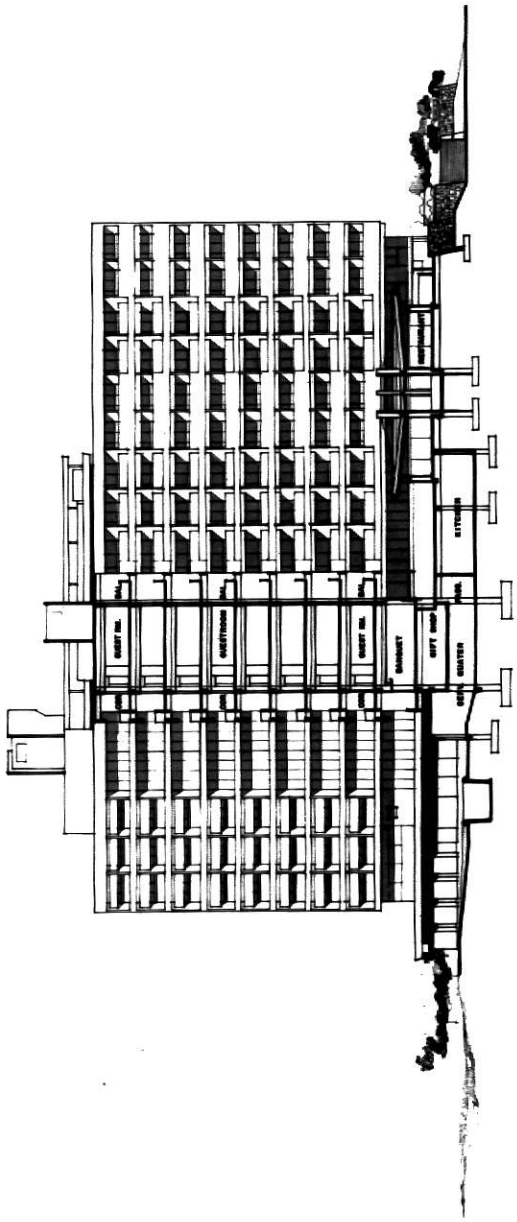
NORTH - WEST ELEVATION



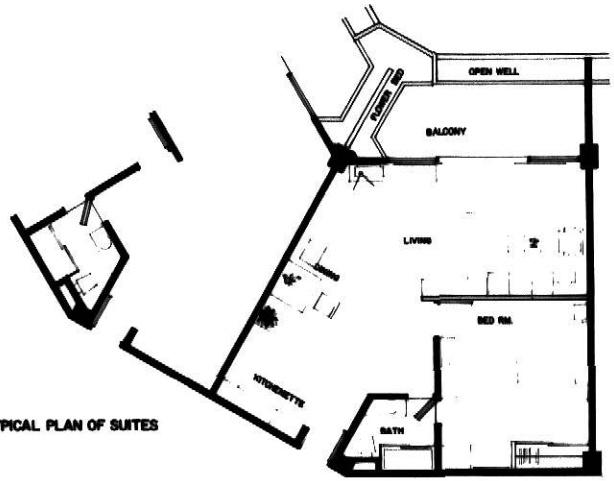
NORTH - EAST ELEVATION



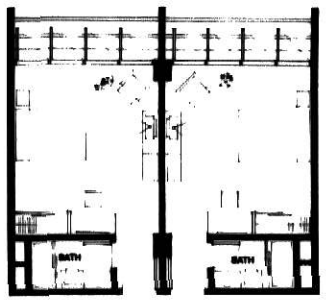
SECTION A



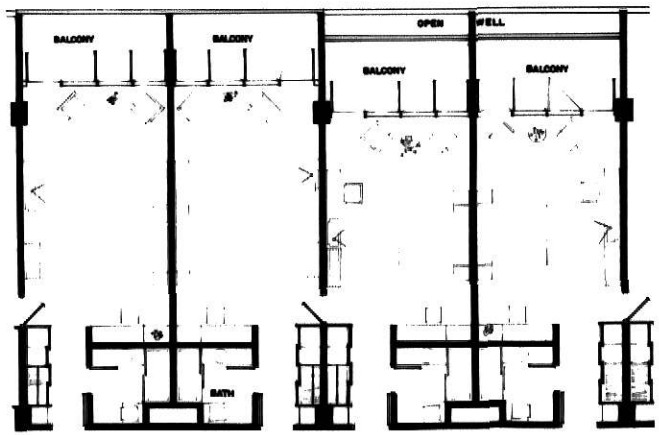
