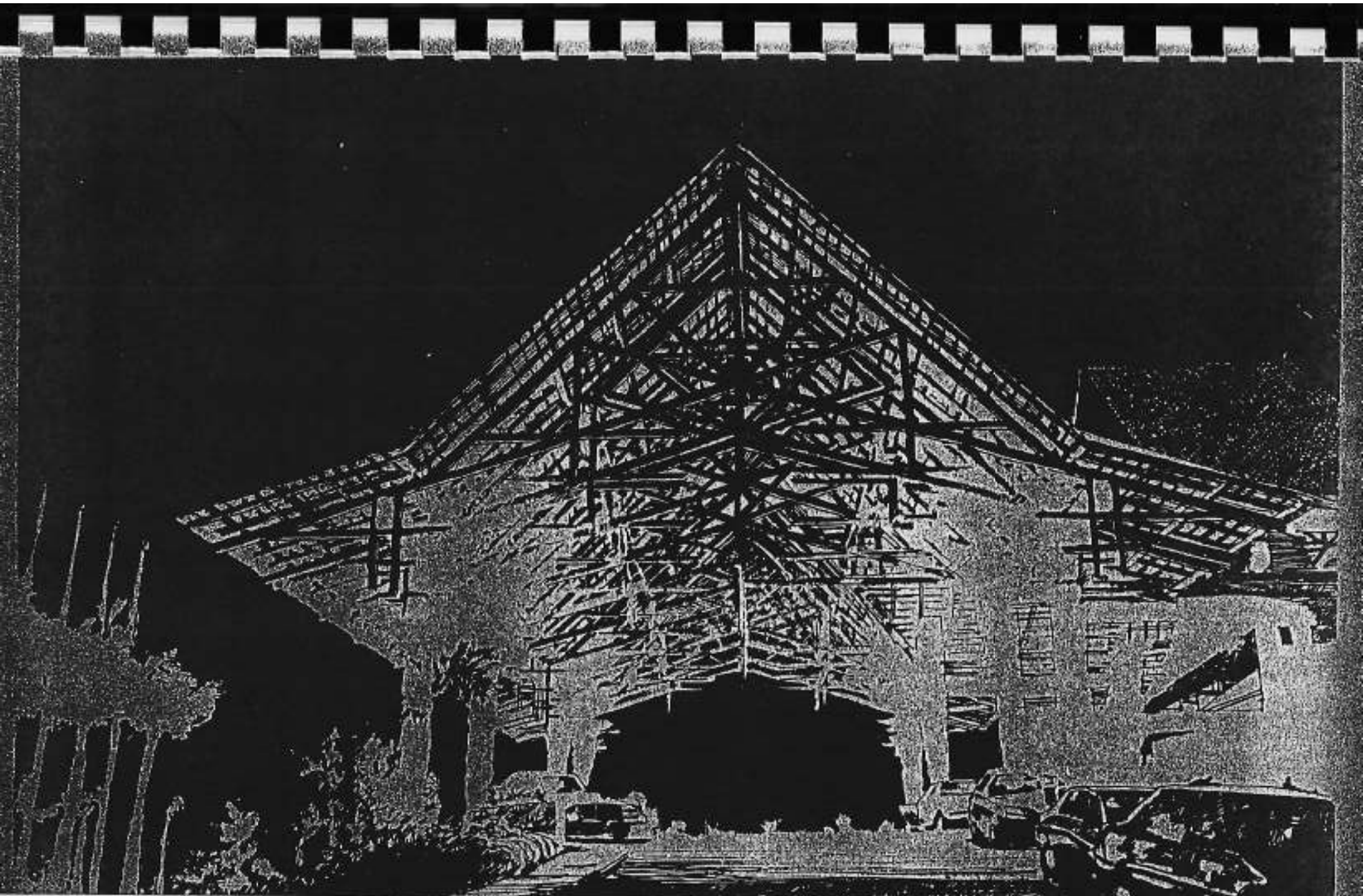

TROPICAL ARCHITECTURAL STUDIES TOWARDS A SUSTAINABLE FUTURE

by Mr Jimmy C.S Lim

TROPICAL ARCHITECTURAL STUDIES TOWARDS A SUSTAINABLE FUTURE

by Mr Jimmy Lim Cheok Siang
for use by students at the workshop on Tropical Studies
at
the National University of Singapore
on
6 - 11 January 1997

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"Western tourists travelling to the East are confronted with a multitude of artistic impressions that are difficult to classify, unless they have acquired during repeated visits - a 'knowledge of the East".

The Western education we receive in the 20th century does not normally acquaint us with the styles, mythologies, religions and civilizations of that region. When encountering Asiatic civilization, we need to have recourse to a reliable guide to be able to perceive the correct relationship of the objects, sculptures or temples we may come across to similar works belonging and so understand these works of art and compare them with others.

Each great civilization is treated separately. ..... giving a brief account of its art and history ..... e.g. temples, architectural decoration, sculpture, ceramics, the minor arts, etc. ..... always chronological so that the ..... development of different styles for a particular type of object in one civilization and compare them with developments occurring in neighbouring civilizations".[1]

Jean Hirschen

"As a Singaporean who studied in the United States for four years, I can tell you there is a negative side to the scholastic achievements of Singapore students. Look closely at their "educational achievements".: they're hollow. There is plenty of rote learning, but when these students are engaged in a conversation that requires subjective thinking, they turn out to be automatons who, aside from the subjects of cars and money, cannot ..... even at the university level ..... offer an opinion or original idea. They can function only in the domestic market as regurgitators of useless facts to pass exams. They cannot function abroad or in an international setting, which is what Singapore needs most. Those of us with foreign educations are better communicators; Singapore students make great statisticians but are hollow real-world achievers." [2]

Mak Swee Wah
SINGAPORE

[1] Jeannine Auboyer. Asia - Forms and Styles, page 7
[2] Newsweek, Dec 30 '96/Jan '97 "Letter", page 61

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1. WHAT IS TROPICAL ARCHITECTURE ?

1.1 Geographic Definition

> *"There is not and never has been a singular, definitive tropical architectural style. Countries in the tropics, which comprise a wide belt around the middle of the earth do not, of course, share a univalent cultural or social framework. Sandwiched between the Pacific and Indian oceans, the Southeast Asia region has from the earliest recorded history developed its own identity through the practice of animism as well as continued contact with other cultures".* [3]

Tropical regions can be found between latitudes 15 degrees north and 15 degrees south[4] of the equatorial belt and include regions in Mexico, South America, East Africa, Indonesia, Philippines, Malaysia and parts of Thailand. *Figure 1* shows the geographic locations of hot humid climatic zones of the world. A further distribution of the region into lowland and highland climate is necessary to understand its true elements. Examples of these regions in the South-east Asian context are:-

Lowland areas: Kuala Lumpur / Georgetown / Singapore/ Ipoh

Highland areas: Cameron Highlands / Genting Highlands / Fraser's Hill / Penang Hill

1.2 Climatic Characteristics Analysis

Typical characteristic for this region may be identified by the following:-

- **High Rainfall**
- **Flooding**
- **Violent electrical thunder storms**
- **High humidity**
- **Even temperatures**
- **Monsoon seasons**
- **Light winds and long periods of still air**
- **Bright sunshine and large cloud formation**
- **Overcast skies**
- **Radiation Intensity high**, although a large percentage is diffused resulting in strong sky glare[5]

---

[3] Tan Beng Hock. Tropical Architecture and Interiors . page 10
[4] Allan Konya. Design Primer for Hot Climates. page 11
[5] Ibid. page

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WORLD CLIMATIC ZONES

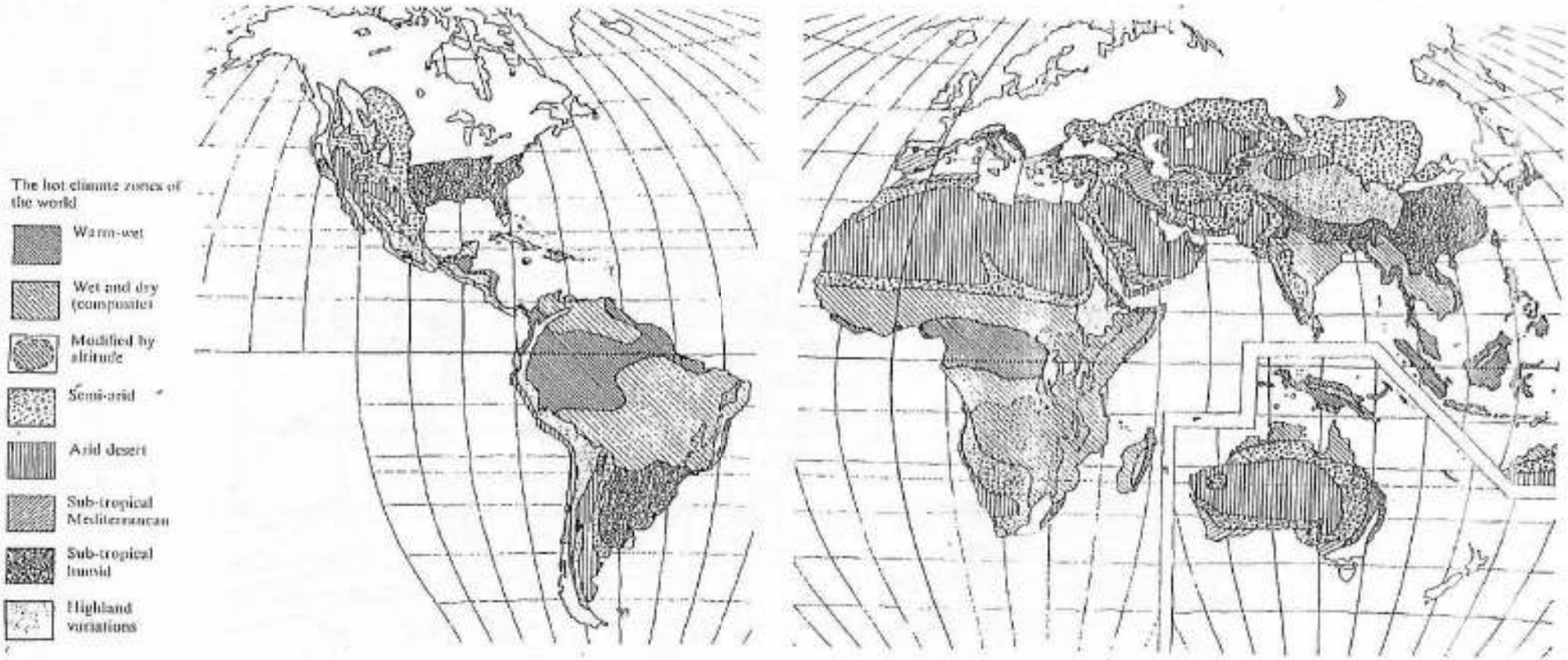

Fig 1

MEAN ANNUAL SOLAR RADIATION (KWH m^2 per year on a horizontal surface at ground level

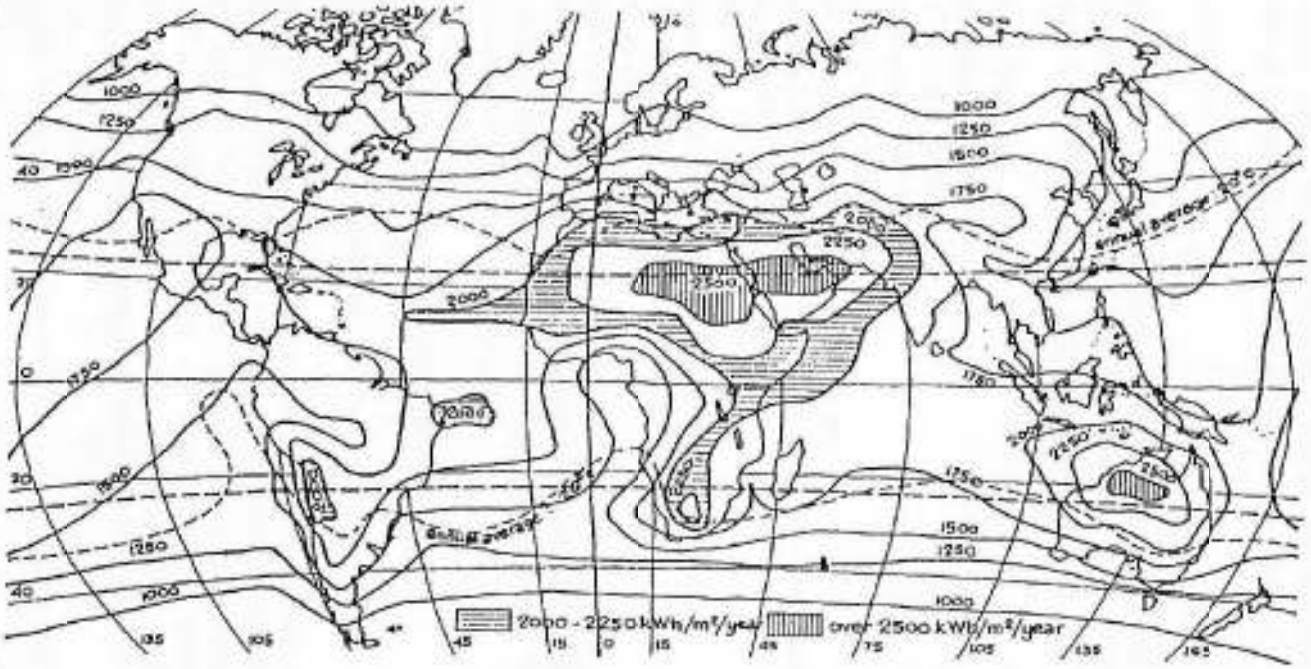

Fig 2

For an understanding of the climatic elements refer to figure 3 for Rainfall and Temperature

"The region is also generally known as 'Asia of the Monsoons' because of the prevailing monsoon weather that effects nearly all South East Asia. Topography creates some climatic irregularities like typhoons and tropical cyclones but generally, the climate is characterised by intense sunshine, heavy rainfall, prevailing winds, high humidity and equable temperature. Evaporative cooling is greatly reduced due to the high humidity, which averages about 75 per cent or more. Temperature average between 22°C and 32°C, with only minor seasonal variation. Climate is clearly one of the prime factors if culture, and therefore built form. It is also the mainspring for all the sensual qualities that add up to a vital tropical architecture:"[67]

1.3 Tropical Architecture

Building in the tropics is dealing with all its characteristic contradictions as listed above. Buildings in the tropics had traditionally addressed these problematic fastors therefore developing a style typically associated with the region.

When it rains in the tropics it pours.
Gutters are too small to contain the deluge.
The drains, rivers, and plains gets flooded.
People look for a roof over their heads,
four walls to protect them from the winds,
a raised floor to keep them afloat and their feet dry.
The drama of the violent electrical thunderstorms remind the inhabitants
of the existence of One mightier than them,
He who is above.
After the tempest, as the water ebbs and the county-side dries up
they yearn for some respite from the heat and the humidity
but there is to be none.
Tropical winds are not in abundance, they are light and sparing.
Now they wish for no walls but open breeze-ways, or for an "open to sky space" to sleep in.
When the sun shines its gets hot, exagerates the humidity and begins to rain.
The people look for a roof over their heads again.
A cycle of contradiction!
Where is the relief and respite for which the inhabitants seek?

A solution for these climatic constraints must be found.

Sufficient roof pitch and overhang to discard the rain off and provide shading. A large roof also keeps the building cool. Raising the building off the ground mitigates flooding, intrusions and damaging the environment. This allows free flow of ground water and rain run-offs. The structure will be kept dry. Openings and large volumious spaces induce convection air movement and ventilation, to reduce humidity and temperature. Openings in walls will also allow water to penetrate. Such apertures must be addressed to prevent water entry. Openings

[67] Tan Hock Beng. Tropical Architecture and Interiors Tradition - Based Design of Indonesia, Malaysia, Singapore and Thailand . Page 13

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TROPICAL CLIMATIC CONDITIONS

Town/ Country	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEPT		OCT		NOV		DEC	
	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R
Bangkok Thailand	32	5	33	0	34	0	35	130	34	174	33	81	32	130	32	160	32	218	31	170	31	135	31	0
Brasilia Brazil	22	20	22	91	22	104	21	140	21	25	19	0	20	5	22	0	22	25	23	236	22	333	22	472
Caracas Venezuela	18	23	19	10	21	15	22	33	22	79	22	102	21	109	21	109	22	107	22	109	21	94	19	46
Colombo Sri Lanka	18	23	19	10	27	147	27	231	27	358	27	224	27	135	27	109	27	160	26	348	26	315	26	147
Jakaria Indonesia	27	300	27	300	27	211	28	147	27	114	27	97	27	64	27	43	27	66	28	112	28	142	27	203
Manila Philippines	25	23	26	13	27	18	28	33	29	130	29	254	28	432	28	422	28	356	27	193	27	145	26	66
K.Lumpur Malaysia	27	158	28	201	28	259	29	292	28	224	28	130	27	99	28	163	28	218	28	249	28	259	27	191
Kinshasa Zaire	26	135	27	145	27	196	27	196	27	157	24	8	23	3	23	3	25	31	26	119	26	221	26	142
Quito Ecuador	15	99	15	112	16	142	15	175	14	137	14	43	14	20	15	31	15	69	15	112	14	97	14	79
Singapore	27	252	27	173	28	193	25	188	28	173	28	173	28	170	28	170	28	178	28	208	28	254	27	157

T= Average Temperature (Day)°C R= Average Rainfall (Month) millimetres

TABLE 1

WORLD RAINFALL DISTRIBUTION

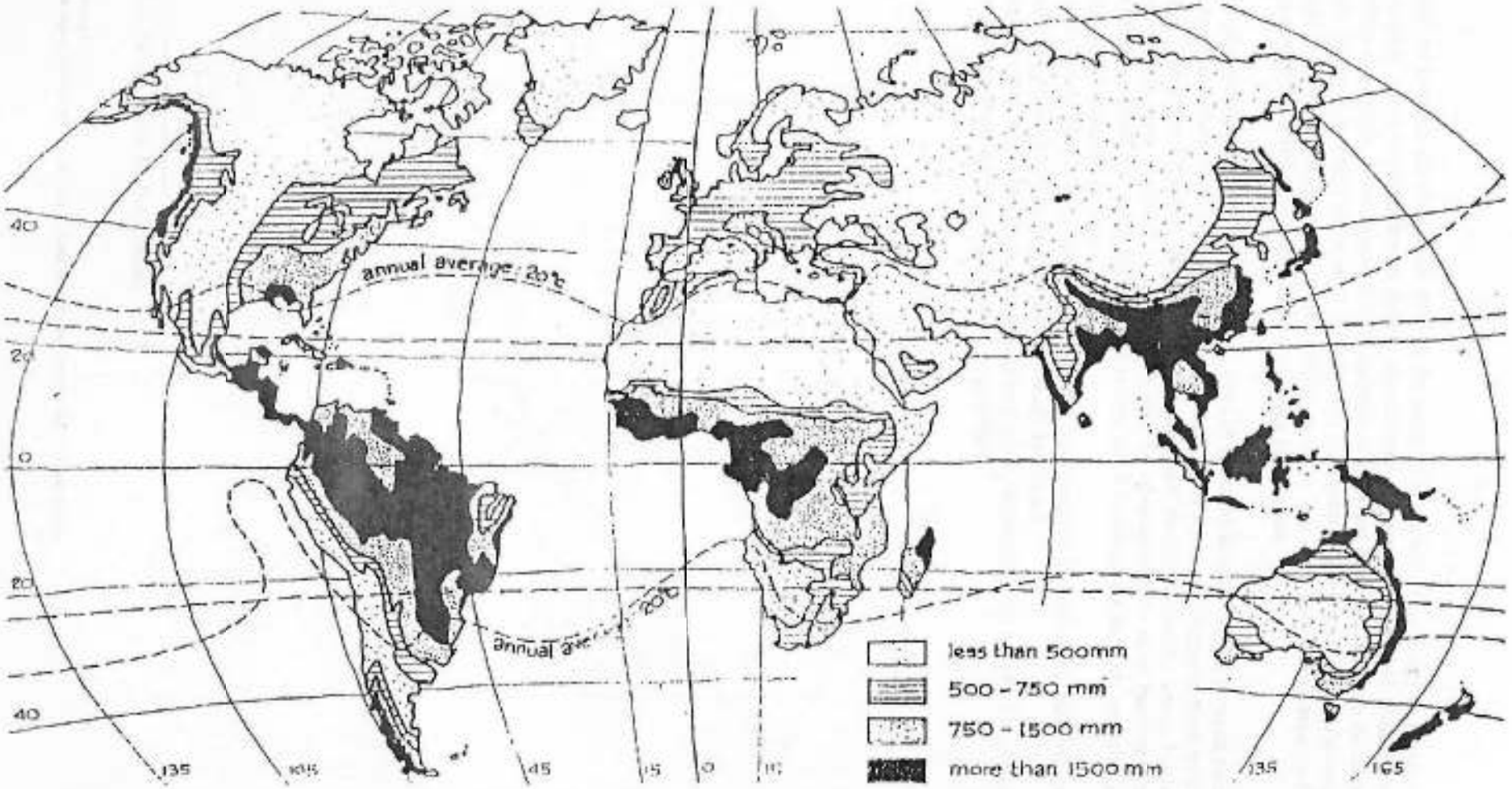

Fig 3

must be towards the directional flow of the wind. Orientation of buildings to maximise wind exposure when required but to deflect unwelcomed monsoonal winds and rains. Roof eave design and height above ground is to be maintained such that glare and radiation do no penetrate into the interior, whilst at the same time the roof is to permit light entry. Where the roof allows light to enter there must be sufficient openings to allow heat to escape. Roofs must be designed using material selected to minimise heat retention after sunset.

The proceeding paragraph provides suggestions on the combating of tropical climatic elements;
"Layout and form: buildings separated and scattered with free spaces between them to utilise air flow. Individual structures should be freely elongated; rooms preferably single banked with access from open verandah or galleries. It may be advantageous to raise buildings on stilts.
Orientation: north and south for habitable rooms, but if buildings are in shade variation possible to provide maximum air flow.
Room: should ideally have openings on both the windward and leeward sides. Heat and moisture producing areas should be isolated and separately ventilated.
Outdoor areas: as for buildings, they should be shaded; vegetation must not block free passage of air. Adequate storm water drainage must be provided."[8]

[8] Alan Konya. Design Primer for Hot Climates. pg.58

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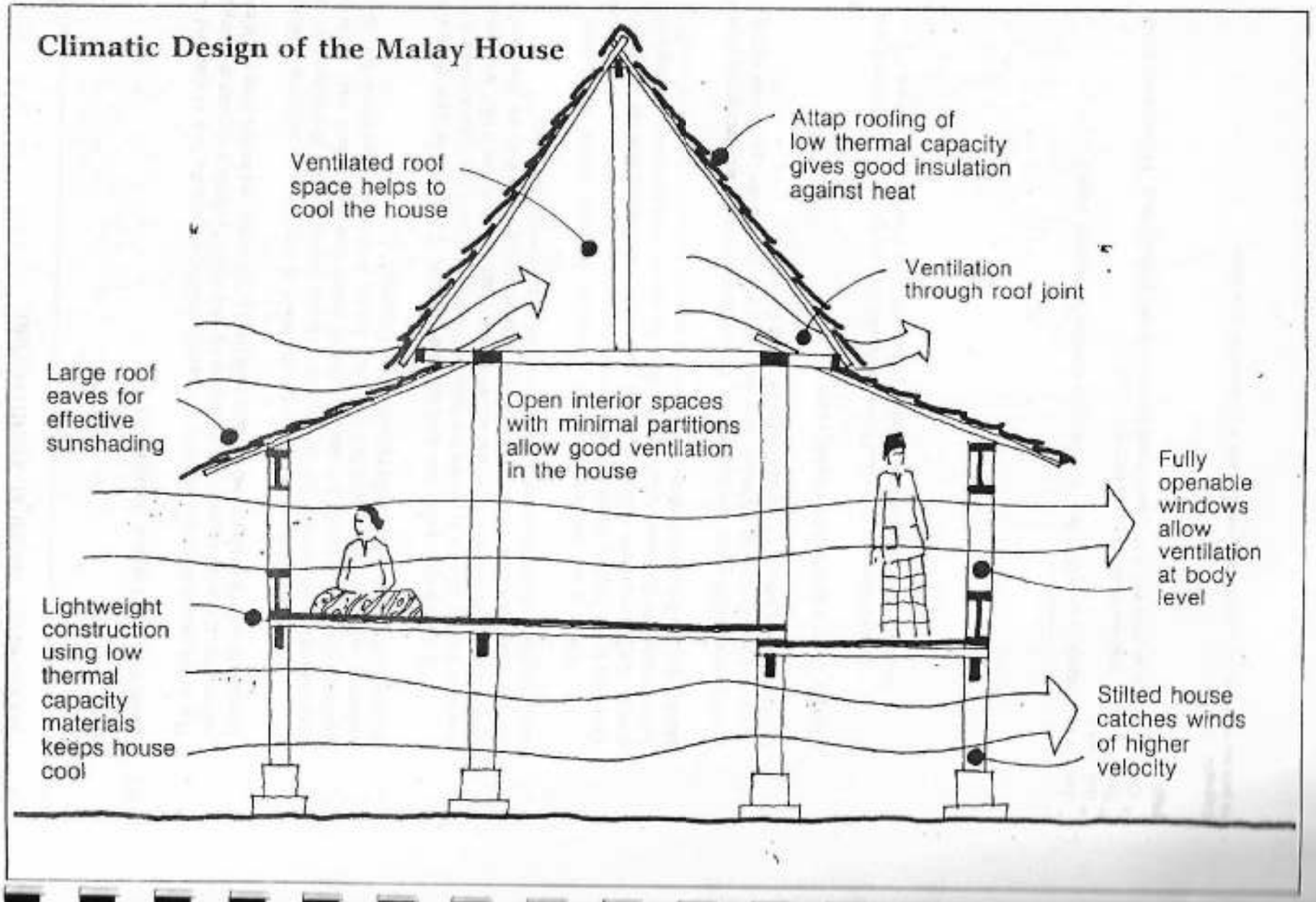
Climatic Design of the Malay House
Ventilated roof space helps to cool the house
Attap roofing of low thermal capacity gives good insulation against heat
Ventilation through roof joint
Large roof eaves for effective sunshading
Open interior spaces with minimal partitions allow good ventilation in the house
Fully openable windows allow ventilation at body level
Lightweight construction using low thermal capacity materials keeps house cool
Stilted house catches winds of higher velocity

2. MEANING OF TROPICAL ARCHITECTURE

2.1 Definitions Of Tropical Architecture.

Due to the complexities and variables of tropical architecture, and the lack of data and R & D information, it is quite erroneous for anyone to try identify or to obtain a singular meaning at this juncture. It is for this reason that so many buiildings in the tropics are copies from the West?