SECTION B

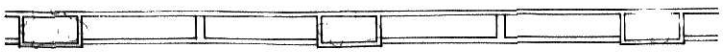


TYPICAL PLAN OF SUITES



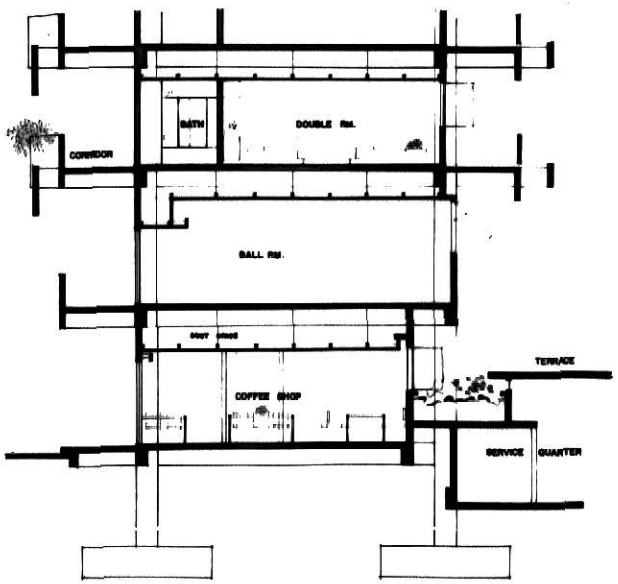
TYPICAL PLAN OF SINGLE ROOMS



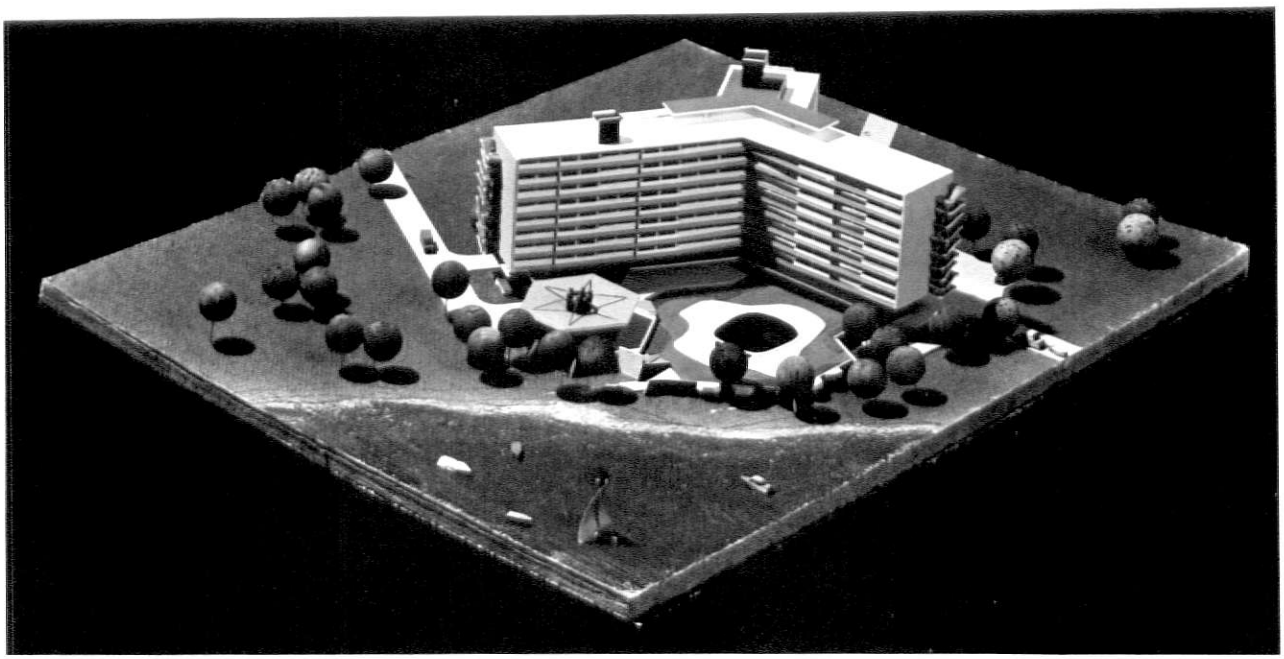


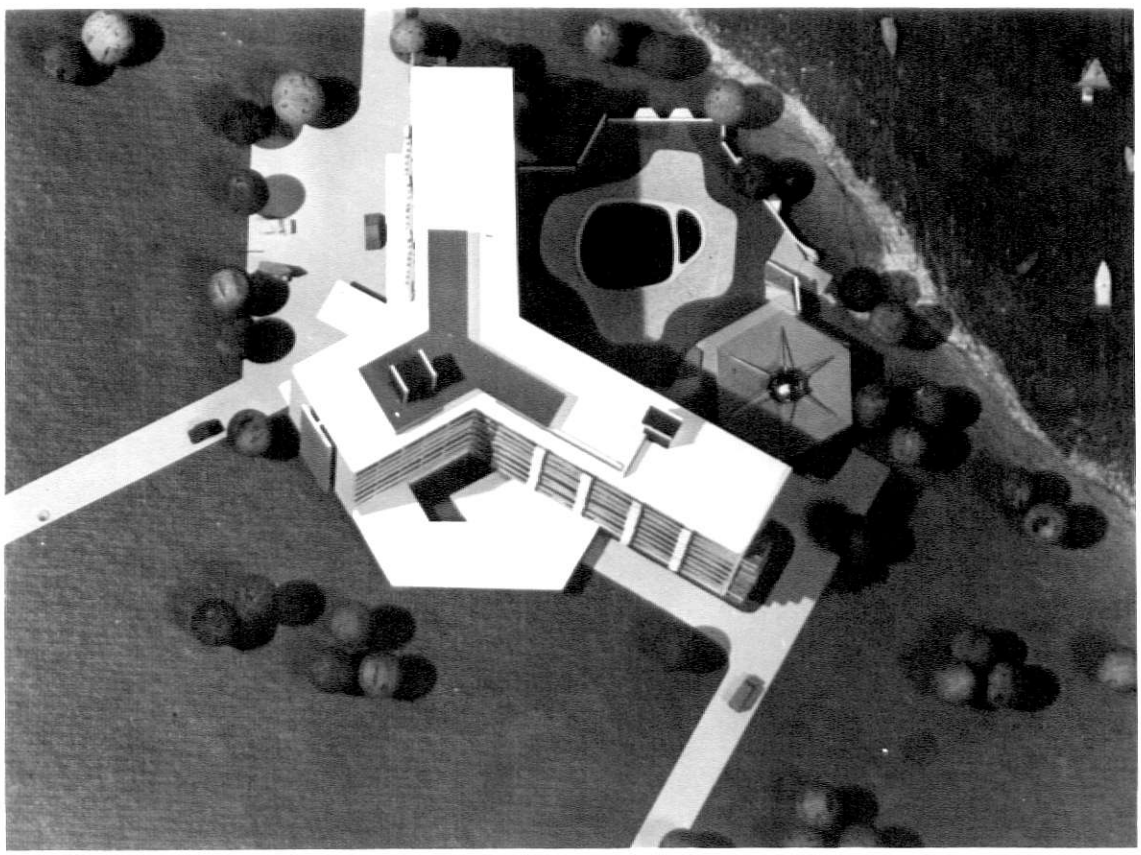
TYPICAL PLAN OF TWIN ROOM

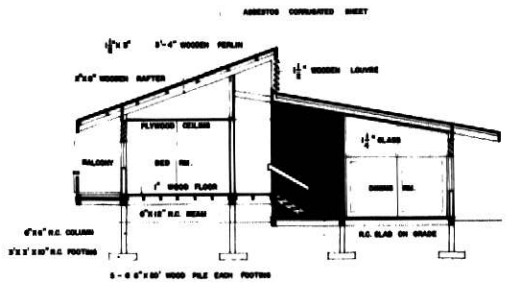
TYPICAL PLAN OF DOUBLE ROOM



SECTION







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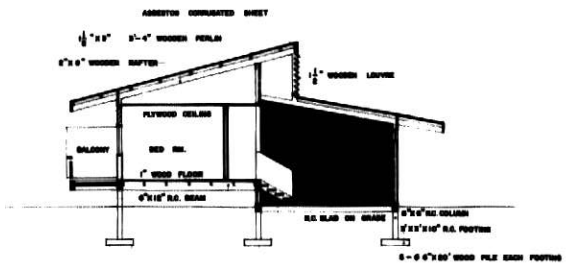

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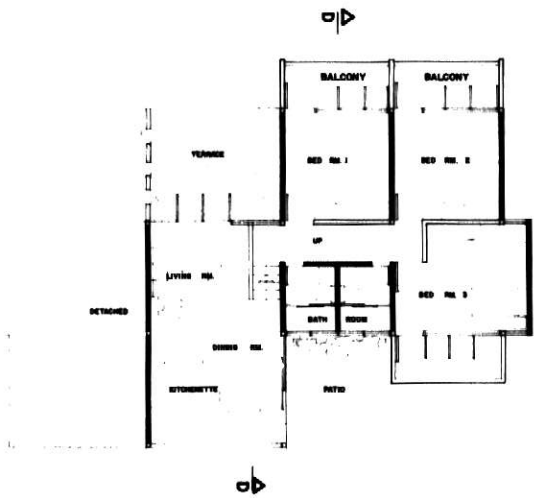
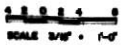
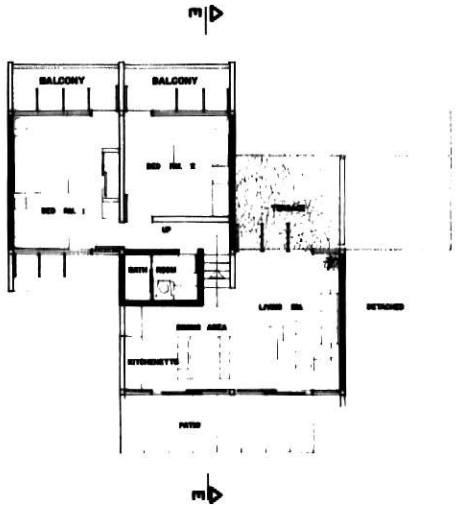


PLAN

THREE BED ROOM LIVING UNIT

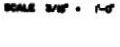


SCALE 3/16" = 1'-0"