"As an Architect who was trained in the West, in their ways of designing buildings for their climatic requirements and constraints, I found myself totally ill-equipped to design buildings for the hot-humid low-land Tropics of South East Asia. There were no books or reference available. Most published reference books were more appropriate for the drier highlands of Central Africa or for the Indian Sub-Continent".[9]

"It is only appropriate that Architect and Students of Architecture from the hot-humid low-land Tropics of Asia in general but those of South East Asia in particular to make it a point of researching the climatic factor and designing buildings and structures which are appropriate for and reflective of the Tropical regional and cultural context where they are from, and not to simplistically re-gurgitate images out of glossy foreign architectural magazine".[10]

"There is not and never has been a singular, definitive tropical architectural style. Countries in the tropics, which comprise a wide belt around the middle of the earth do not, of course, share a univalent cultural or social framework. Sandwiched between the Pacific and Indian oceans, the Southeast Asia region has from the earliest recorded history developed its own identity through the practice of animism as well as continued contact with other cultures". [11]

In trying to establish a common denominator for ameaning to tropical architecture we hope these statments by some leading Architects from the region will throw some light on our search. The following quotes have been used to try define are as follows;-

Charles Correa describes the tropical house as

> *" By definition, the individual house deals with open to sky space - a courtyard or a roofed terrace an additional room-of graduated space from covered to open."*[12].

---

[9] Jimmy Lim. Tropical Studies Workshop. Pre-Workshop Exercise for Students. Page 1
[10] Ibid. page 1
[11] Tan Beng Hock. Tropical Architecture and Interiors . page 10
[12] Charles Correa in an essay entitled " Transfers and Transformations", Robert Powell. Tropical Asian House. page 10.

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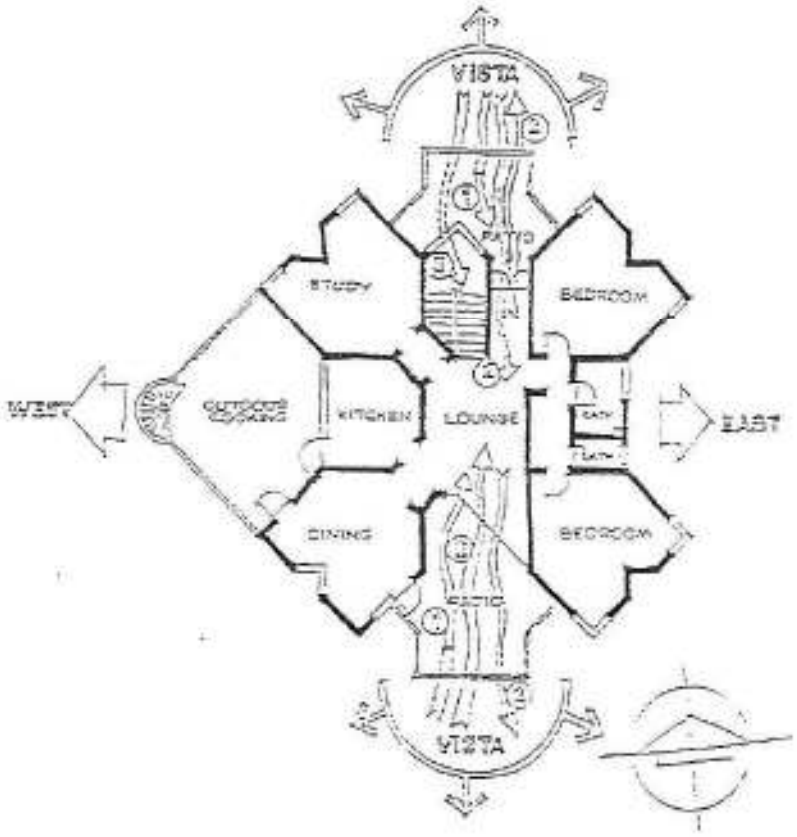
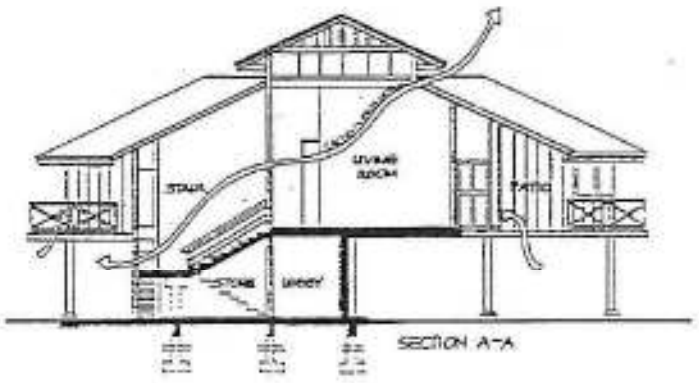


Fig a

1. Ventilation through gaps in floor-boards
2. Cross ventilation
3. Low level cool air inflow (convection current)



Integrated climatic features in the design.

Fig b.

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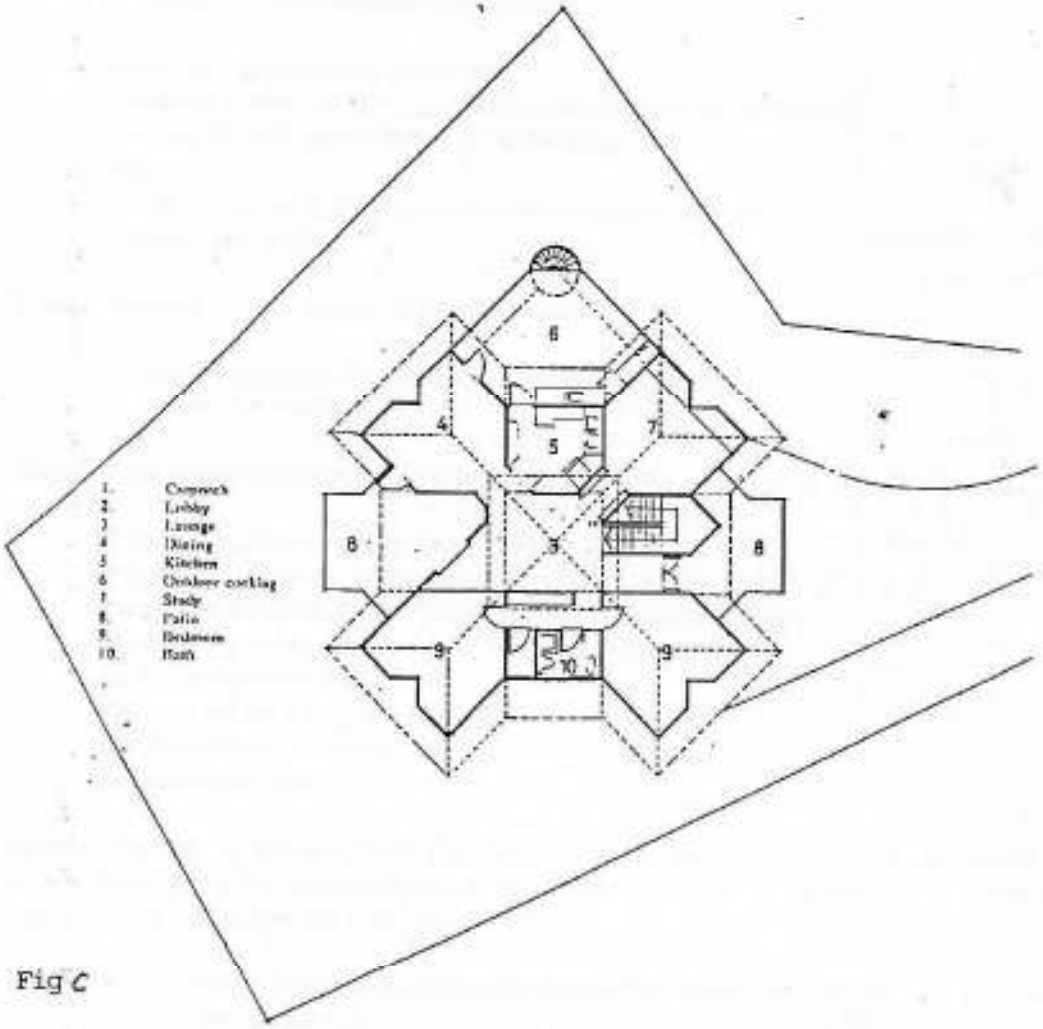
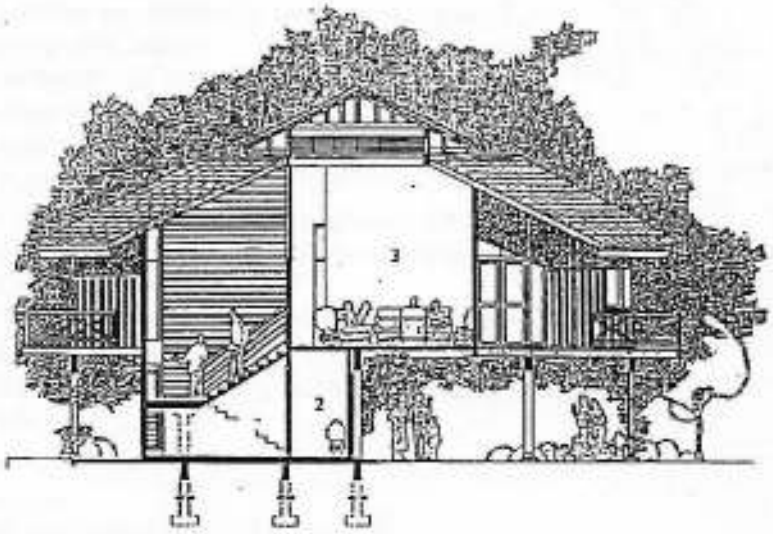


Fig c



Plan and section.

Fig d.

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Geoffrey Bawa describes tropical architecture

firstly as "about living out of doors
secondly a house in the tropics should not destroy any substantial trees on the site, and it should be in harmony with nature.....
thirdly, a house in the tropics should be designed with the minimal use of glass"[13]

Bobby Manosa defines tropical building as ensuring

"cultural continuity through its transformative approach to vernacular tradition"[14]

Jimmy Lim describes tropical architecture in conjunction with climate in the following;-

" We have plenty of sun so I keep the sun out.
We have alot of rain so I attempt to keep the rain out.
We need a lot of shade, so I provide it by having a lot of trees.
With alot of leaves we should not have any gutters as blocked gutters are useless.
Because we are living in a hot climate, we should have cross ventilation and as much open space as we can"[15]

Robert Powell in his new book The Tropical Asian House has expanded his "initial three criteria for judging the appropriateness of the design of a house in the design of a house in the humid tropics" to include the following;-

" o have a living area which is the focus of the house and which is permanately open to the sky;
o not destroy any substantial trees on the site and be in harmony with nature;
o be designed with minimal glazing;
o not have gutters;
o be surrounded by a garden and non-reflective landscaped surfaces;
o have wide overhanging eaves to provide shade;
o have in between spaces in the form of a courtyard, terraces and shaded balconies;
o have tall rooms to create air mass and consequentially thermal insulation;
o naturally ventilated with permeable walls facing prevailing breeze;

[13] Geoffrey Bawa in conversation with Robert Powell. Ibid. page 12
[14] Robert Powell. Tropical Asian House, page 13
[15] Ibid. Page 13

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- be one room deep with openings on opposite sides capable of being adjusted"[16]

The necessity to expand the checklist suggest that these were was recurring themes in the works of Asian Architects encountered by Powell. This became obvious in his second book.

Robert Powell goes on to describe the varying considerations such as pollution, dust and privacy and security etc. to be taken into account when designing buildings in a tropical city.

" In the major cities of South and Southeast Asia, there are problems of dust, pollutuion and noise. For residents of cities such as Kuala Lumpur, Bangkok, Manila or Bombay air-conditioning is arguably a necessity to combat these conditions, at least in the bedrooms.

There are also problems of security. In Colombo and Jakarta, this is addressed by enclosing the site with a high wall, but this cuts out natural cross-ventilation and makes it necessary to induce air movement by varying the aperture size of internal openings.....

Another approach is to incorporate duality into the plan arrangement, where the outside of the house has all the appearence of an exclusive enclosure, but the inside is comparatively open....." [17]

Below is a criteria set by Robert Powell to define tropical architecture in the urban environment;-

- Duality in planning arrangement to give openness and direct access to a garden face;
- air conditioning in certain areas of the house to overcome heat, noise, dust and pollution in the city;
- natural ventilation and air movement by innovative design;
- the extensive use of landscape to modify the micro-climate;
- Pools and fountains can contribute to the cooling of urban houses in addition to the sensual qualities they offer;
- Notion of reheat or refuge from the increasingly chaotic and polluted centres of Asia's conurbation".[18]

[16] Robert Powell. Ibid . , page 13
[17] Ibid. Page 14
[18] Robert Powell. Ibid., pages 15

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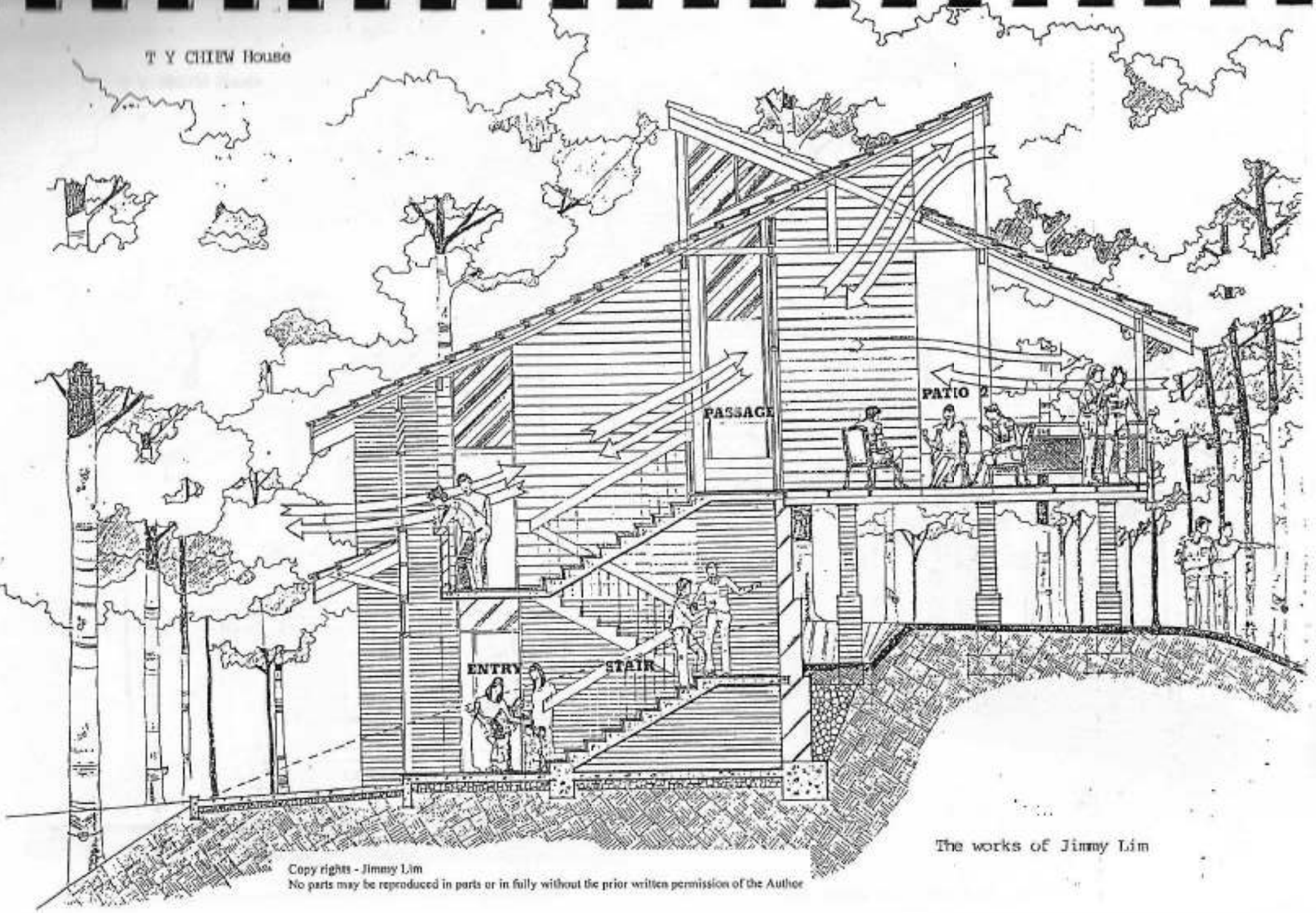
T Y CHIEW House



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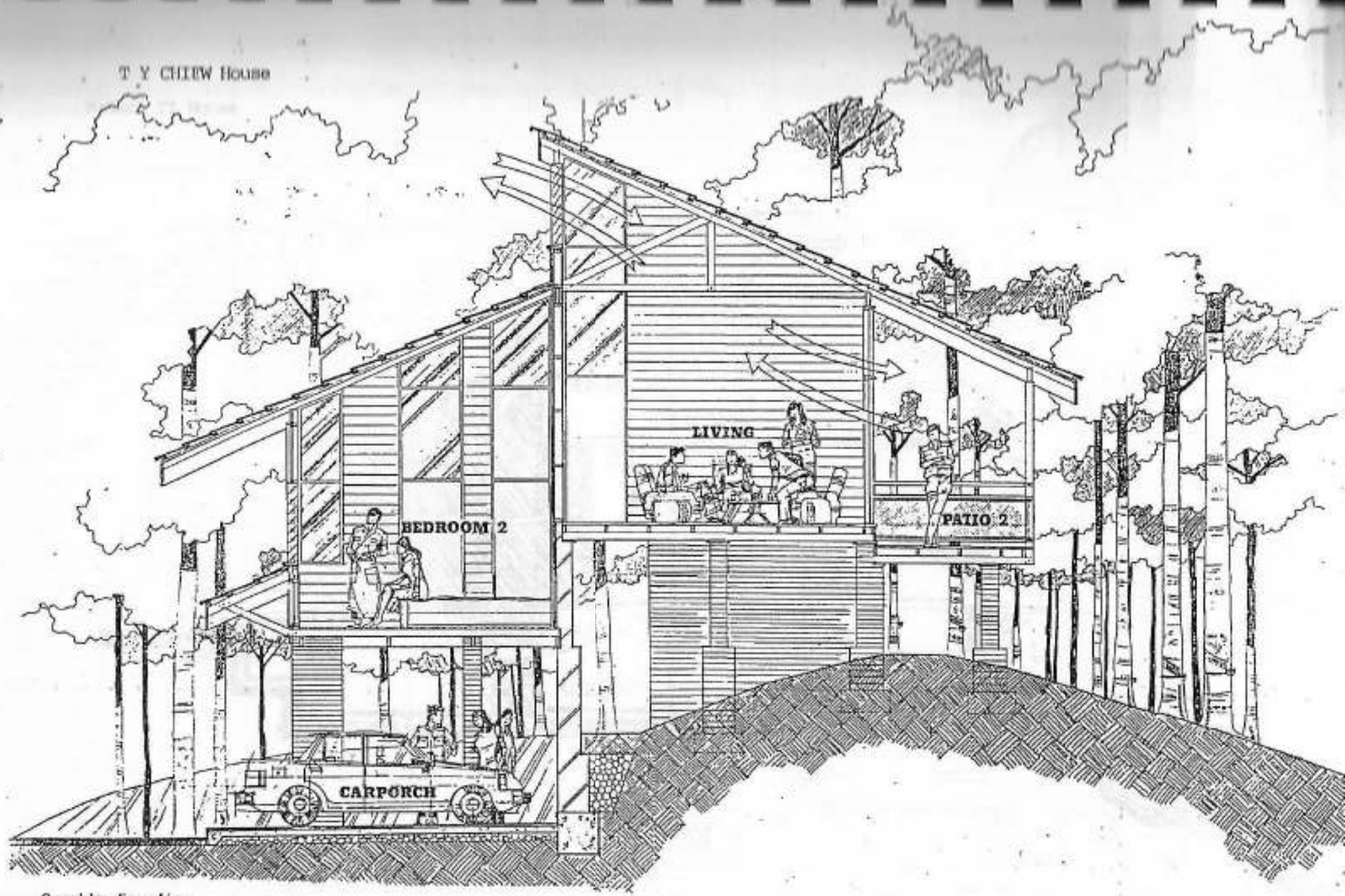
T Y CHIEW House