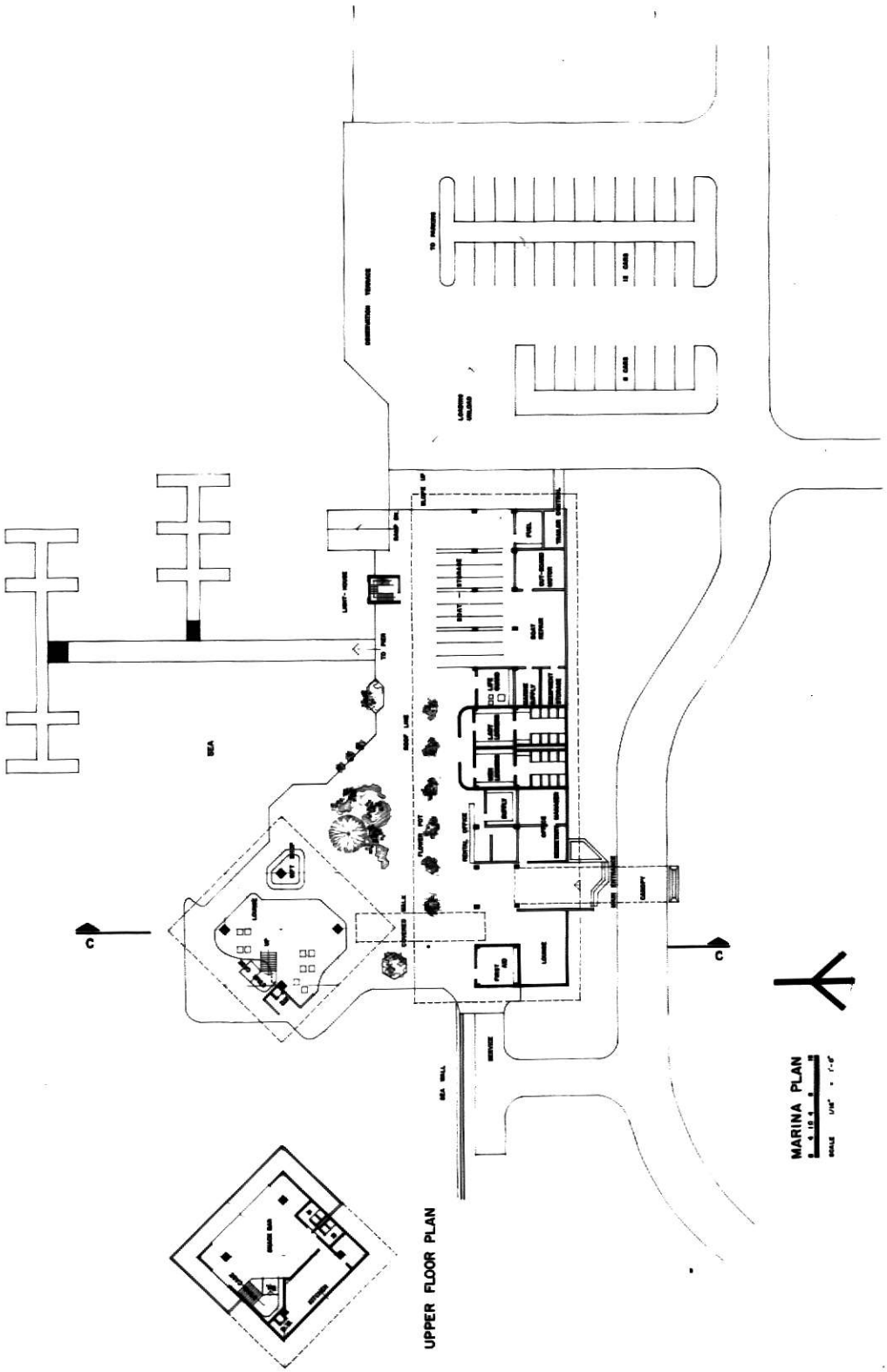


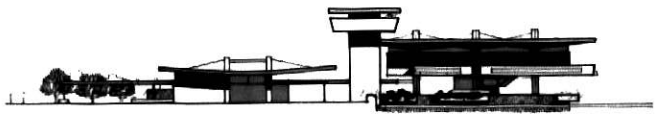
PLAN

TWO BED ROOM LIVING UNIT



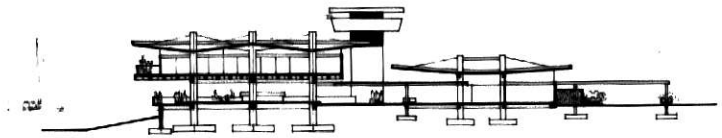
SCALE 3/16" = 1'-0"