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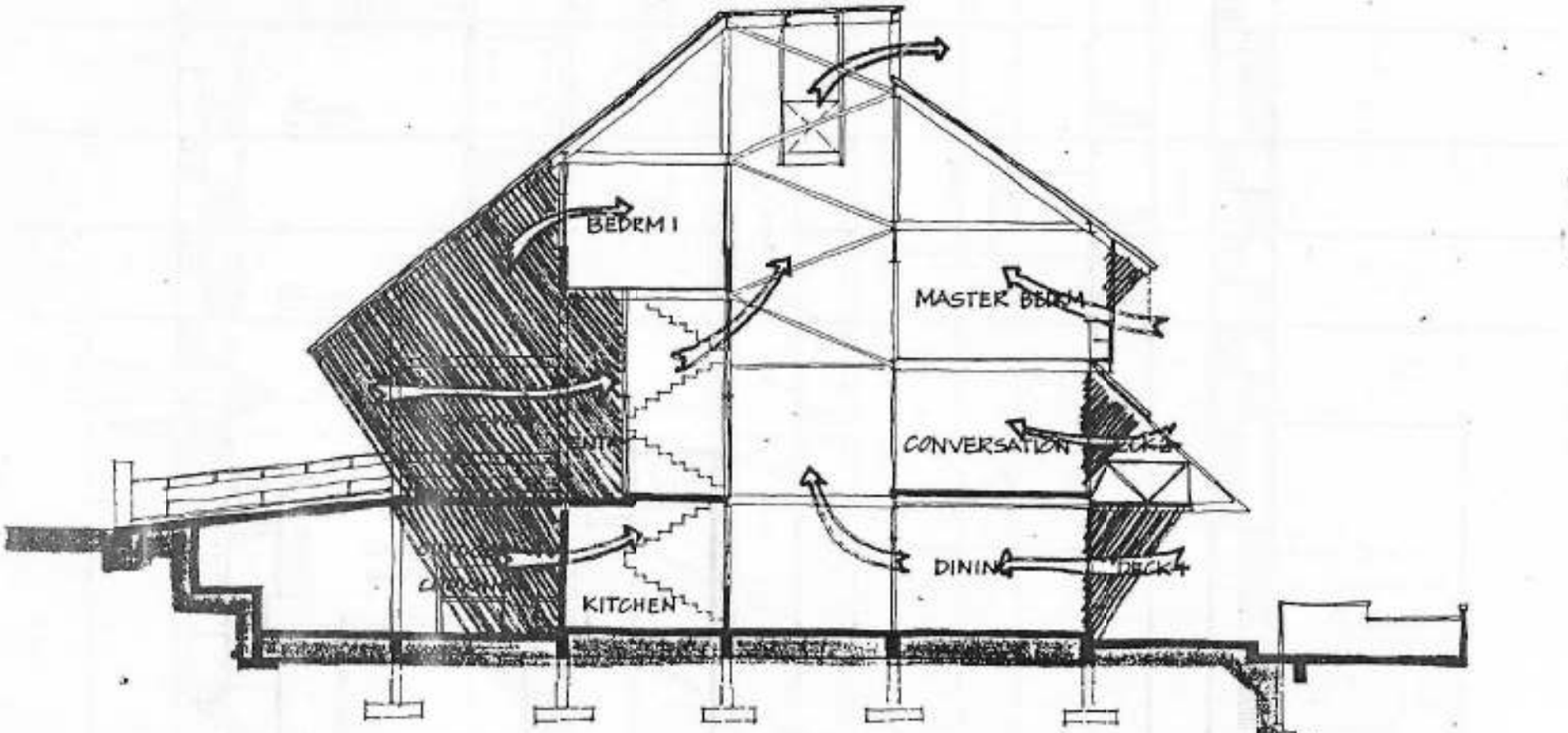
Madame TI House



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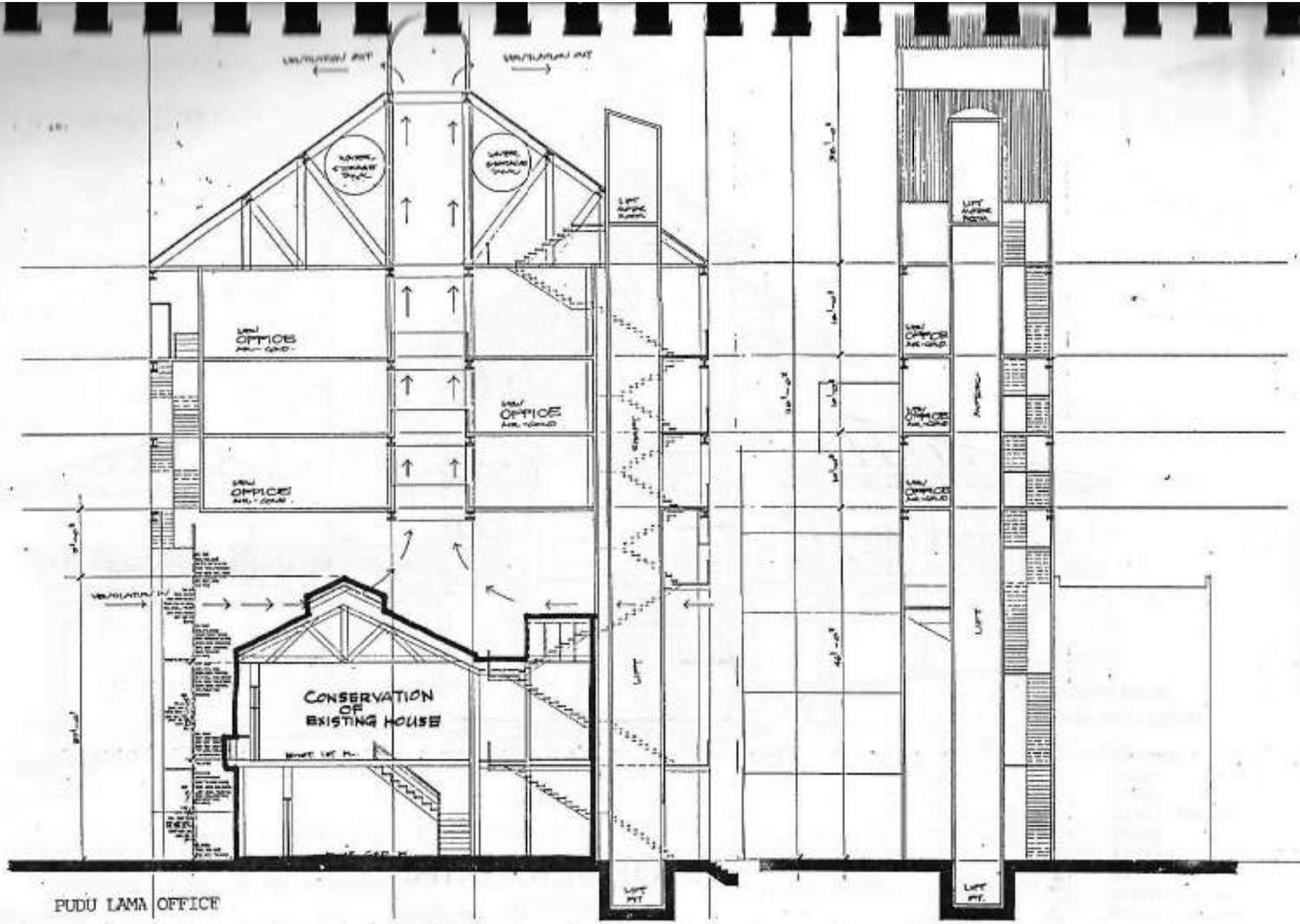

PUDU LAMA OFFICE

Fig

CROSS SECTION

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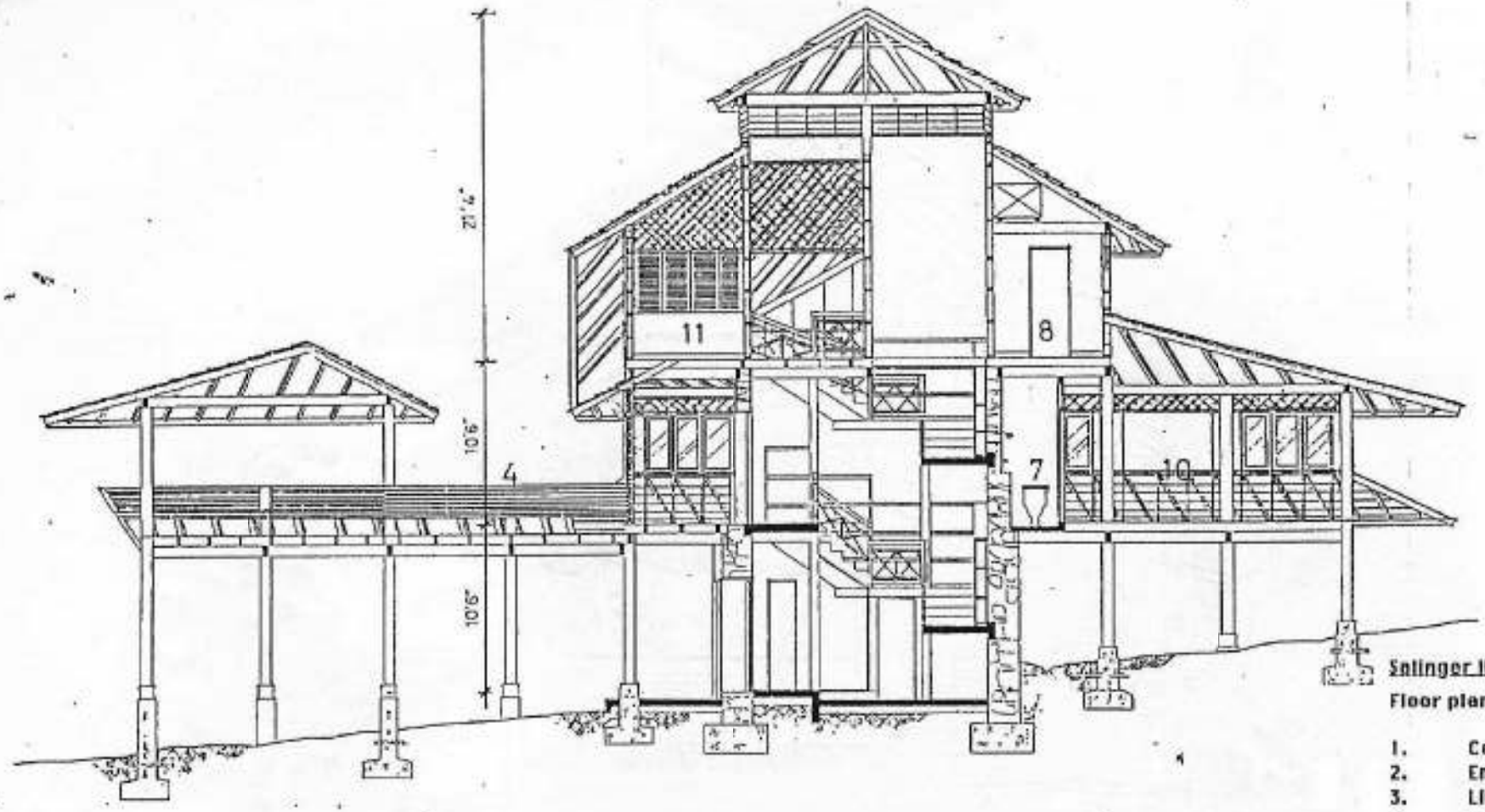

Fig

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SALINGER HOUSE

Section

Salinger House

Floor plan Legend:

1. Carpark
2. Entry
3. Living
4. Deck & Gazebo
5. Dining
6. Kitchen
7. Bath
8. Dressing Room
9. Master Bedroom
10. Bedroom
11. Study Room
12. Void

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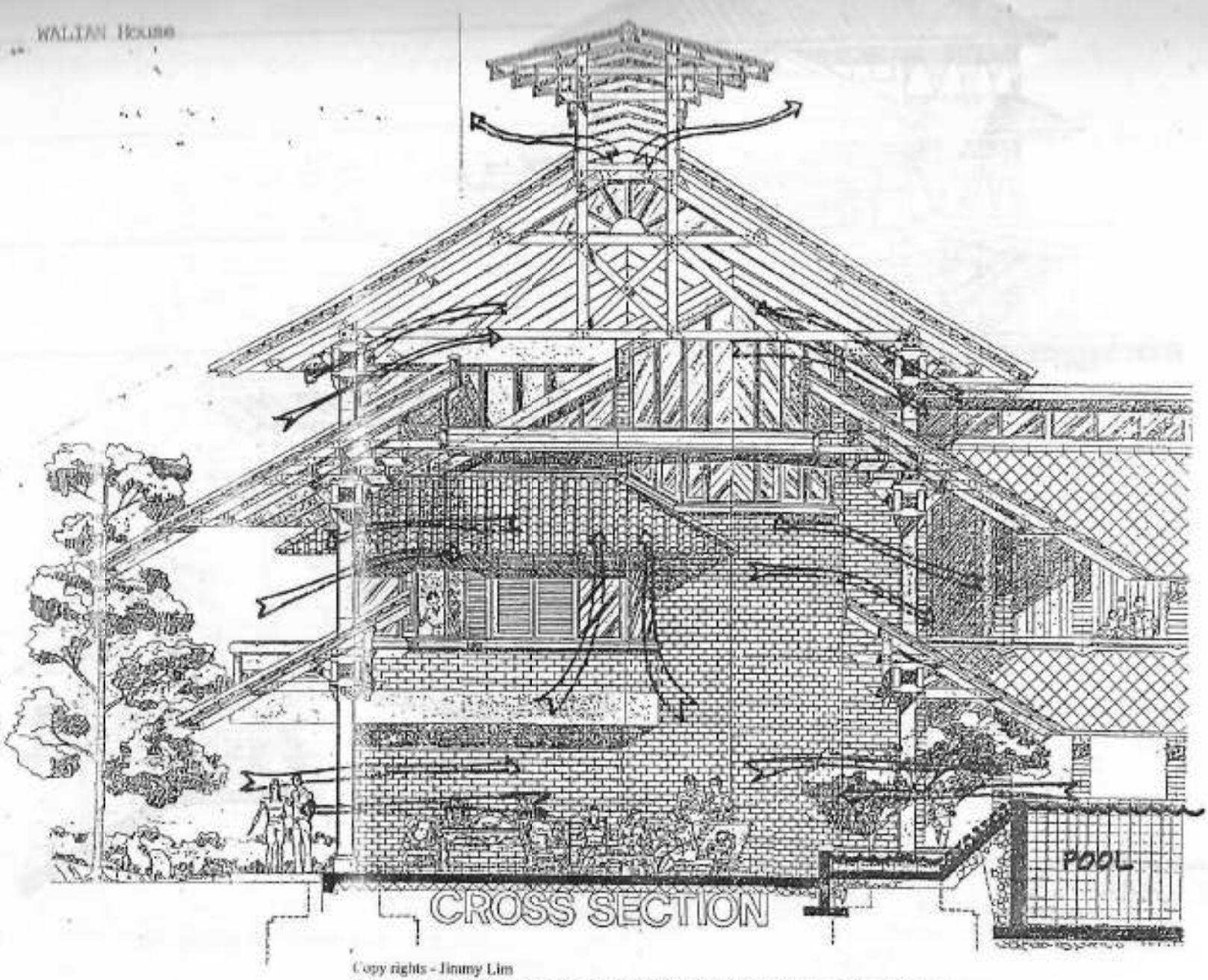
WALIAN House



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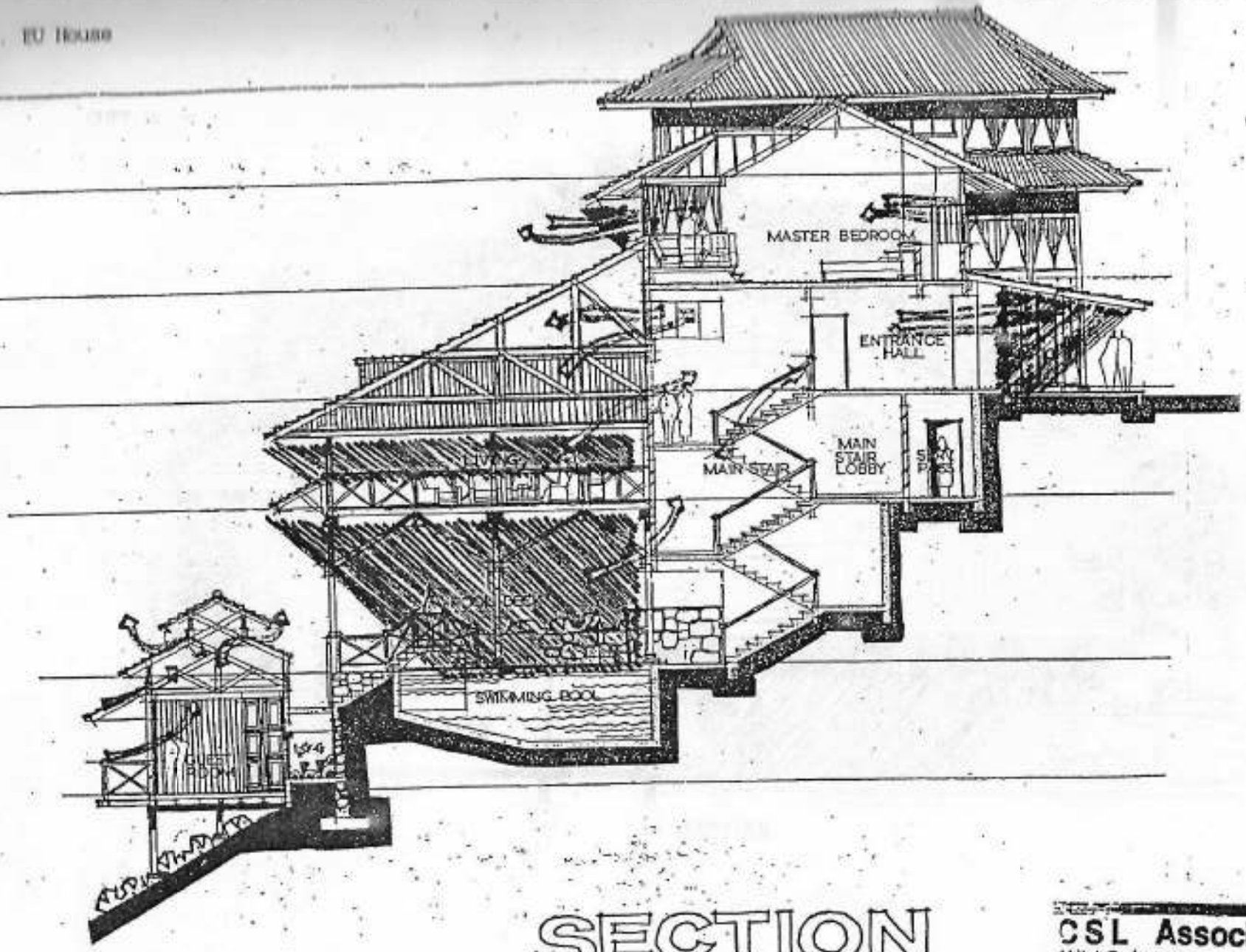

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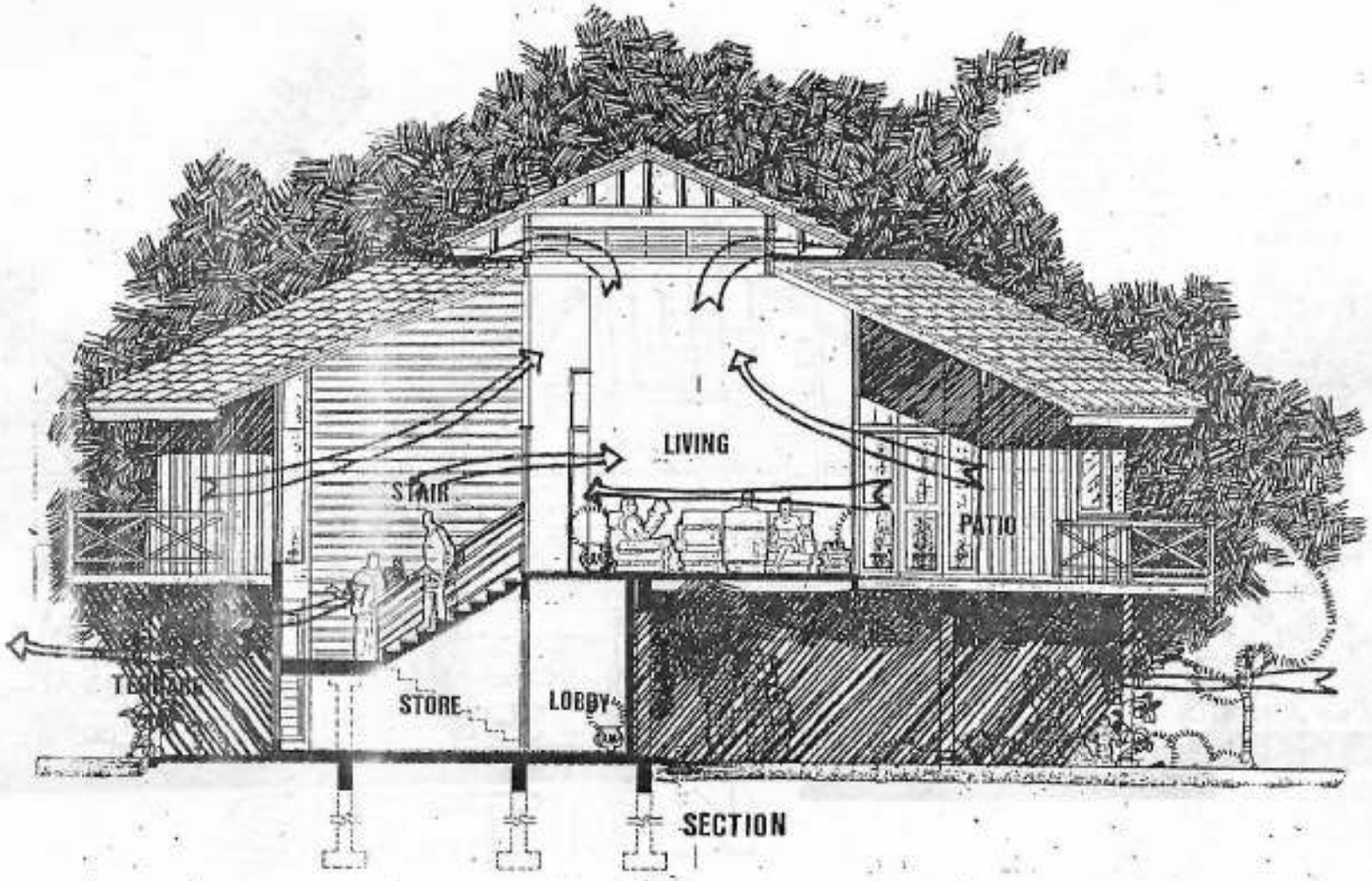

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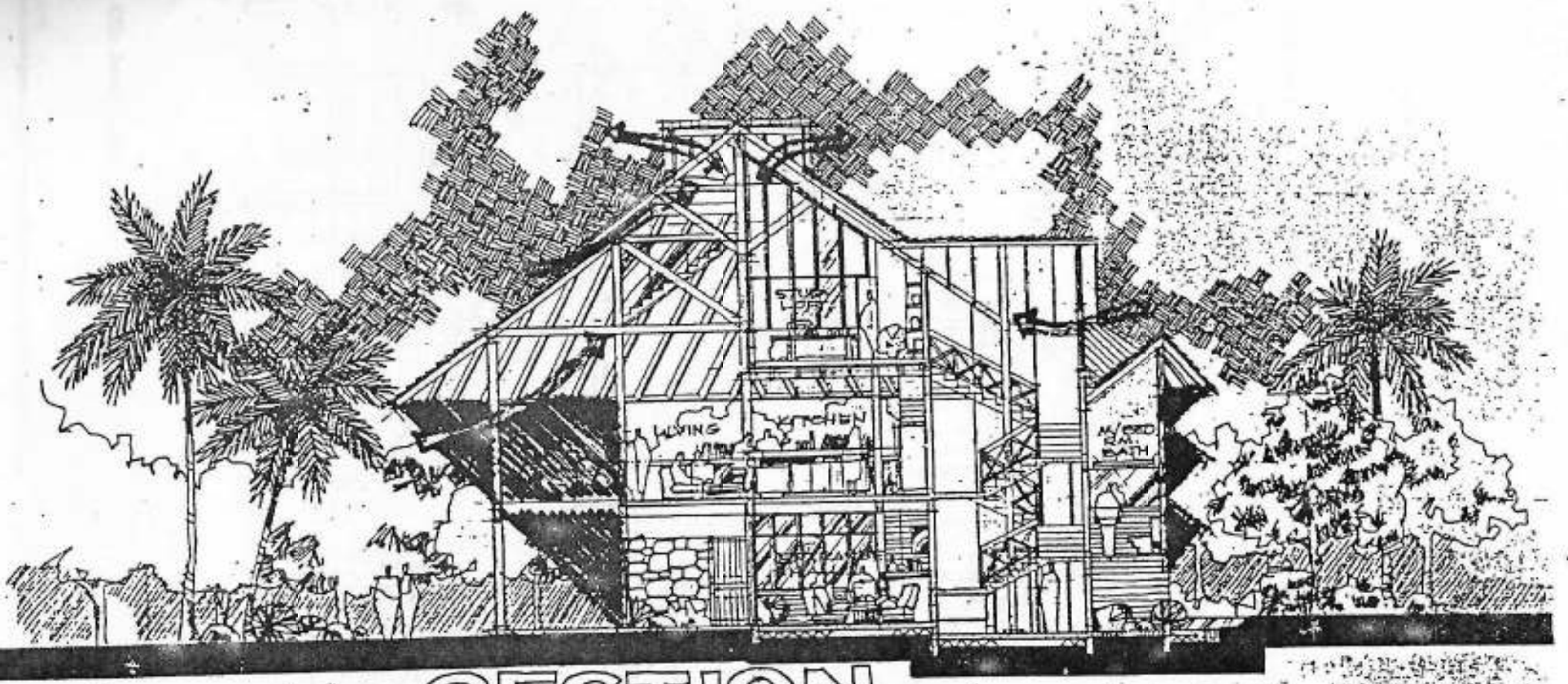
TIN House