C
C
MARINA PLAN
UPPER FLOOR PLAN



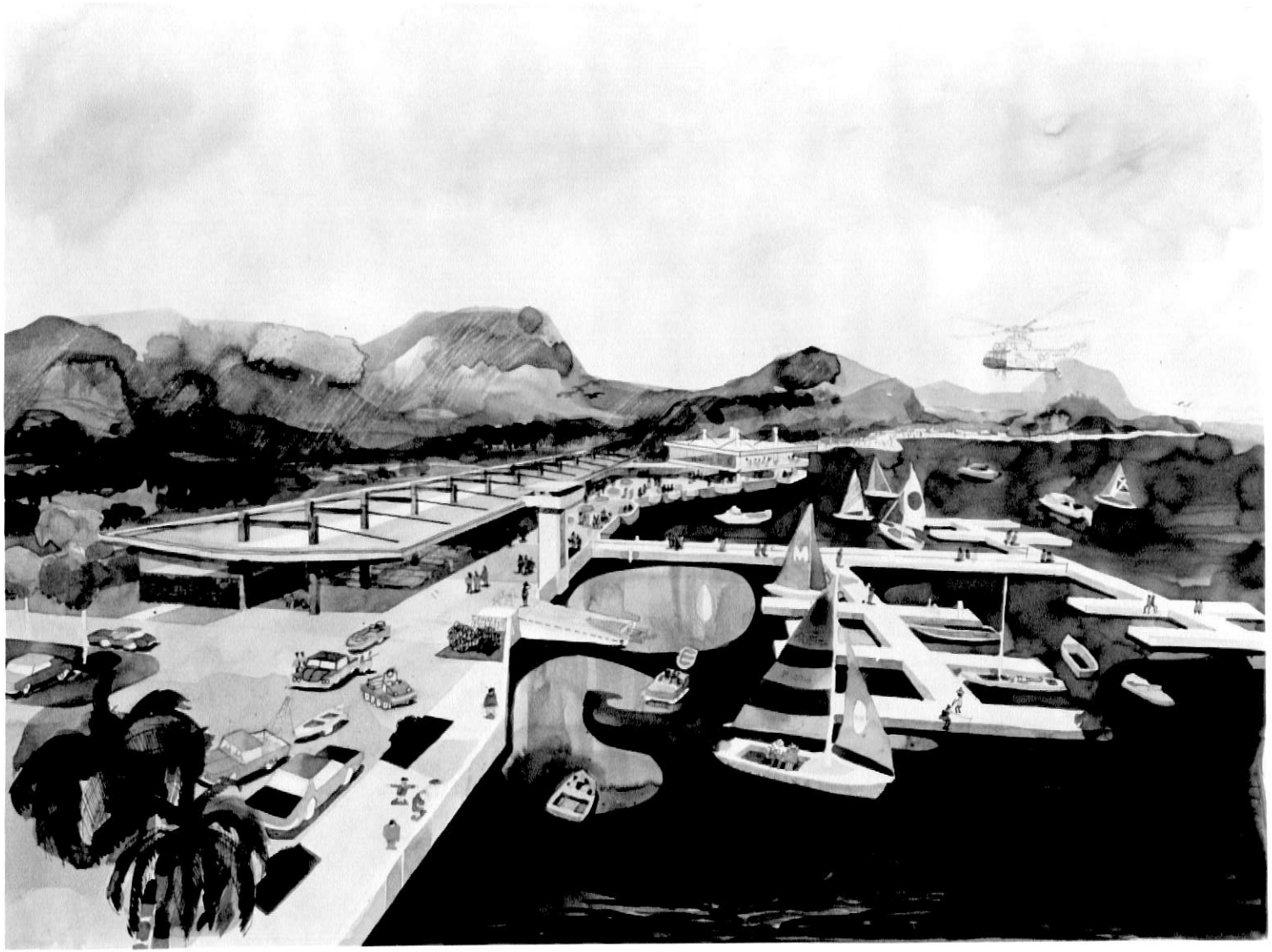
EAST ELEVATION

NORTH ELEVATION



SECTION C

MARINA



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A DESIGN OF TROPICAL SEASIDE RESORT FOR THAILAND

by

SOPAHPID AHANDRIK

B. Arch., Chulalongkorn University
Bangkok, Thailand, 1966

AN ABSTRACT OF A MASTER'S THESIS

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College of Architecture and Design

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1970

ABSTRACT

Tourist business in Thailand is progressing. More seaside resorts with much amenities and indigenous design are needed to provide recreation and enjoyment for the local people and tourists from abroad.

This project is a design of a tropical seaside resort for Thailand. The report contains background materials of Thailand, her tourist industry, and seaside resort activities and organization involved. This seaside resort design is a study of the combination of living facilities and recreational facilities at Pattaya, a community in Cholburi, 94 miles southeast of Bangkok, the capital of Thailand. The design is a building complex consisting of a hotel, family living units, a marina, and a host of outdoor spaces.

The hotel is designed mainly to serve overnight guests and weekenders in its 176 guest rooms; there will be 32 conventional single rooms, 74 conventional double rooms, 74 conventional twin rooms, and 16 suites. Restaurant, swimming pool, shops, and other services are included in the hotel.

Living units of 48 families for those who stay longer are one integral part of the complex designed for more privacy and closer intimacy with nature.

The marina, the most attractive tourist element of the complex, is designed to provide the top recreational amenity.

The design is principally based upon its context with its natural environment. The architect has attempted to solve the functional problems sufficiently and hopes that new ideas and personal imagination may enable her to create a natural but pleasantly unique design with the rather simple means at her disposal.