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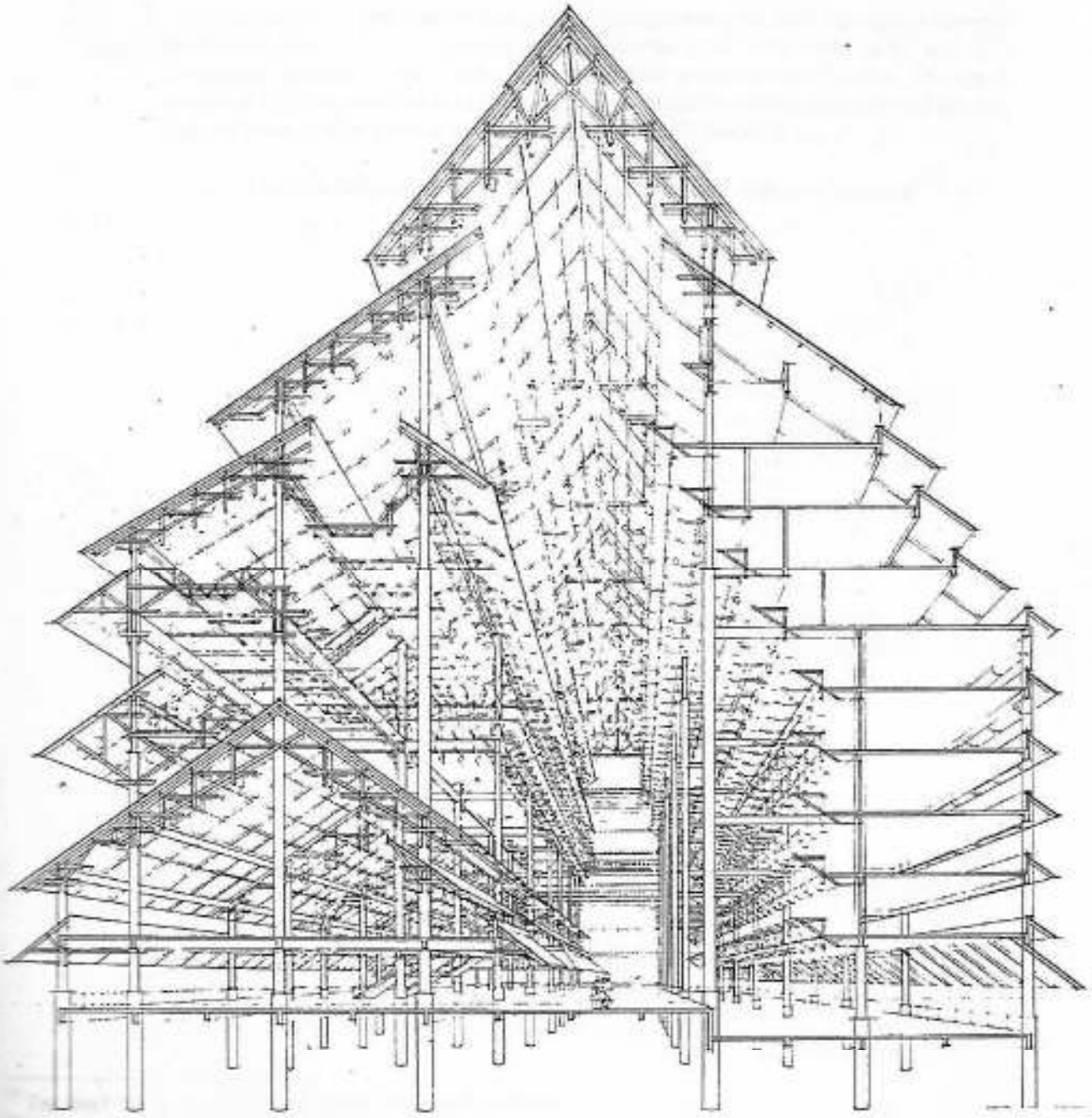
Amansari Resort - Johor Baru



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Tan Hock Beng

In the following passages by Tan Hock Beng, he provides firstly a statement to suggest there is no definitive architectural style.

"Climate is clearly one of the prime factors of culture, and therefore built form. It is also the main spring for all the sensual qualities that add up to a vital tropical architecture."[19]

"The tropical house type can be seen in the broad verandah the fluid interaction between inside and outside, cool courtyards, steeply pitched roofs with wide eaves and deep overhangs, concern for shade and ventilation and the prevalent use of timber. The use of timber as building material is sensible since it is abundant, locally available and has low thermal mass so that minimal heat is transmitted into the building.....,

.....All these delighted qualities are triggers to the local collective memory".[20]

[19] Tan Hock Beng. Page 14. Tropical Architectural & Interiors
[20] Ibid. pages 13-14

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3. TRADITIONAL EXAMPLES

3.1 (A) Local Usage And Understanding

The traditional tropical house was designed and built by ordinary village people. The following quotation describes how solutions into the climate and culture of Malaysia were controlled by the indigenous population.

> "It created near perfect solutions to the control of climate, multi functional use of space, flexibility in design and a sophisticated prefabricated system which can extend the house with the growing needs of the family"[21]

(B) Typologies

Describe: **(i) The Malay Kampong Houses -**

"Kampong is a Malay word meaning "village". Traditionally, the Malays lived in separate dwelling grouped into Kampong's which were separated social entities. The coasted and riverine Malay Kampong house is very simply constructed with a rectangular pitched roof shelter raised about 2 metres above the ground...".[22]

(ii) Shophouses -

"Shophouses and their residential counter-part, rowhouses, were not indigenous forms but evolved from cultural circumstances (Chinese Immigrant) and Climatic consideration. Malaysia has not had a long history of urban settlements, being a predominately rural and Kampong (village)) - based society. The large urban settlements such as Malacca and Penang were established as strategic locations for trade routes, or - as Kuala Lumpur, Taiping and Ipoh - as centres of tin-mining activity. The original residents and their architects/builders derived inspiration and ideas from Europe, blending them with architecture seen in neighbouring countries.

The shophouses evolved to allow merchants to live and work in the same building. Basically, the design follows the same floor plan to the present day. A covered colonnade forms the transition from the street, the shop is in front, with storage and the kitchen at the rear. Upstairs are living/dining/sleeping areas. A central air well provides light and ventilation and facilities the collection and disposal of rain water. These

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[21] Lim Jee Yuen. The Malay House. Page 4
[22] Sarawak Style. Page 123

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long narrow buildings are repeated to create comprehensible streets and squares of human scale"...[23]

Blending with European concepts of urban life were the perception of the merchants, most of who were Chinese. What emerged was a building from that minimized the effects of heat, rain, and glare in a tropical climate by using thick, brick walls with high ceilings, a roof

with ventilation, an interior with an air well and a shop front with a verandah. The early shophouses were purely utilitarian adaptations to the tropical climate. However by the early 1900's, Europeans, Chinese and Malay motifs were intricately executed on the facades, creating the illusion of a 'false front' to the simple structure.

(iii) Indigenous Longhouses -

"The longhouse is the oldest architecture from in Sarawak, going as far back as the history of the ethnic groups can be remembered. Among the Iban, Bidayuh and Orang Ulu, the basic concept of the longhouses is similar. It is a linear arrangement under one common roof of separate apartments, the doors of which open out to a common hall or gallery."

From this corridor there is often a single exit. This main door, through which everything entering or existing must pass, is very important. The evil spirits must be prevented from passing through. Threatening faces are carved into the doors, often accompanied by the stylised aso motifs.

(Ave 1981: 96)"[24]

... Sited usually near a river or stream because of the available of water supply, fishing and ease of transportation, and on high ground for strategic defence purposes, each longhouse varies in size from about twenty to our eighty apartments. Sometimes, because of site constraints two parallel longhouses are constructed as the community grows. The average house may accommodate between two to three hundred people. The more size of the building is impressive, and the hive of activity in the common gallery or verandah can be overwhelming: adults, chatter, children running about along the timber flooring, dogs barking. As the longhouse is raised on wooden stilts or piles at least a full storey above the ground, the area below is where the pigs and chickens are kept, foraging around for whatever rubbish or food that is thrown down from the family kitchens above.[25]

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[23] UIA. Page 22

[24] Luca Invernizzi Tettoni - Edric Ong. Sarawak Style. Page 103

[25] Sarawak Style. Page 104

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(C) Materials used for:-

"Bamboo is also commonly employed for construction because it is widely available and easily replenished. Its drawbacks are its short life span and a large variability in moisture content"[26]. Whilst that may be the contention of many writers bamboo is a versatile material once properly cured and well jointed for construction purpose. It is properly the only organic material which has the highest resilient property for both tensile and compressive loads. Bamboo structure is known to return to its original structural shape and load carrying capability after the imposition of a destructive impact load. Other materials commonly used for contructing different building components are listed below.

(i) Roofs

"The most common roofing material used for the bumbung panjang is the attap (a thatch made from nipah and other palm trees found in the local natural vegetation). However, attap is fast being replaced by zinc in newer houses. Zinc is used mainly because of the status attached to it and partly because it requires less maintenance..."[27]

Even the longhouses have not being spare the long arm of progress. Attap is being replaced by zinc roofing. Often these sheets are laid over the top of old attap roofing. The old roof providing the insulation property for comfort.

"Attap is the traditional material used for roofs and sometimes even for the walls of poorer houses. Various types of hatch are used for the attap roofing. The choice depends on the availability of the material. Nipah palm found in brackish fibre from the Kabong palm (attap ijuk) which is more durable...

Other traditional roofing materials used are wooden shingles and clay tiles (attap genting). Clay tiled roofs are commonly found in Malacca, Negri Sembilan and on the East Coast of Peninsular Malaysia. Traditional roofing materials are today being quickly replaced by zinc sheets and, less commonly by, asbestos sheets".[28]

The large over-hanging roof had many advantages including assistance in ventilation and contributing to providing shade and to protect against heavy rain.

(ii) Walling

"Light weight, semi-permeable walls have always been a feature of buildings in this part of the world. Their role is to maximise the interface between the inside space and surroundings. Instead of excluding the weather and isolating a building's occupants from the external environment, the architecture filters the outside selectively through a system

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[26] Ibid. Page 13- 4
[27] Lim Jee Yuan. The Malay House. Page 22
[28]

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WALL OPENING TYPOLOGY

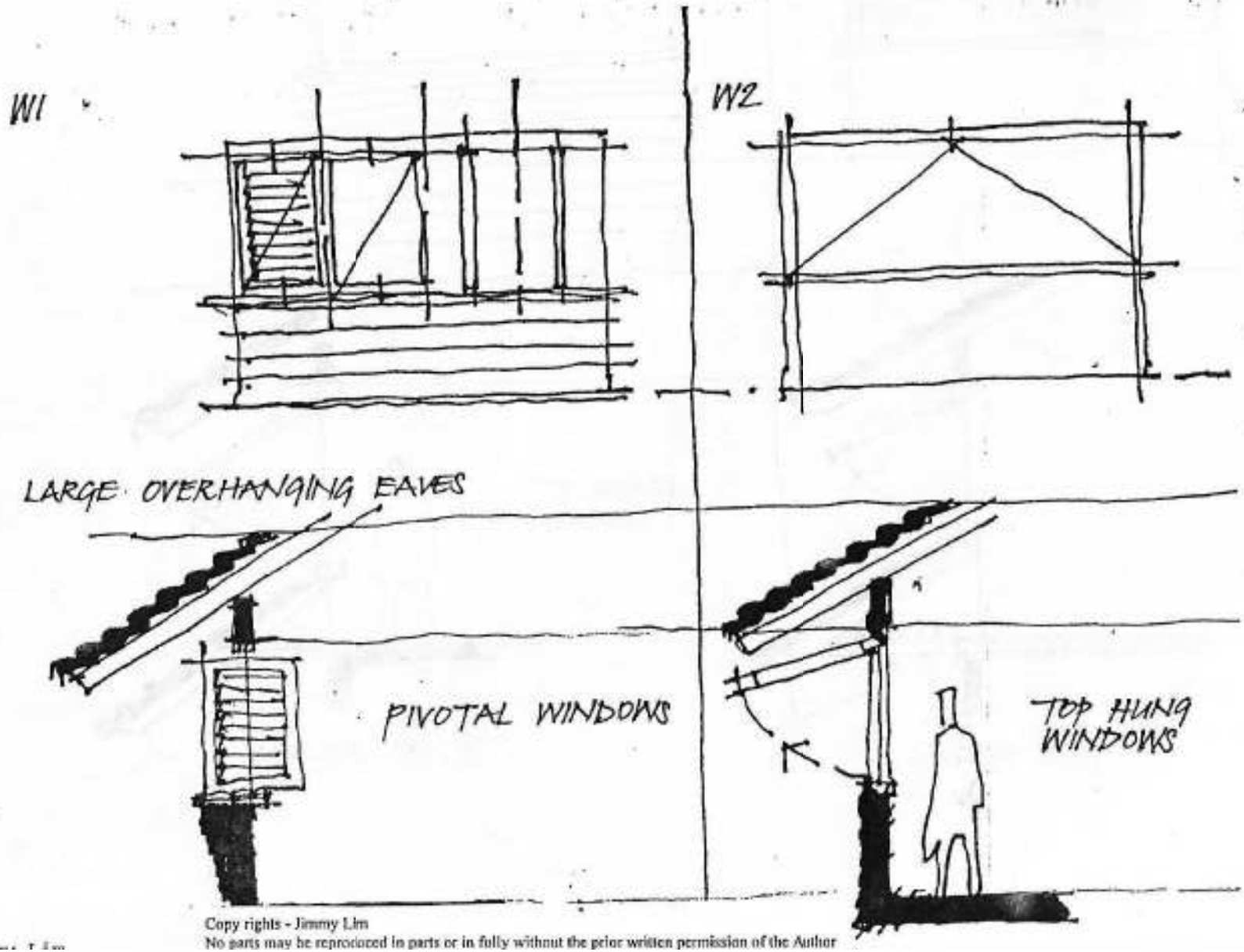

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Fig 1

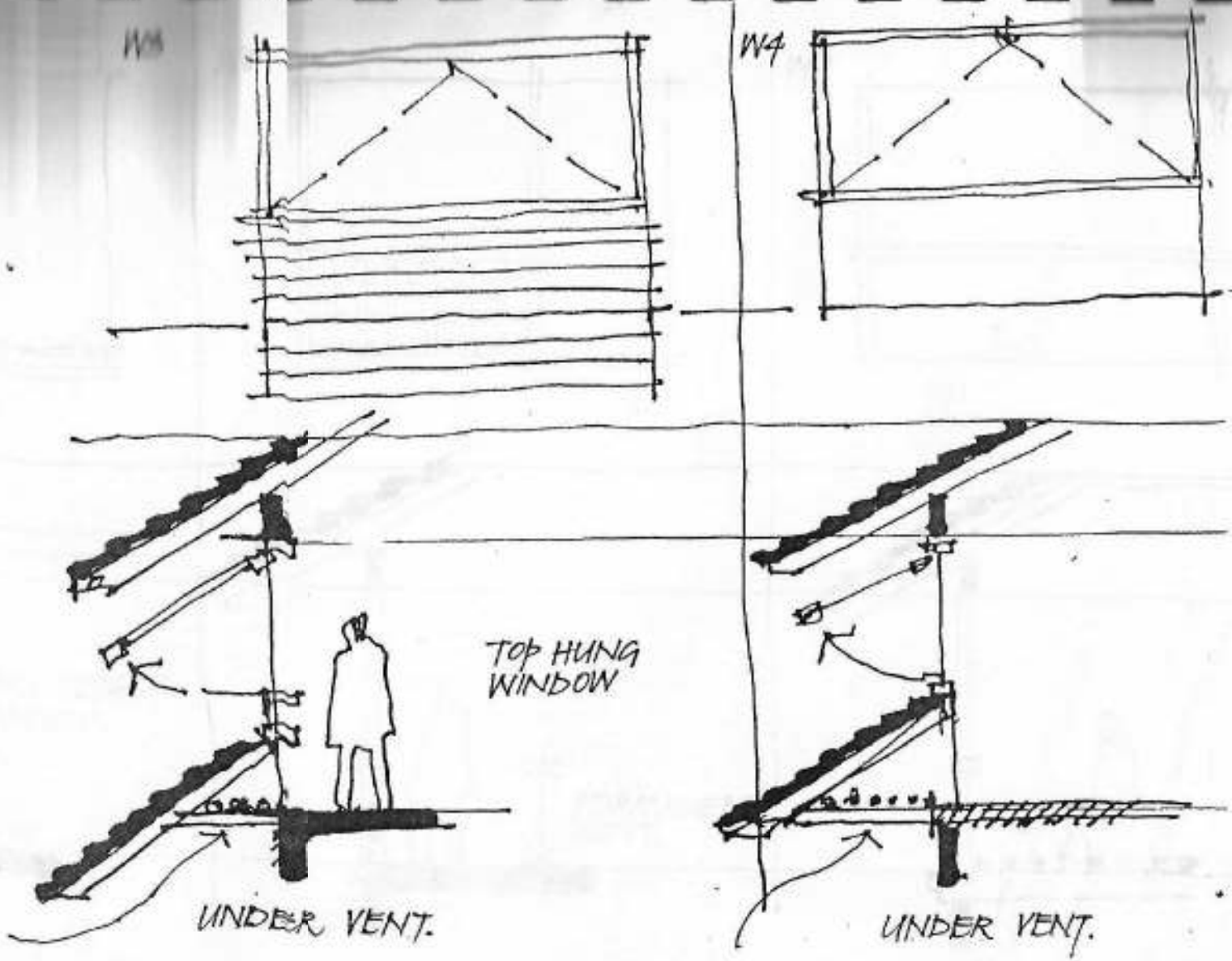

Fig 2

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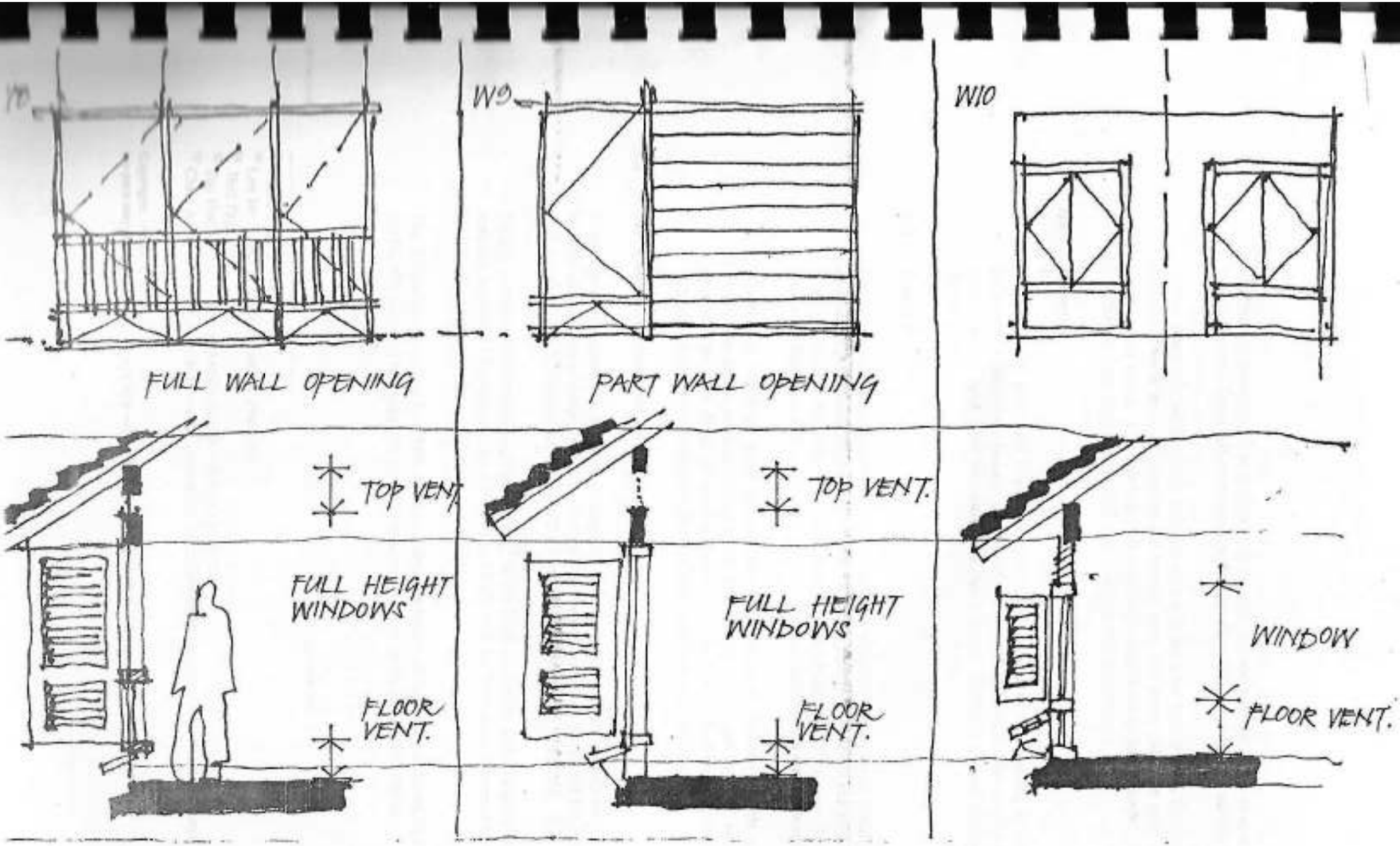

Fig 4

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of louvred openings. The buildings thus offer immediate and direct contract with the lush landscape. Open lattice encourage the free flow of air through the building".[29]

"Other materials used include bamboo which is used for wall panels, floors and props. Bamboo panels are very durable and houses over 100 years old have been found with these panels intact. The bamboo wall panels are usually made from bamboo slits woven together to form various beautiful and elaborate malting patterns..."[30]

(iii) **Flooring**

"The 'nibong' tree trunk is another common material used. The nibong is a tall straight palm with a uniformly fomed round trunk. It is used as coloums for smaller and poorer houses and is split open into halves to make floors. Bamboo is used similarly for the floors".[31]

(iv) **Under floor**

Environmental requirements in the traditional Malaysian house meant building on stilts and keeping the house open in plan and free from clutter in order to enhance ventilation to all parts of the building. Tan Hock Beng provides here a useful passage describing the understanding how traditional design combined functionality and environment.

'Dwellings raised on stilts protect the occupants from floods, provide under floor ventilation and a semi-protected space underneath for storage as well as keeping of domestic animals. Built of local materials, such as teak or bamboo, these houses with sleepily pitched roofs were the efforts of local craftsman and artisans'[32]

3.2 (A) Colonial / Expatriate Interpretations

There are many examples in cities throughout Asia that were once colonialised. Colonial rule brought ridgid rows of deep planned buildings which were quite well suited for the humid tropics with the provision of internal air/light wells strung through the length of the lot.

Today, western dominance and globalisation[33] in the form of images and education has caused a massive amount of buildings to be designed and built with no little or no reference to the climate or culture, resulting in loss of identity and genius loci.

The following quotation by Chris Abel explains the layers of imported cultures in reference to the Pacific rim, and the adpation and absorption of such in order to suit the tropics.

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[29] . Ibid Page 13-14
[30] Lee Jee Yuan. The Malay House. Page 103
[31] Ibid Page 103
[32] Tan Hock Beng. Tropical Architecture & Interiors. page 15
[33] Chris Abel. The Architectural Review, Localisation Verus Globerisation, pages 4-9. vol. 1171. Sept. 1994

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"Even prior to colonialisation, the region had been exposed to layer upon layer of imported cultures which had been localised' over time, and adapted to local regional conditions. Hybridisation was not so much the exception as the norm.

When it did arrive, colonialisation brought with it a whole new set of cultural imports to be absorbed, both western and non-western. Singapore was never a Chinese city of the same kind s those on mainland China, but developed in the typical dualistic pattern of a colonial city, with half a European and half a native, the latter- already virtually a separate Chinatown - populated by expatriate Chinese who migrated to seek their fortunes in 'Raffles' new trading post'[34]

"... What is certain is that by 1913 Lutyens was fully acquainted, in both theory and practise, with Garden City and City Beautiful planning principles".[35]

"Later, with the arrival of Europeans, the context changes yet again. The circle becomes the Age of Reason - and its concomitants: Rationality, Science, Technology. Perhaps today, as we reach the end of the 20th century, the circle is changing once more. In the West, the myths of technology and progress are being replaced by a concern for environment, for ecology. Men's thoughts, actions - and architecture - will change to reflect this, and a new vistara will open up".[36]

(B) Describe Colonial Typology

(i) Ventilation roof

All colonial buildings without exception had a central raised roof ventilator as its main feature. The space between the upper and the lower roof was permanently open. Very often louverd other times decorated with timber lattice screens. The projection of these roof overhangs are large both for shading and for watershedding.

(ii) Wide verandah

Most colonial villas have rooms opening out to an outer living space acting both as an extension of these rooms and also as corridors for circulation purpose. These verandahs are extremely useful and practical for cooling and keeping the rain out. The pity few examples still surviving despite the onslaught of urbanisation, development and modernism bear testimony to this claim.

(iii) Raised above ground

Whilst the house on stilt was originally a vernacular and traditional expression, the colonial builders were quick to adopt that which was practical and it became a feature of almost all the colonial buildings. These buildings were constructed of brick load-bearing piers. The floors were timber beam and joist with planking for flooring. At the turn of the century many timber floors were constructed with concrete.

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[34] Ibid.
[35] Page 87. Indian Summer Lutyens, Baker and imperial Dehli - Robert Grant Irving, Yale University: 1982 Press Ltd London
[36] Vistara - The Architecture of India. Page 9. Charles Correa

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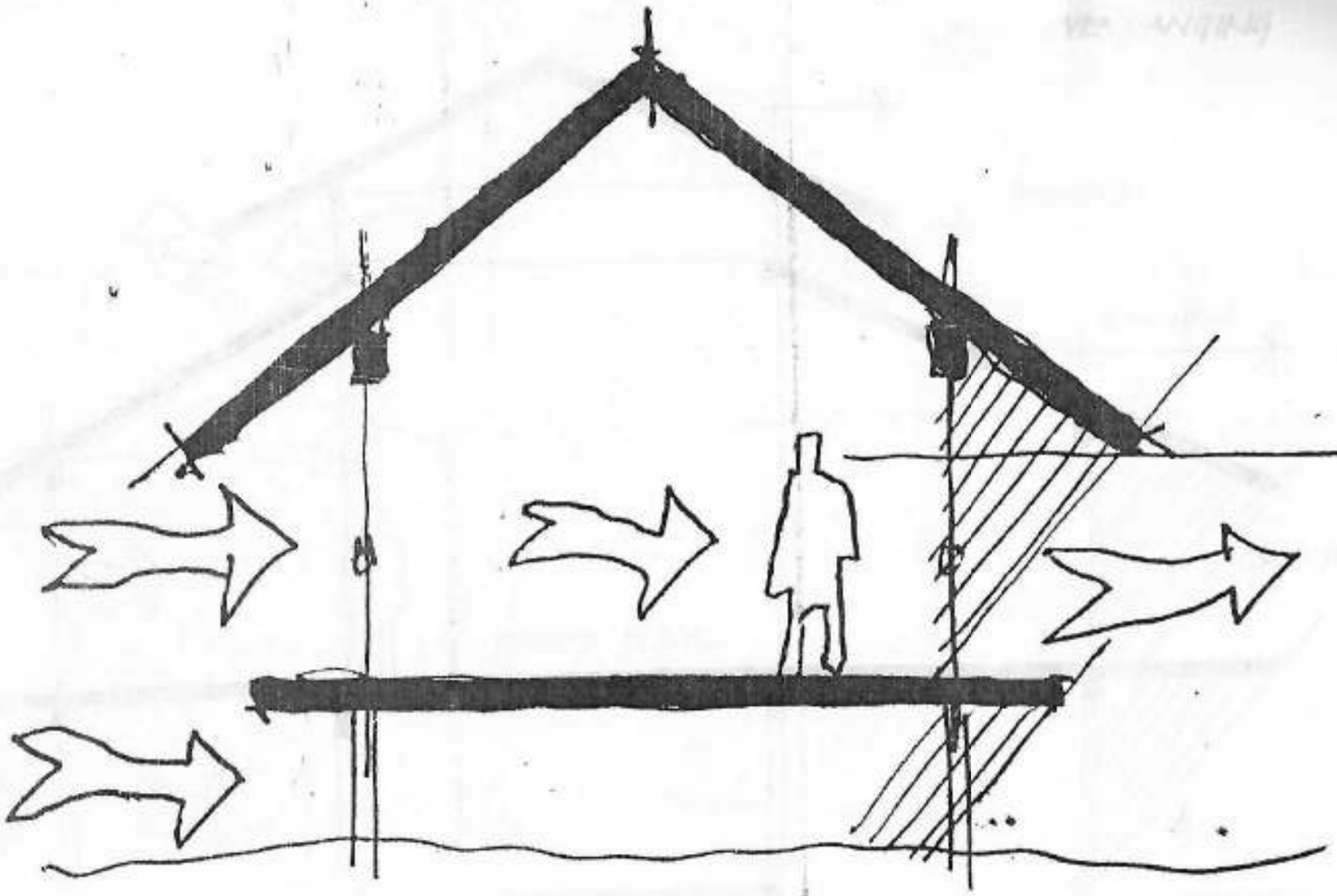

Fig 5

STRAIGHT THROUGH VENTILATION

Jimmy Lim

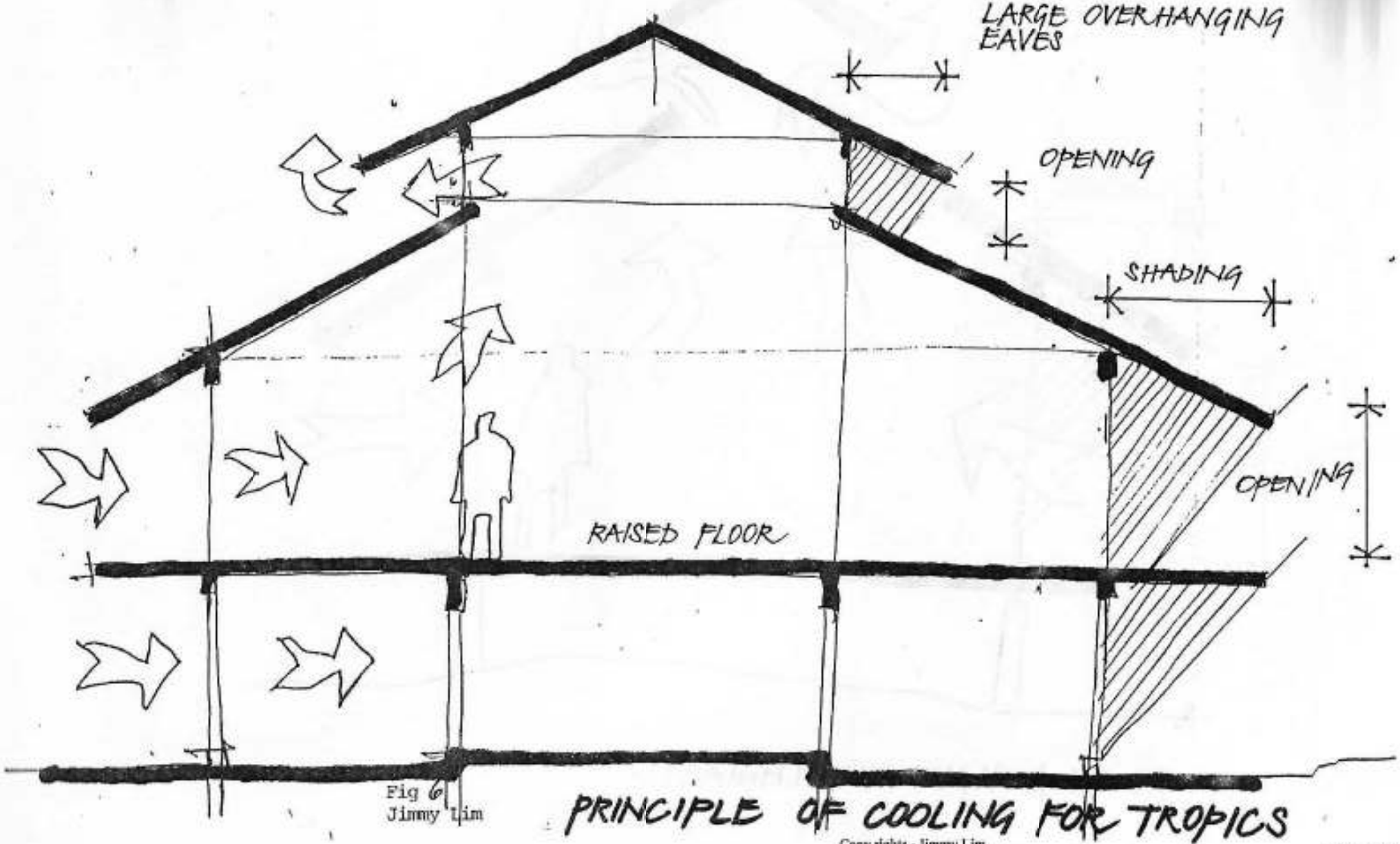

Fig 6
Jimmy Lim

PRINCIPLE OF COOLING FOR TROPICS

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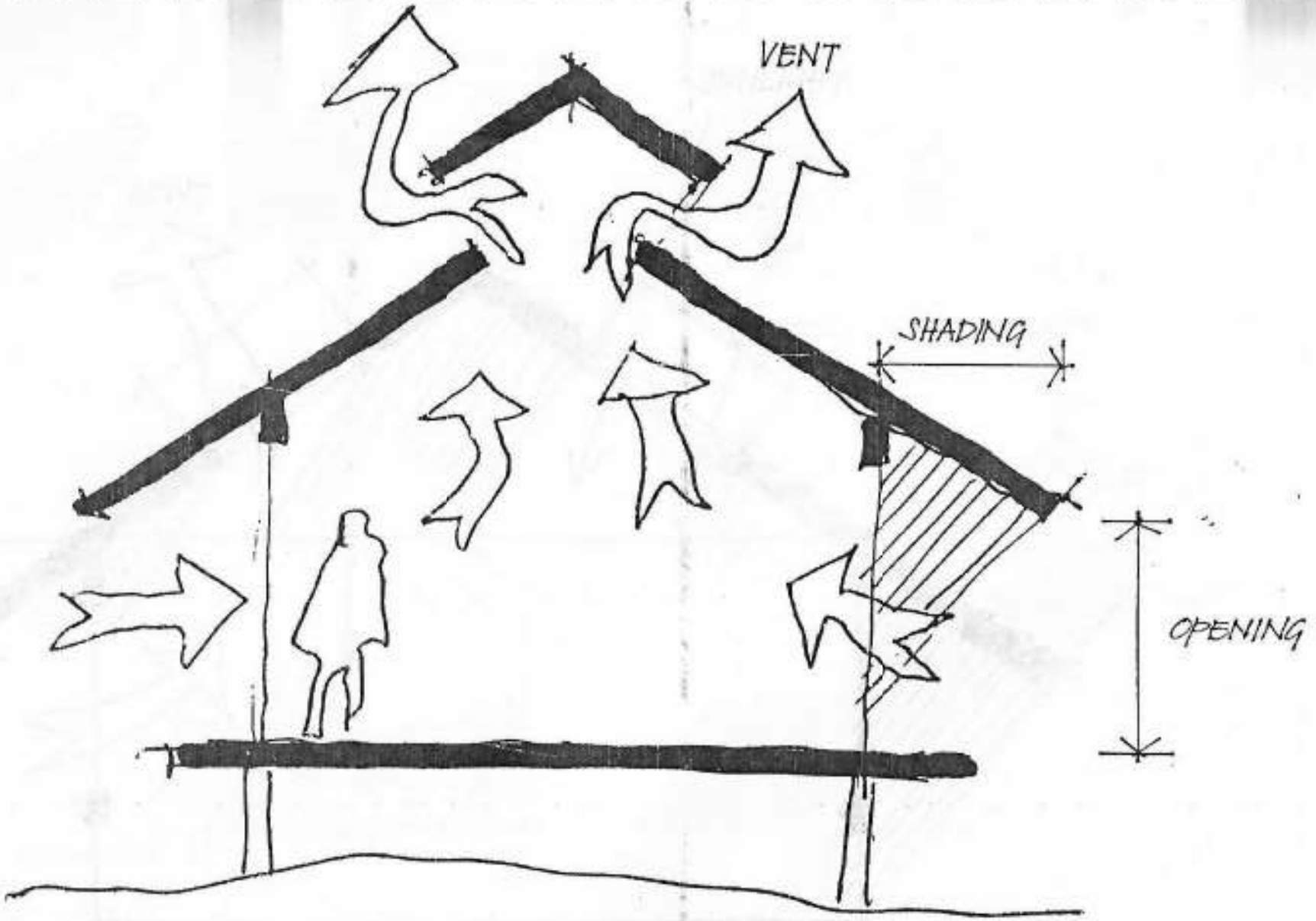

Fig 7 STRAIGHT-THROUGH & UP-TOP VENTILATION

Jimmy Lim

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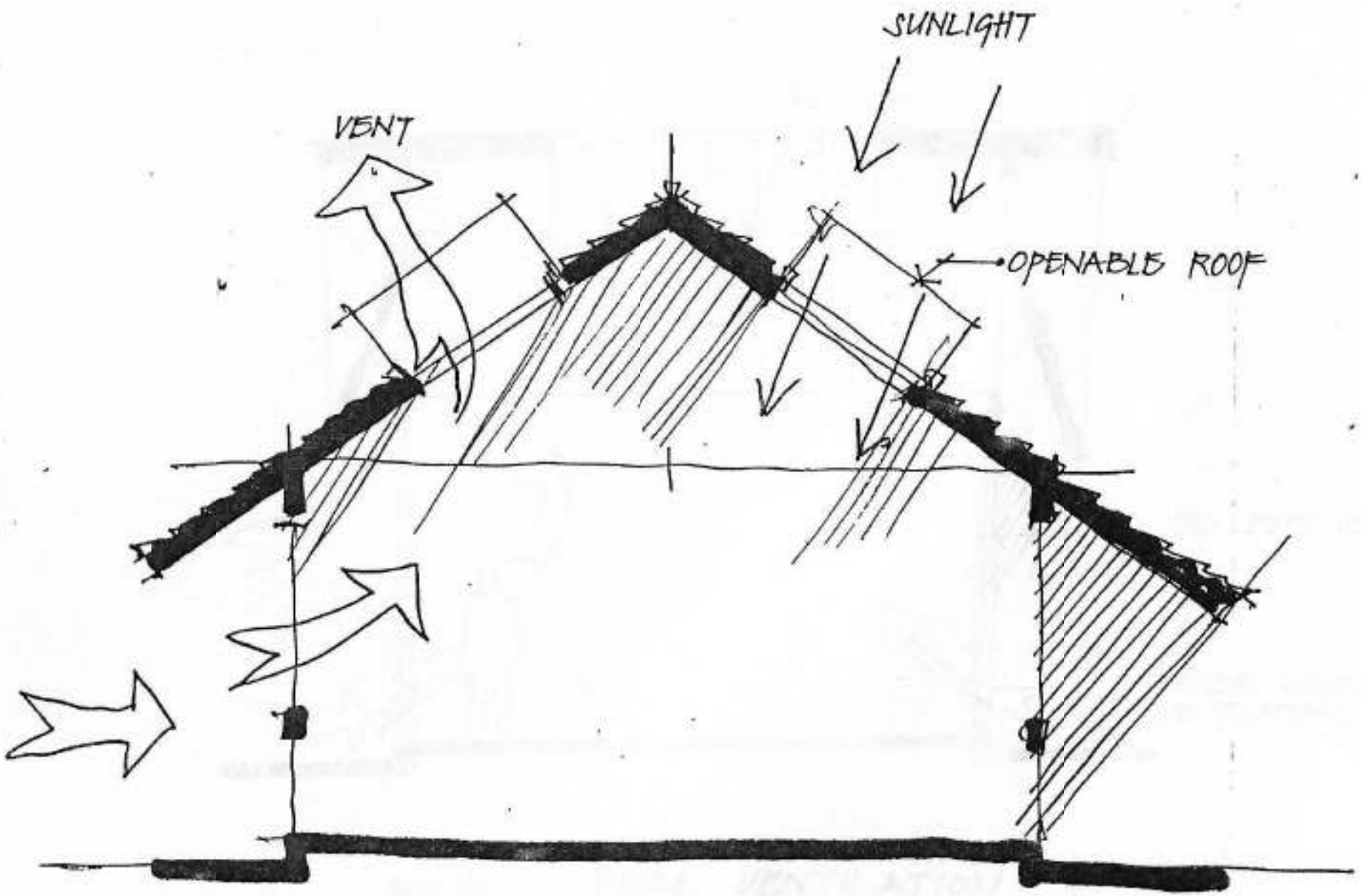

Fig 6 Jimmy Lim STRAIGHT THROUGH & ROOF VENTILATION

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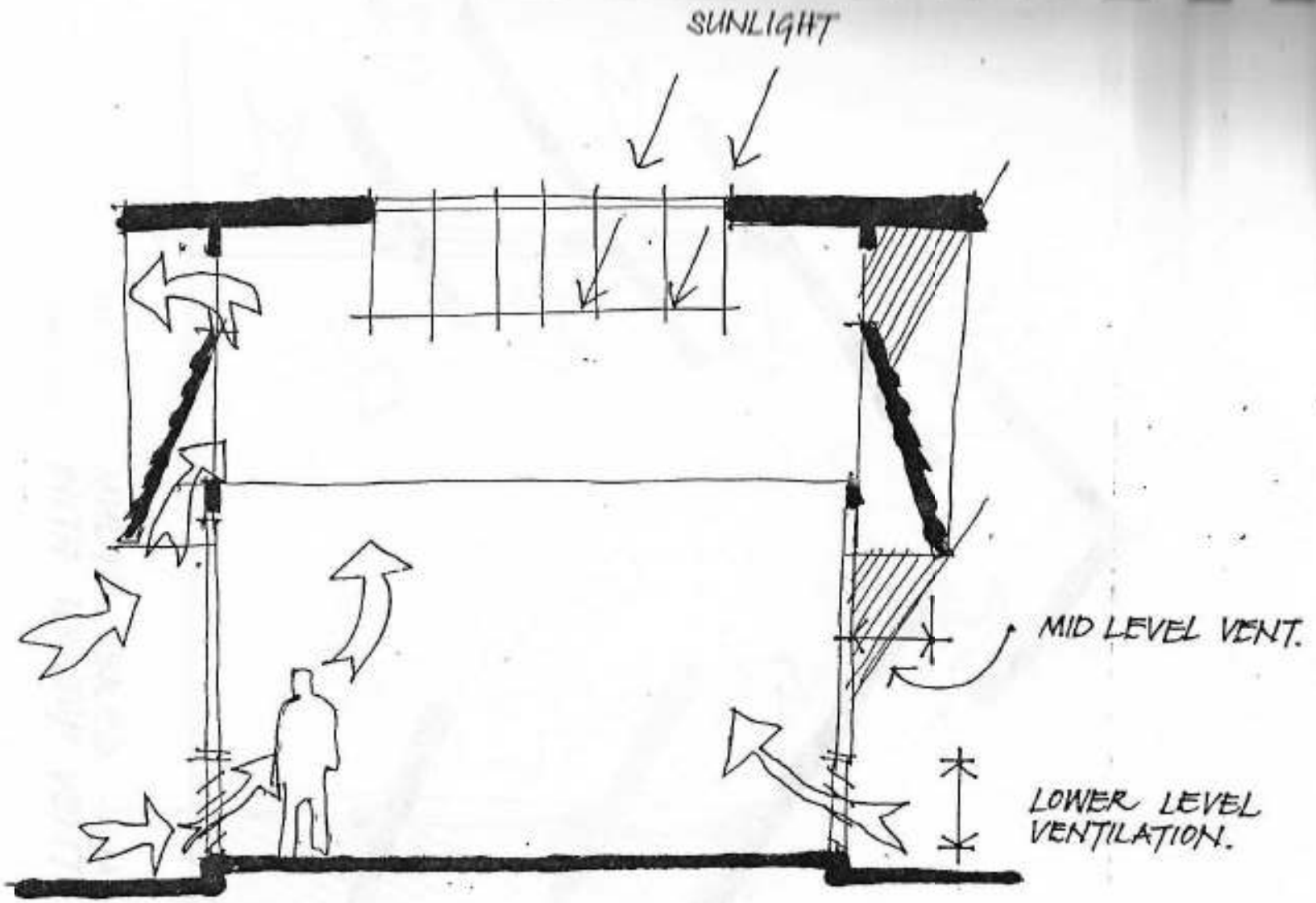

Fig 9

Jimmy Lim

VARIATIONS TO SIDE WALL VENTILATION

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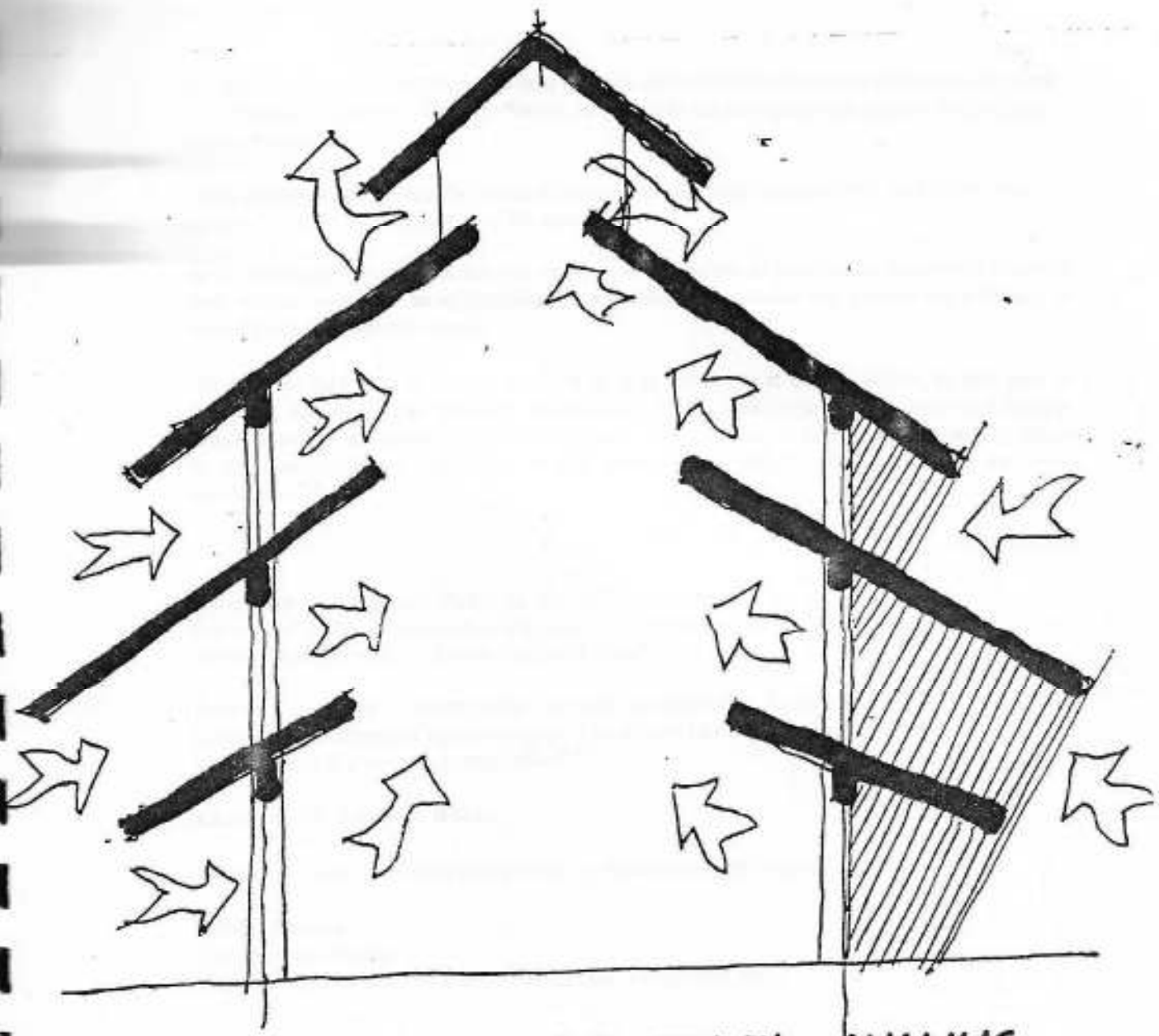

Fig 10 MULTI-TIERED SHADING WITH UP-TOP VENTILATION

Jimmy Lim

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William Lim is a contemporary architect who has taken the various cultural influences and these are reflected in his work. In the following he describes the aforesaid with regards to the Boon House, Singapore.

"This contemporary vernacular house exhibits a subconscious response to the rich ethnic and cultural diversity of Singapore and the region".[37]

In the statement below, Paul Ricoeur suggests the necessity of societies to sometimes abandon their cultural past in order to participate in a 'modern' civilisation, but stresses the difficulty in reviving old dormant civilisation.

"In order to take part in modern civilisation it is necessary at the same time to take part in scientific, technical and political rationality, which often requires the pure and simple abandonment of whole cultural past. There is the paradox; how to became modern and to return to your sources; how to revive an old dormant civilisation and take part in universal civilisation."[38]

Paul Ricoeur

"From now on, the places visited by the traveller become ever more similar to the commodities that are part of the same circulatory system. For twentieth century tourism; the world has become one big department store of landscapes and cities".[39]

Jameson describes "contemporary cultural production's fixation with appearances and postmodern architecture's preoccupation with surfaces as 'contrived depthlessness'. History and cultural terms are hence commercialised".[40]

4.1 Examples Of Current Works

Here we provide some examples of work by Architects of this region.

Bobby Manosa
The Floirendo House.
Kaputian. Samal Islands. Davao. Philippines. Completed 1993

[37] William Lim in conversation with Robert Powell. Robert Powell. The Tropical Asian House, page 120
[38] Paul Ricoeur - Universal Civilisation. National Civilisation 1961
[39] Wolfgang Schivelbeck. Tan Hock Beng. Tropical Resorts. page 20
[40] Tan Hock Beng. Tropical Resorts, page 21

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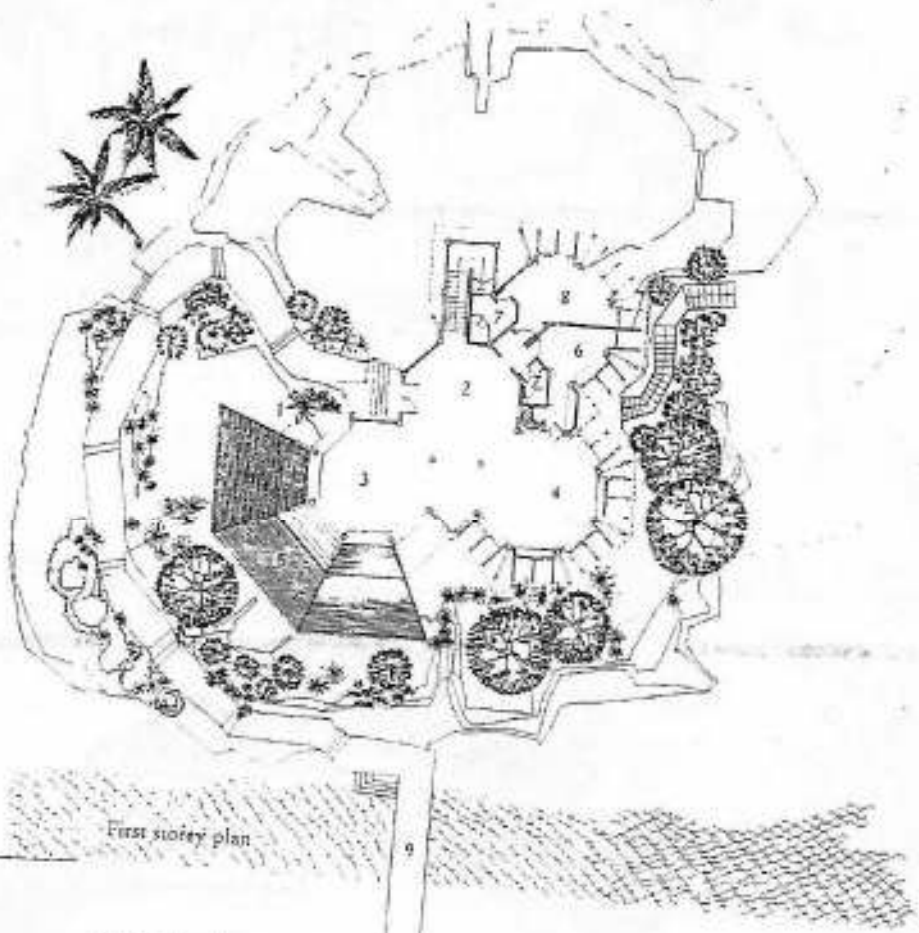

The Floirendo House
Kaputian, Samal Islands, Davao,
Philippines
Architect: Bobby Manosa

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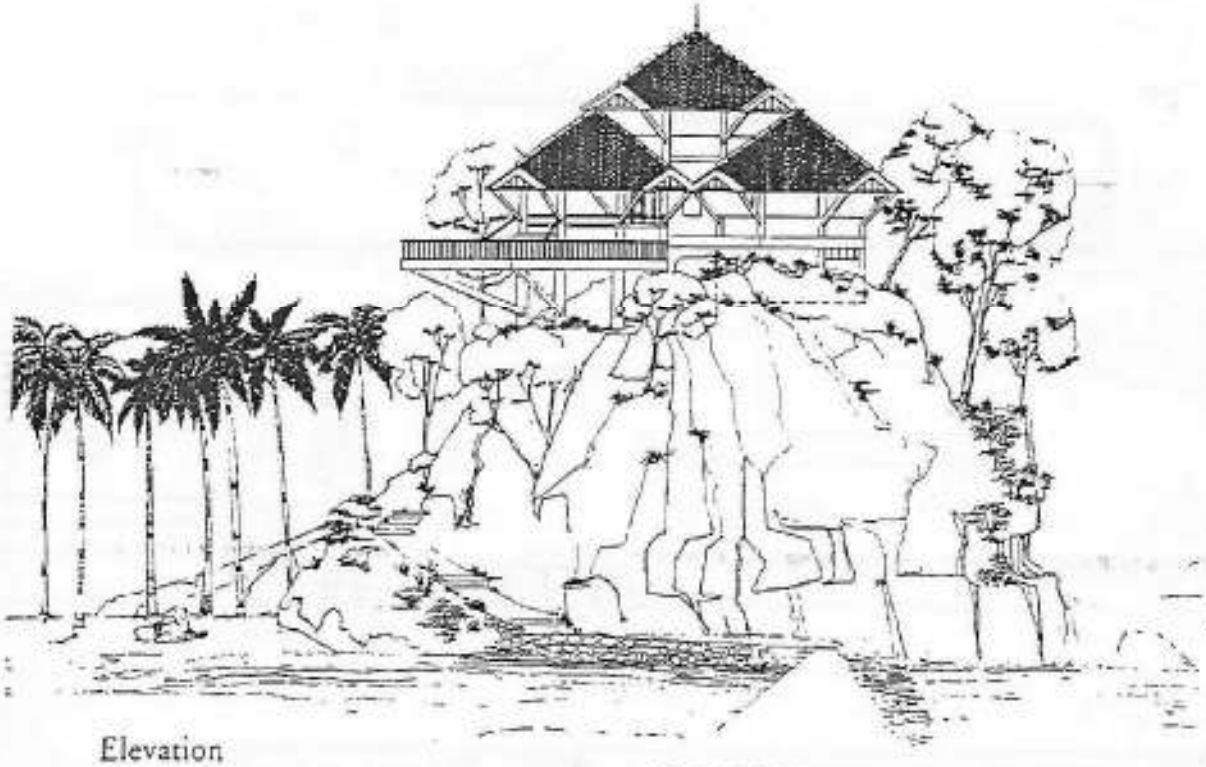
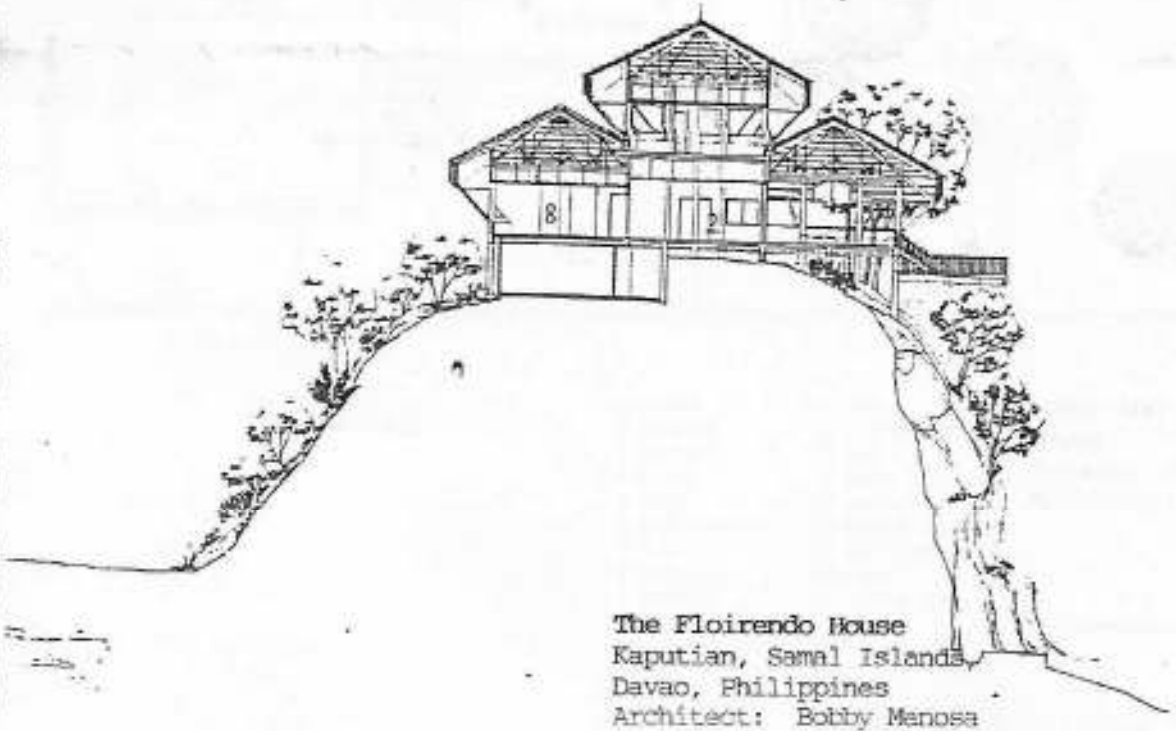


Elevation



The Floirendo House
Kaputian, Samal Islands
Davao, Philippines
Architect: Bobby Manosa

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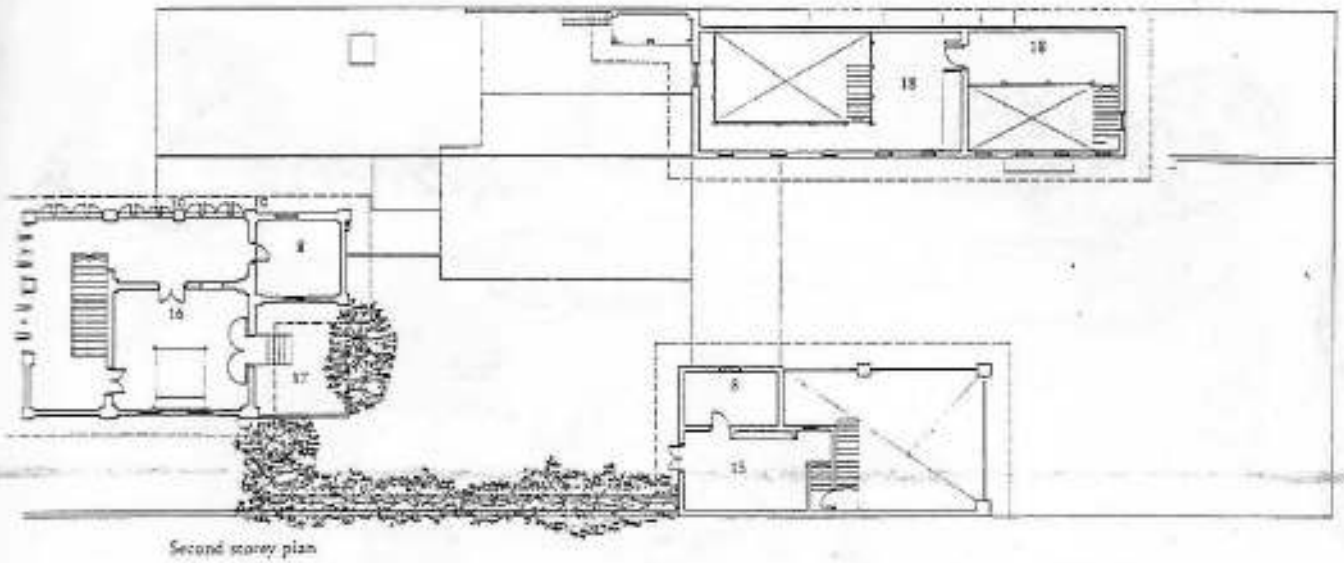
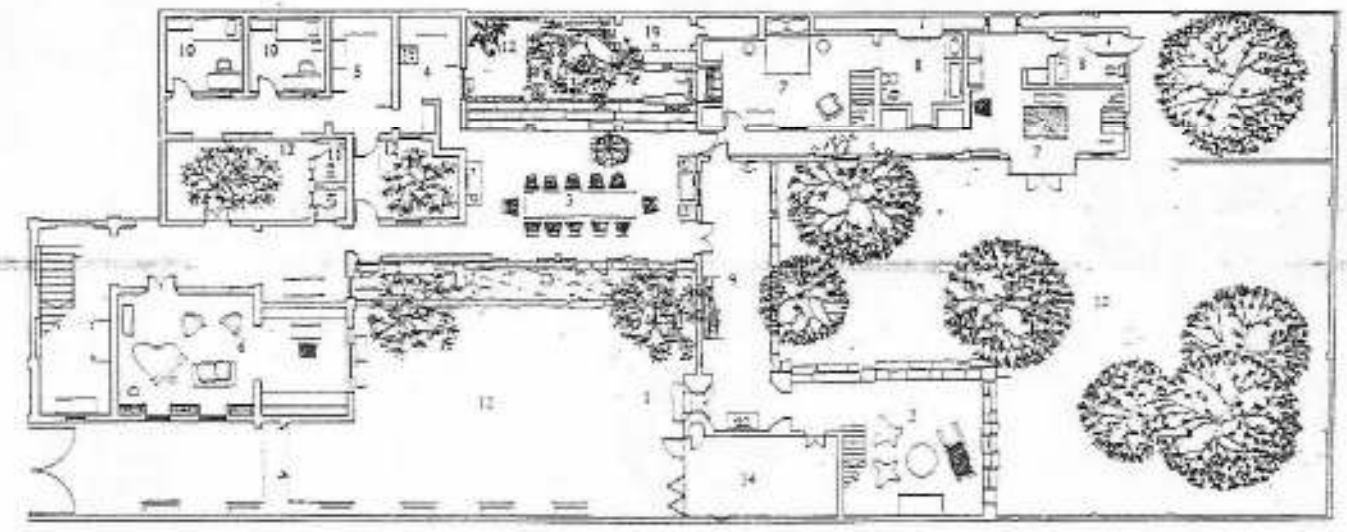


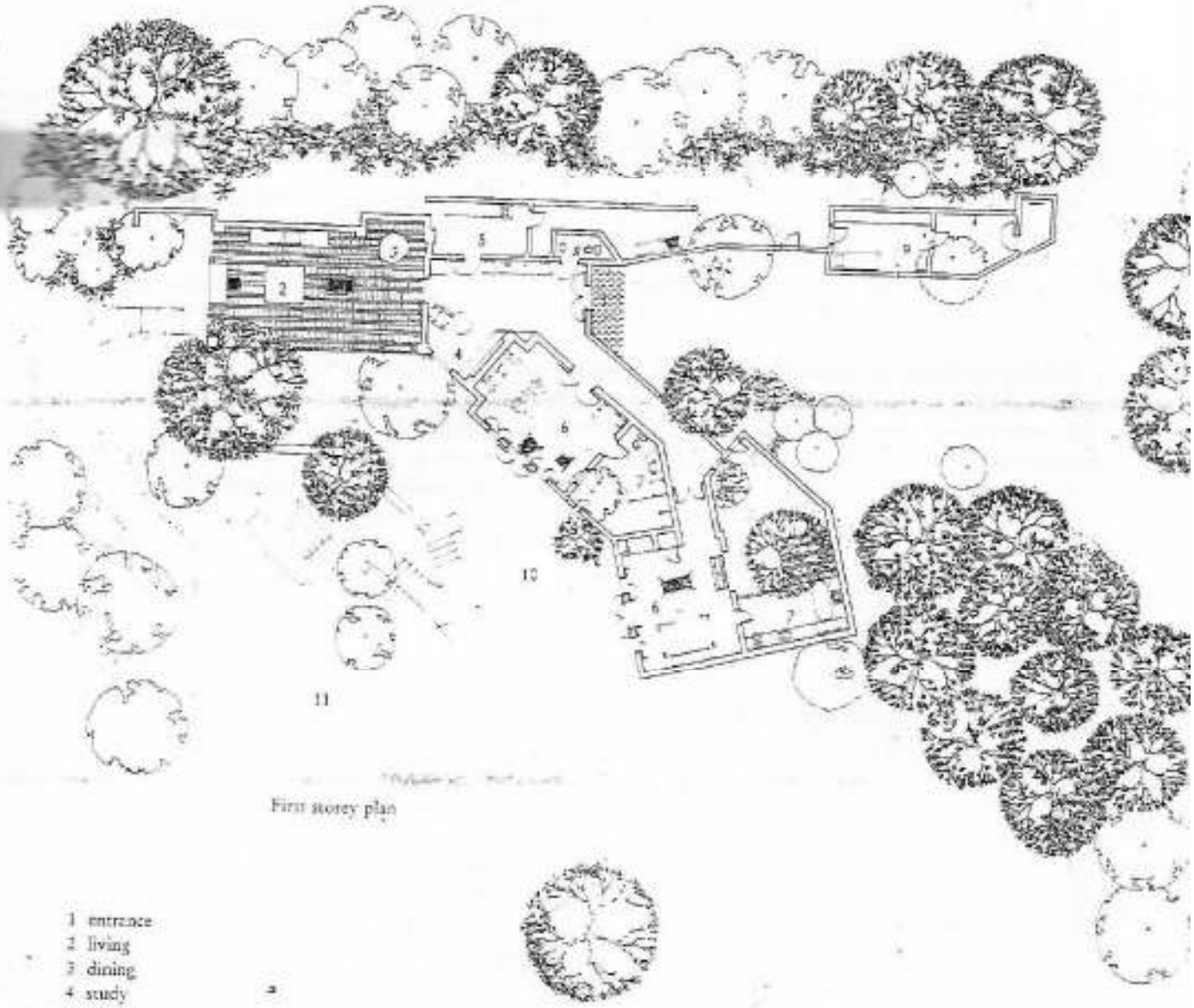
Second storey plan



First storey plan

1 entrance
2 living area
3 dining area
4 kitchen
5 utility
6 study/music room
7 bedroom
8 bathroom
9 verandah
10 servant's room
11 toilet
12 courtyard
13 pool
14 garage
15 guest bedroom
16 master bedroom
17 roof terrace
18 study
19 'minstrel' gallery

Druvi And Sharmin De Sara House
Colombo, Sri Lanka
Architect: Geoffrey Bawa



First storey plan

1 entrance
2 living
3 dining
4 study
5 kitchen
6 bedroom
7 bathroom
8 toilet
9 servant's quarters
10 terrace
11 lower terrace

Cinaman Hill House
Lunugango, Bentota, Sri Lanka
Architect: Geoffrey Bawa

Geoffrey Bawa
The Cinnamon Hill House.
Lunuganga. Beentota. Sri Lanka. Completed 1993

Druvi and Sharmin de Saram House
Colombo. Sri Lanka. Completed 1987

Charles Correa
Correa House.
Koramangala. Bangalore. India. Completed 1988

William Lim
Villa Chancery Condominium
39 Chancery Lane,
Singapore 1130
Completed 1986

"In the quest for modern urban forms, evidence of centuries of history is vanishing in South - East Asia. The buildings that evoke memories of a distinctive tropical way of life. The urban architectural tradition of Malaysia has borrowed from many cultures to create a rich vernacular. This architectural blending and re-moulding of building elements can be seen in the shophouses and terrace houses in Malaysia and Singapore."[41]

[41] Page 22. Traditional Chinese Shophouses of Peninsular Malaysia
UIA. International Architects, Vernacular, Pastiche, Modern?
The Search for a Malaysian Architecture.

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5. ELEMENTS OF TROPICAL ARCHITECTURE

The realization of the Architectural project brings with it both frustration and pleasure. From the first idea to the final product many compromises have to take place. The dream that might live ourselves does not belong only to us. t belongs to us, to our clients, to those who for different reasons, are involved in the process of developing and building the project.

The project presented here represent a change in scale. A development of an idea from the private house to the resort. Our projects take shape within the context of who and what we are and the environment and place in which we live. In all cases the common element is the notion of tropical Architecture.

The building becomes an open object which lives within its natural surroundings absorbing it and being absorbed by it, drawing its inspiration from the landscape and the context within which is exists.

The Salinger house is an object whose irregular, undefined, edges project in to the landscape, absorbing the trees that surround it. Sited on an spacious plot of land it gives the impression of a bird perching between the trees.

In a different way the Lim house also absorbs the nature that surrounds it, making it form part of its Architecture. The site is much smaller here since it is placed in the city, but even so the feel of being part of a natural surrounding, of not being in the city becomes the ruling principle. The house is a constant experiment, suffering transformations and additions as and when the family needs change. In this respect this a "living project", never completed, always under constant evolution.

The Impiana hotel resort at Cherating, Kuantan, on the East Coast of Malaysia; remains a building in the landscape. It is composed of several blocks, as opposed to one single object building. The fragmentation helps to provide air ventilation with a minimum of air conditioning systems, expect for the bedrooms.

From the early days our concern has been to develop a contemporary approach to the traditional values of a tropical culture, trying to marry modern life demands with climatic conditions and cultural traditions of a specific nature. Our design is based on a careful analysis of the site conditions, making both advantages as well as apparent disadvantages work for the improvement of the scheme. Without waste all the site elements are slowly infiltrated by the client's personal requirements, needs and preference, it is both an intuitive as well as a rational approach.[42]

[42] Jimmy Lim. Asia Forum 4. CSL Associates, August 1993

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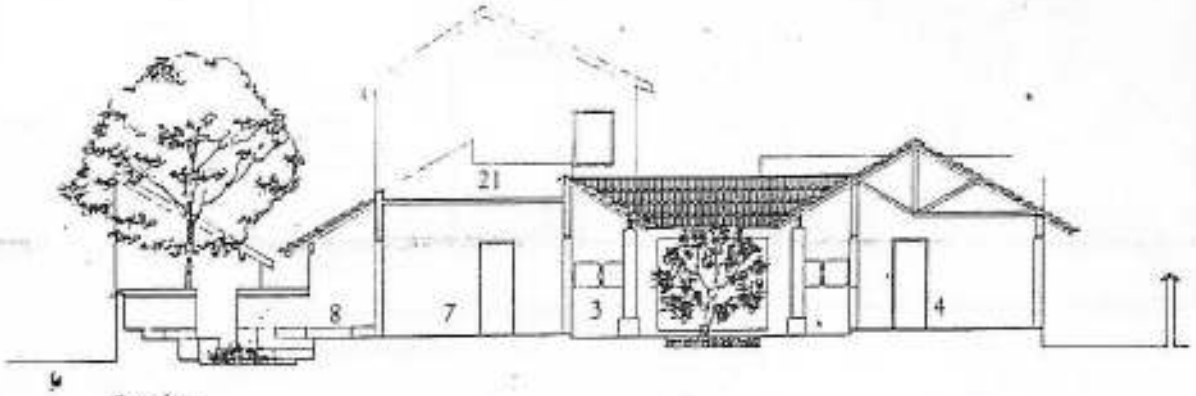

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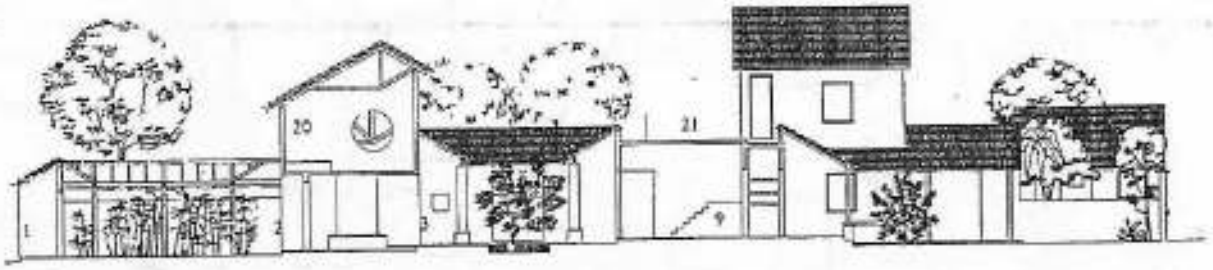
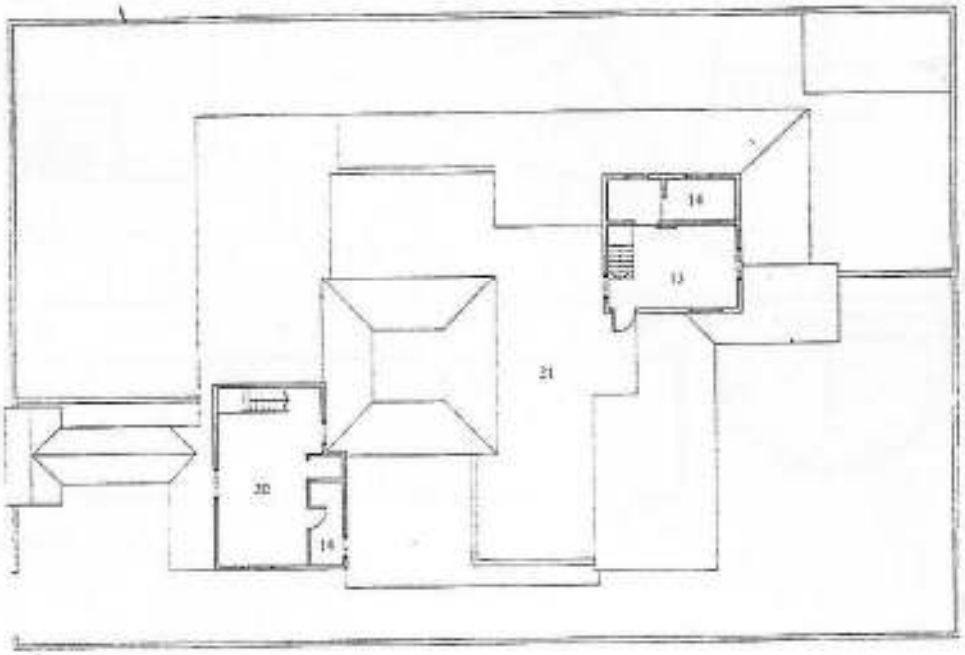


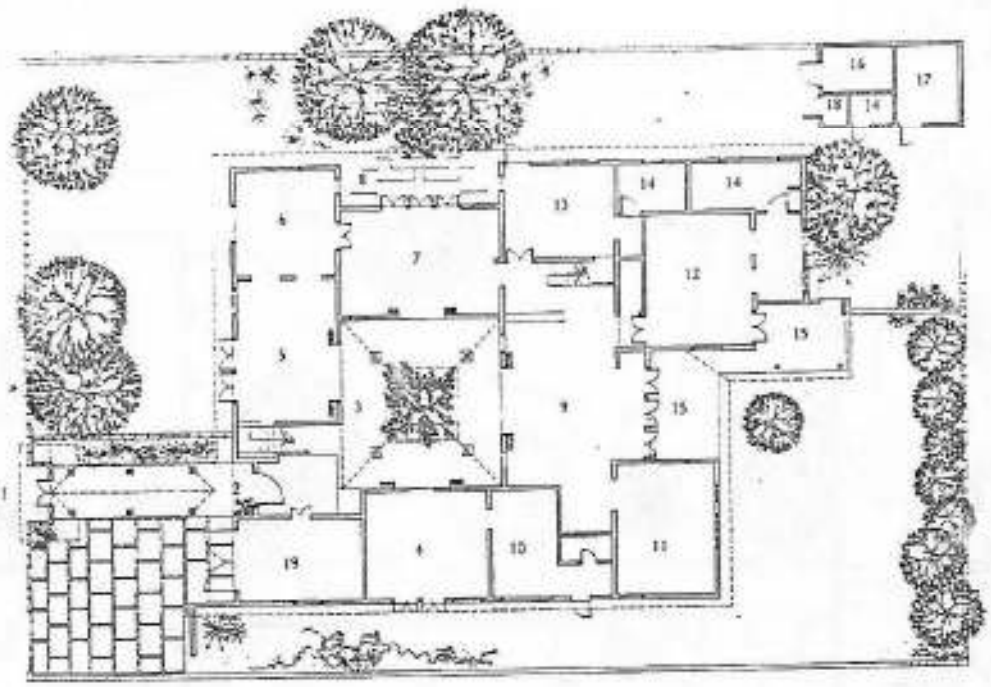
Section

Correa House
Koamangala, Bangalore, India
Architect: Charles Correa



Second storey plan

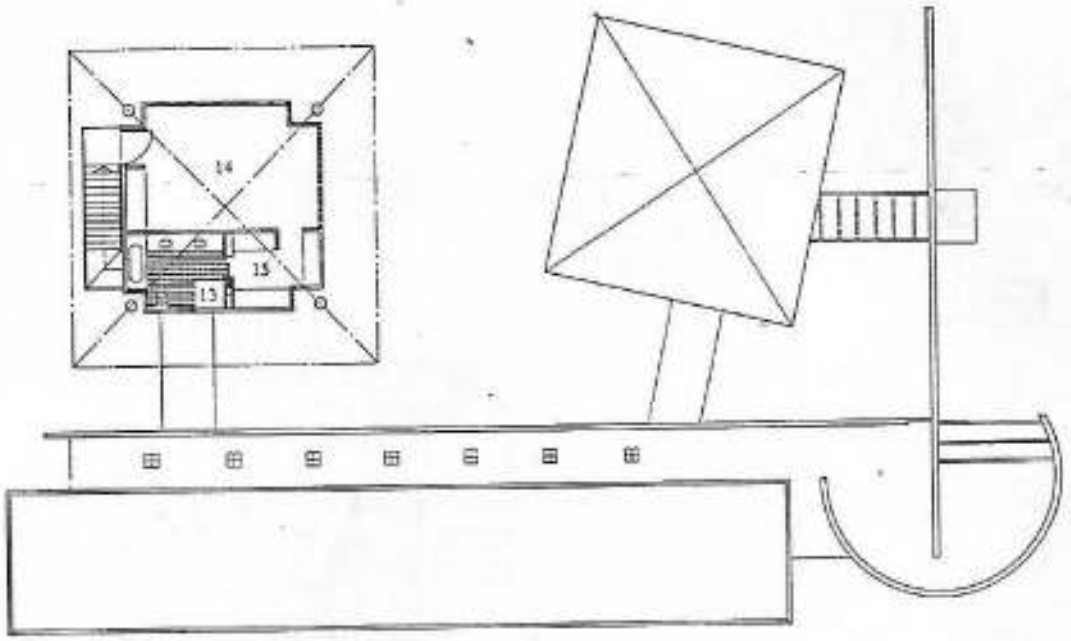
1 darwaza
2 entrance
3 courtyard
4 dining/conference
5 office
6 library
7 studio
8 - kund
9 living
10 kitchen/pantry
11 weaving
12 master bedroom
13 bedroom
14 toilet/bathroom
15 verandah
16 carpenter
17 servant
18 store
19 garage/print machine
20 studio/bedroom
21 roof terrace



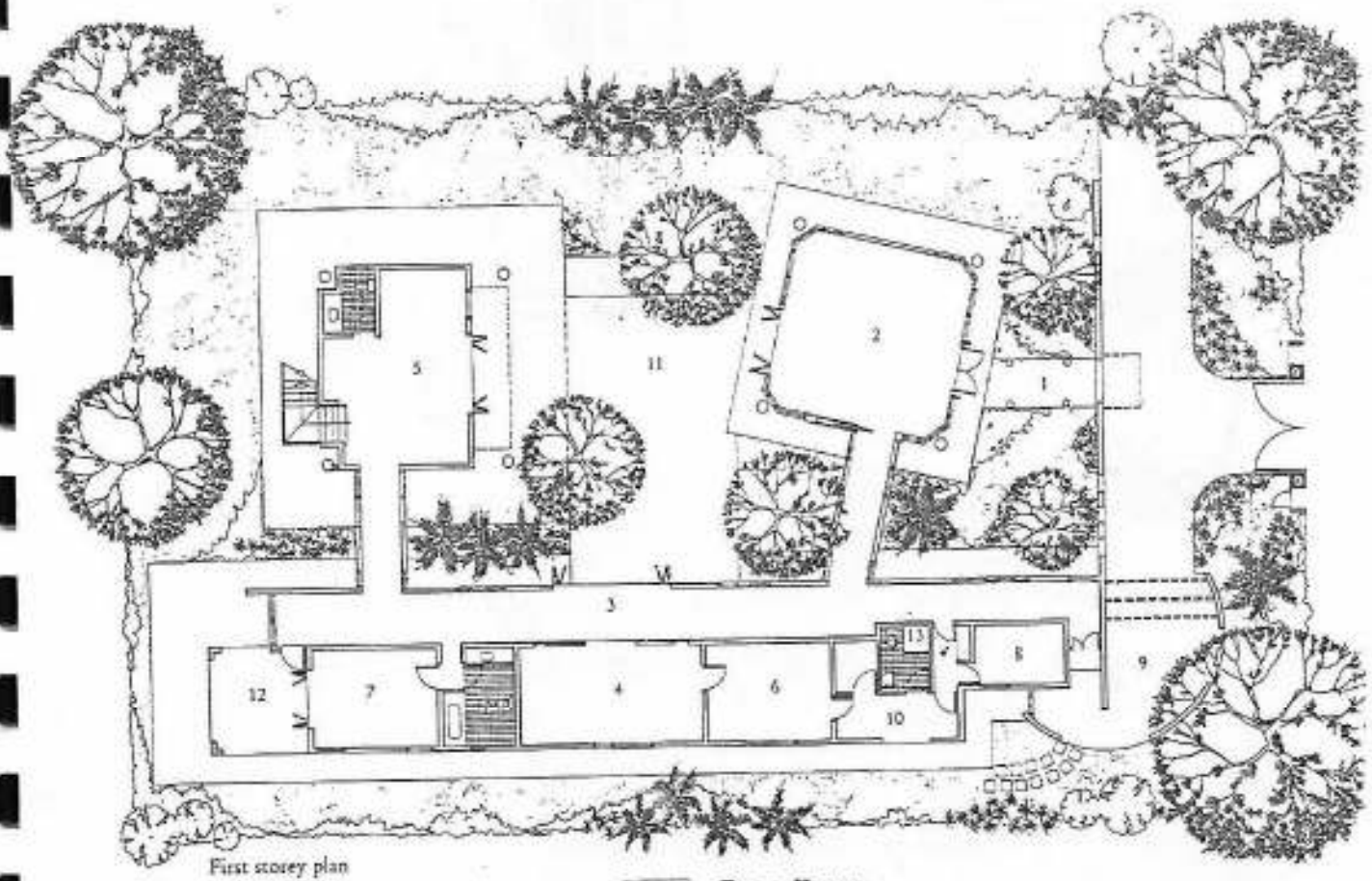
First storey plan

0 5 10m

Correa House
Koamangala, Bangalore, India
Architect: Charles Correa



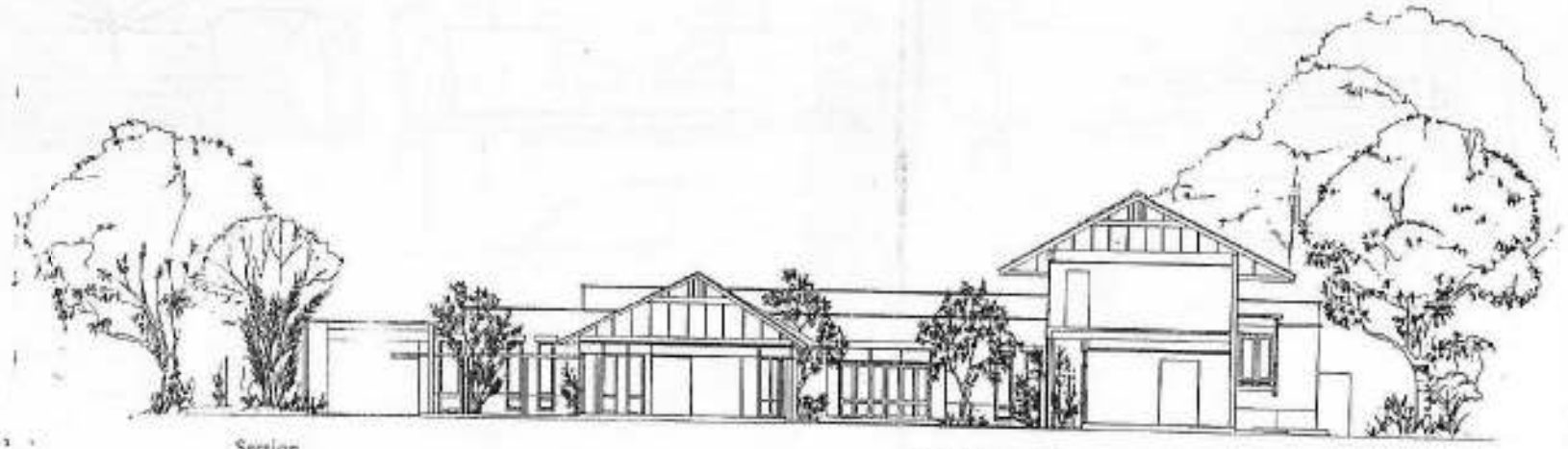
Second storey plan



First storey plan

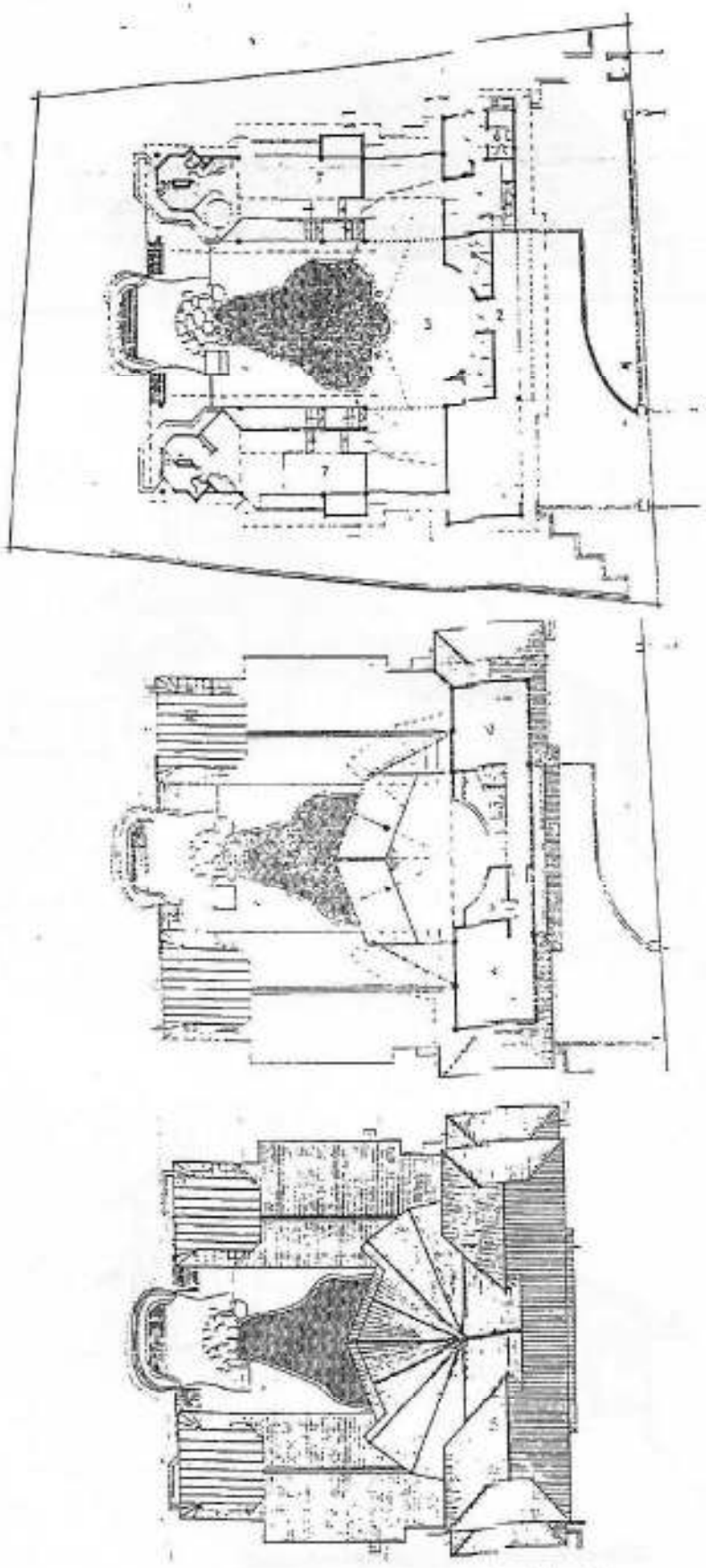
Boon House
Singapore.
Architect: William Lim

Elevation



Section

Boon House
Singapore
Architect: William Lim



Ground floor plan (top); first floor plan (middle); roof plan (bottom).

Fig 6.
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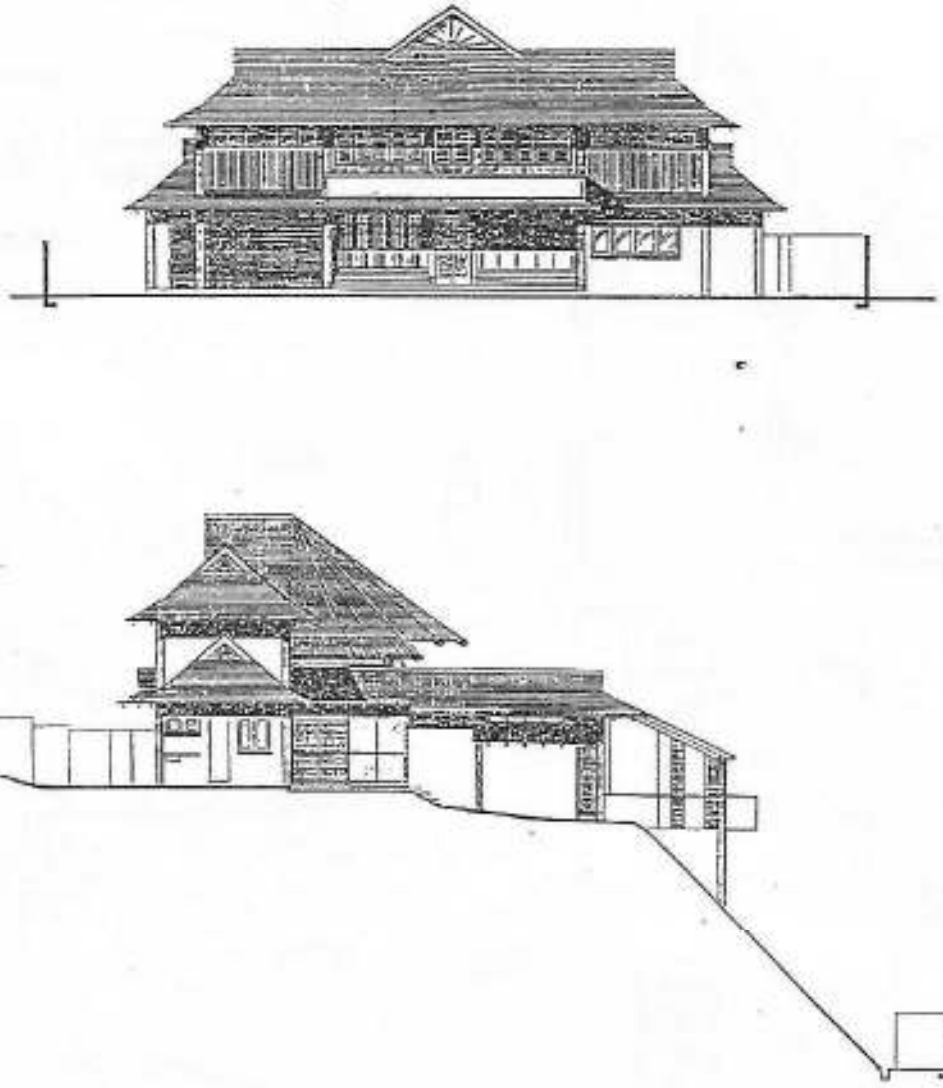

Fig f.

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Front elevation (top); side elevation (middle); section through living space and pool (bottom).

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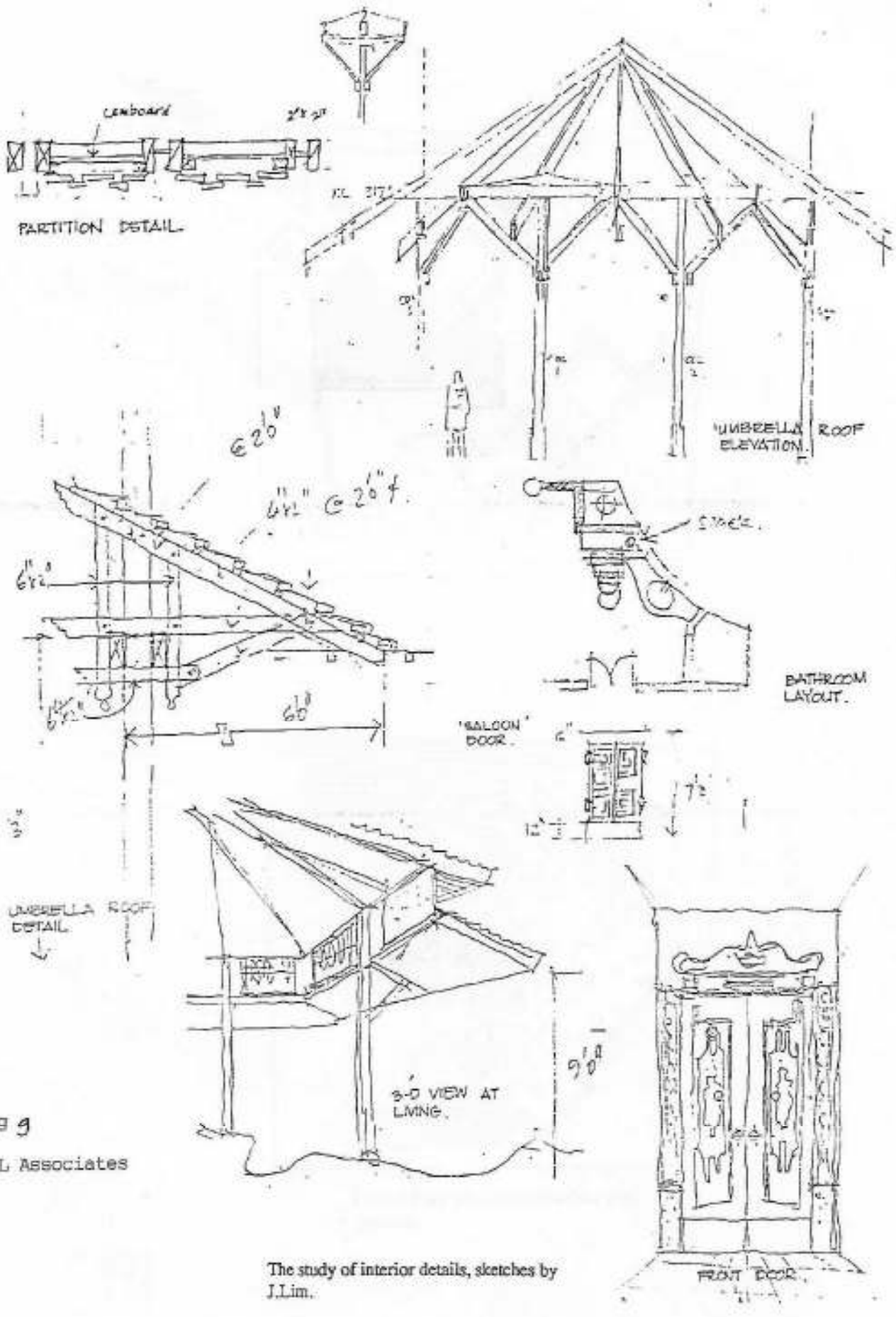

Fig 9

CSL Associates

The study of interior details, sketches by J.Lim.

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LEGEND
1. CAR PORCH
2. MAID ROOM
3. GUARDS ROOM
4. STORE
5. CHILDREN PLAYING ROOM
6. BATH
7. VERANDAH
8. SERVANT'S ROOM

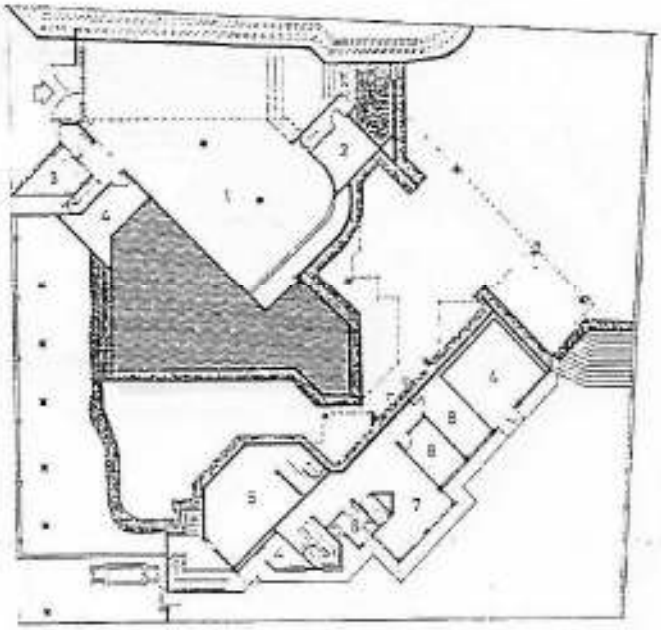
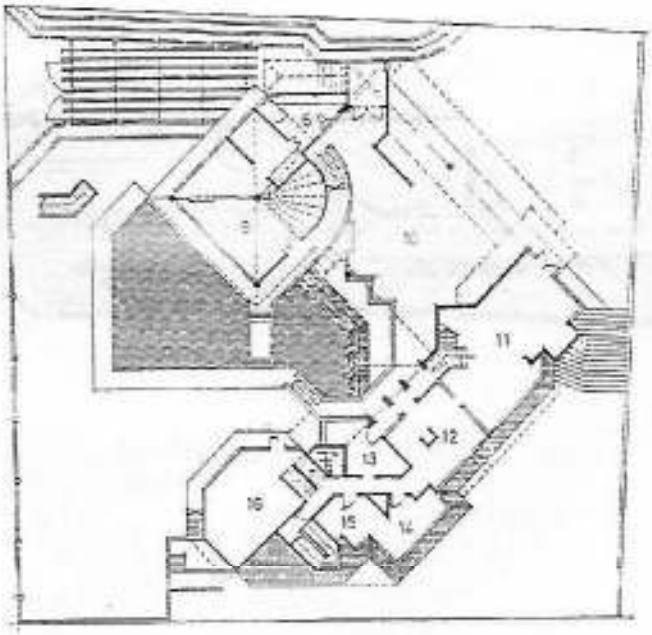


Fig h.

9. GUEST ROOM
10. COVERED HALL
11. DINING
12. KITCHEN
13. STUDY
14. PANTRY
15. LAUNDRY
16. FAMILY LOUNGE



Ground floor plan (top); first floor plan (bottom).

Fig j

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12 SWIMMING POOL
13 VOID
14 BEDROOM

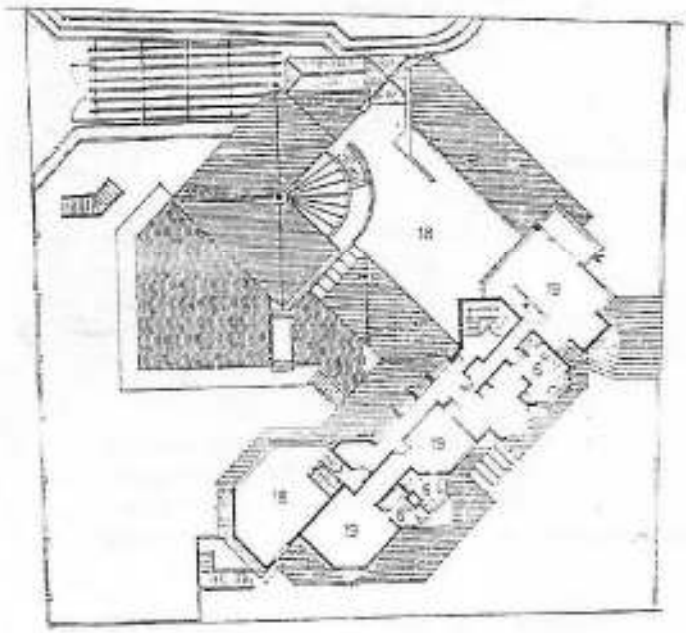
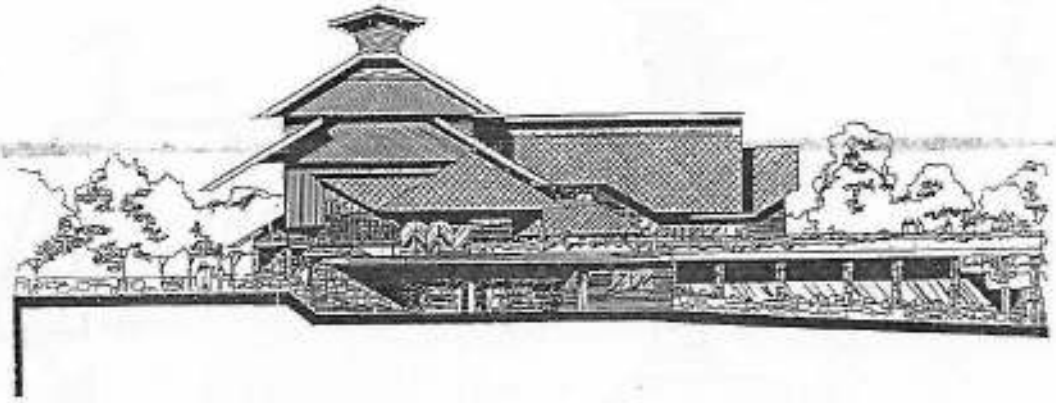


Fig k



Second floor plan (top); front elevation (bottom).

Fig m

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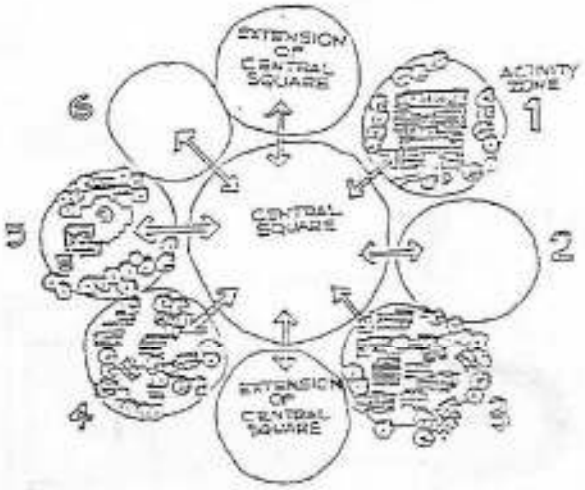

Fig n. A typical layout of a Malay village with the central square for community gatherings, having other activities & houses scattered around it.

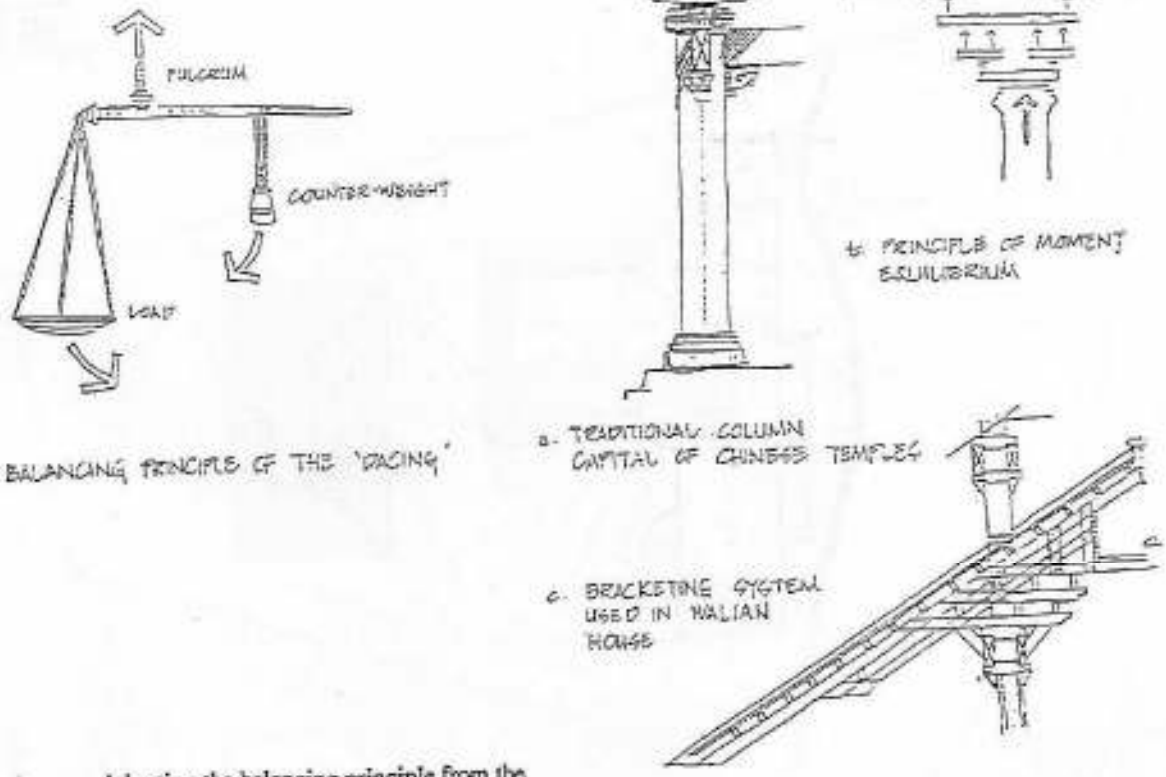

Fig p. Adopting the balancing principle from the traditional weighing device and the Chinese traditional column capital to achieve an innovative bracketing system for the

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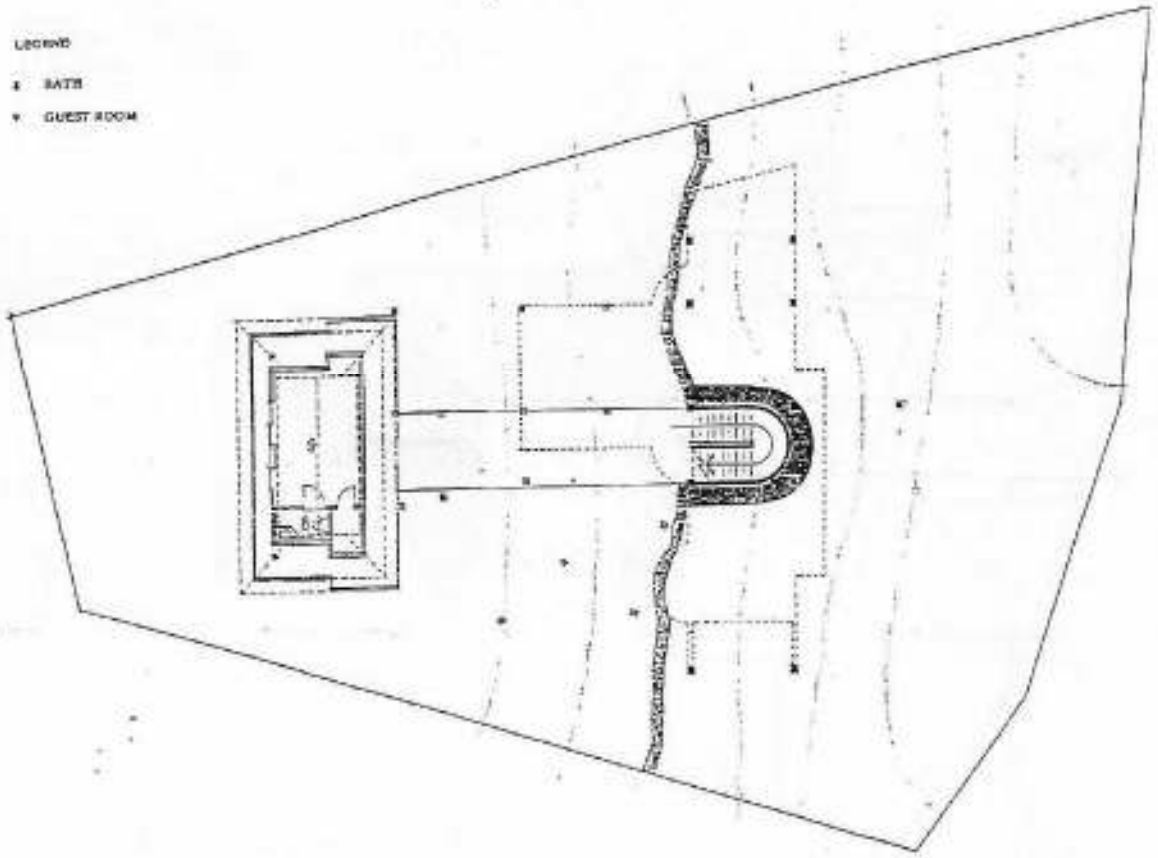
Peter Eu's House



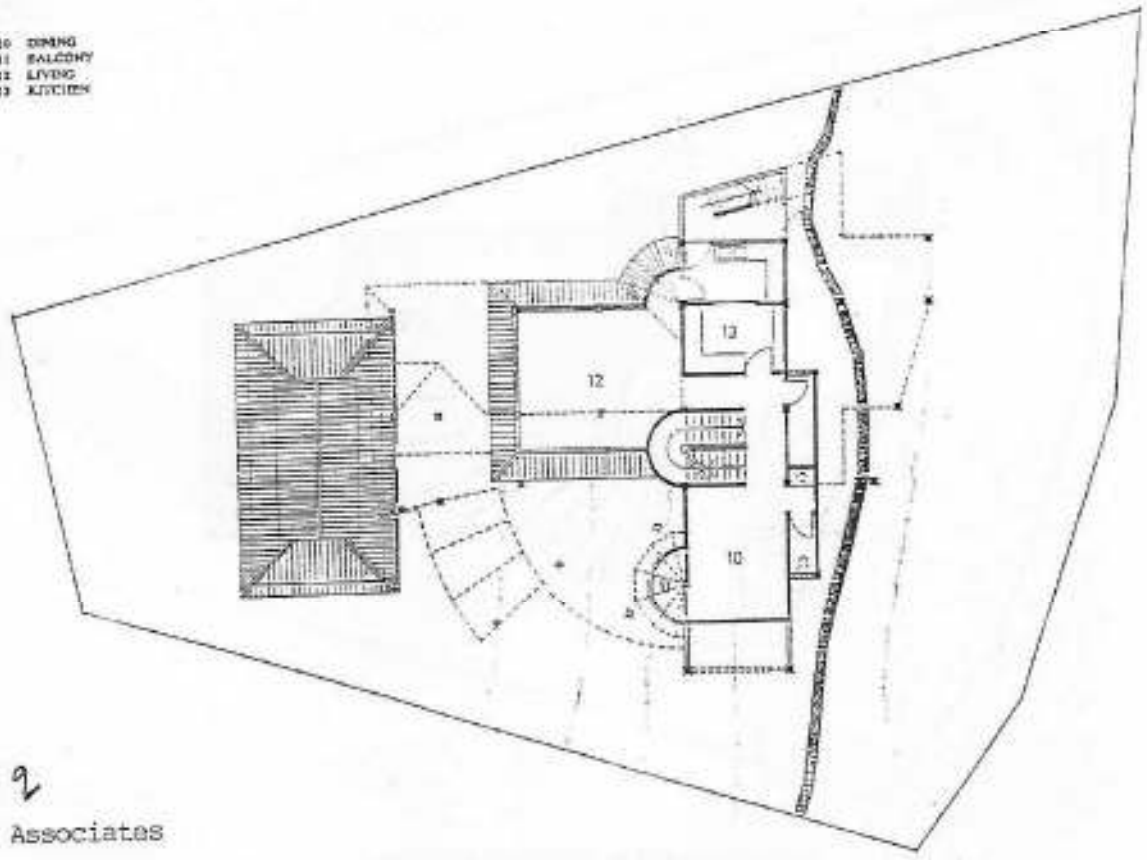


Fig 2

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Level one plan(top);level two plan(bottom).

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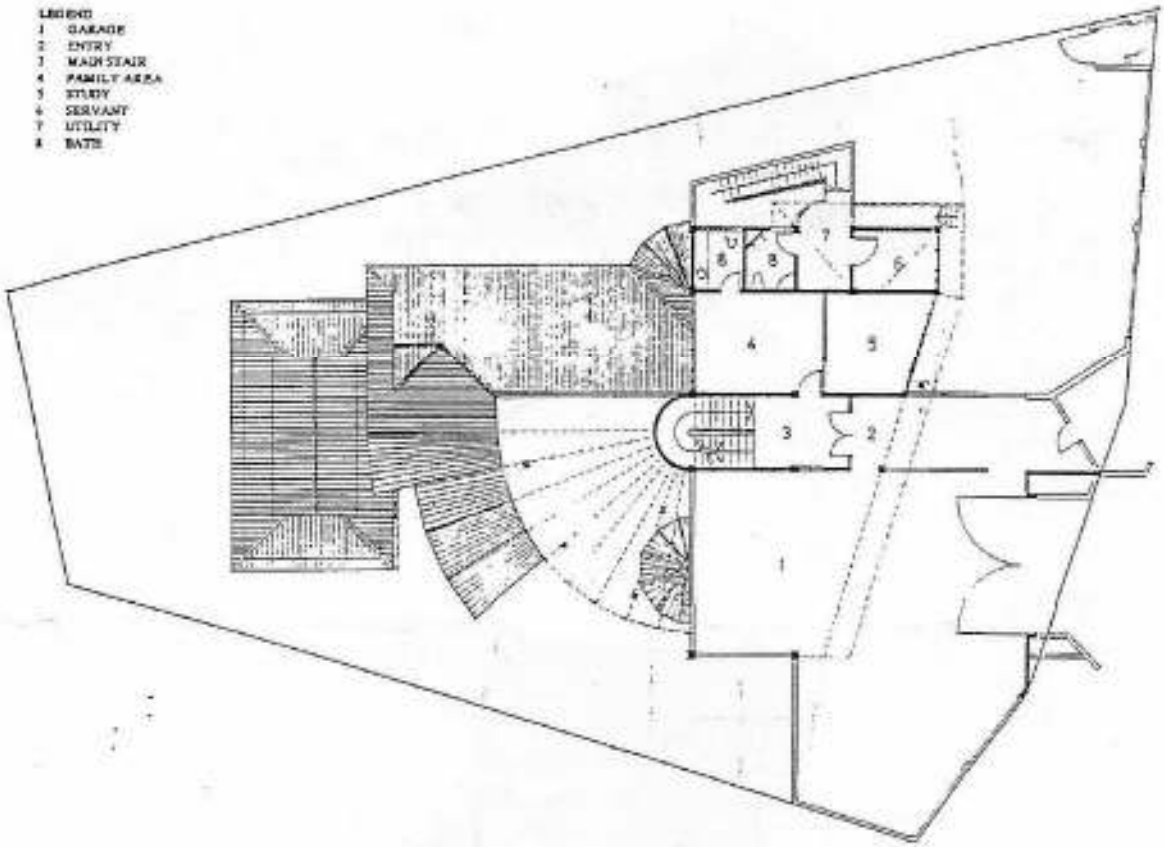

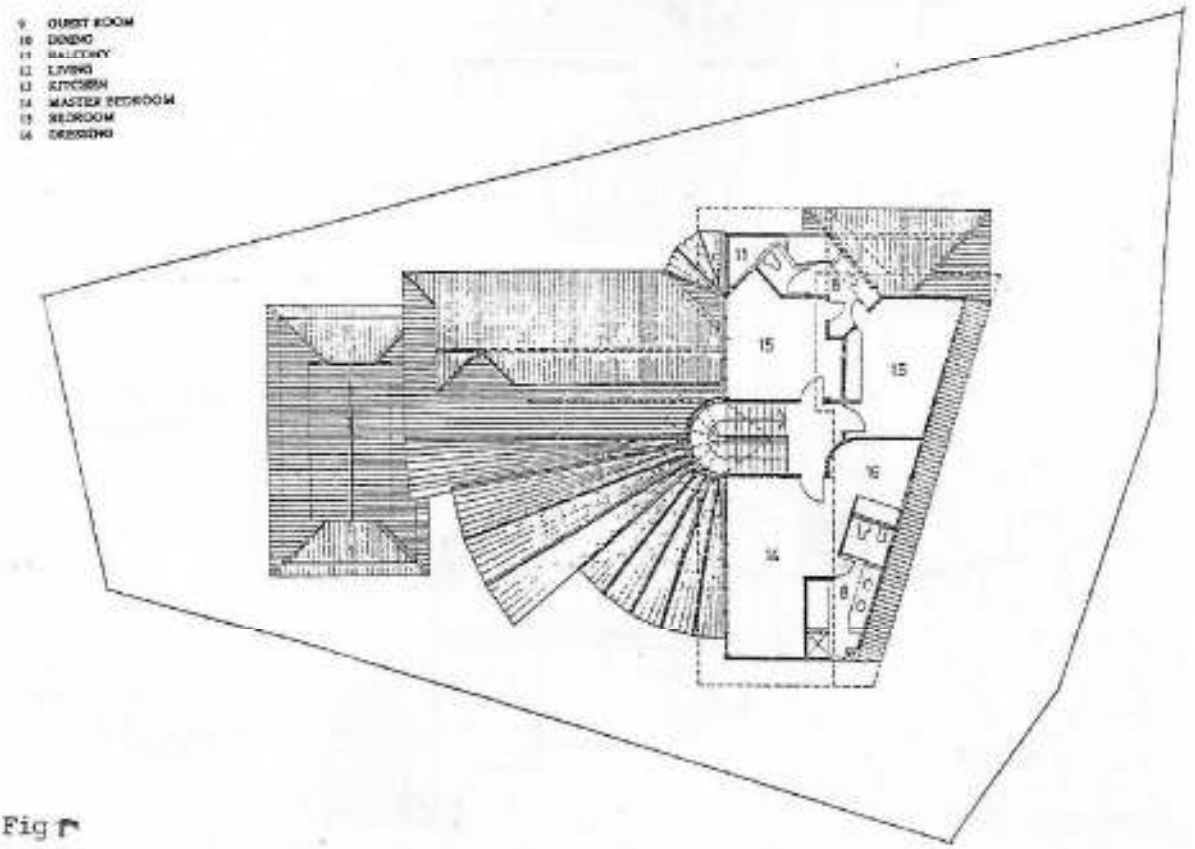

Fig

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Level three plan(top);level four plan(bottom).

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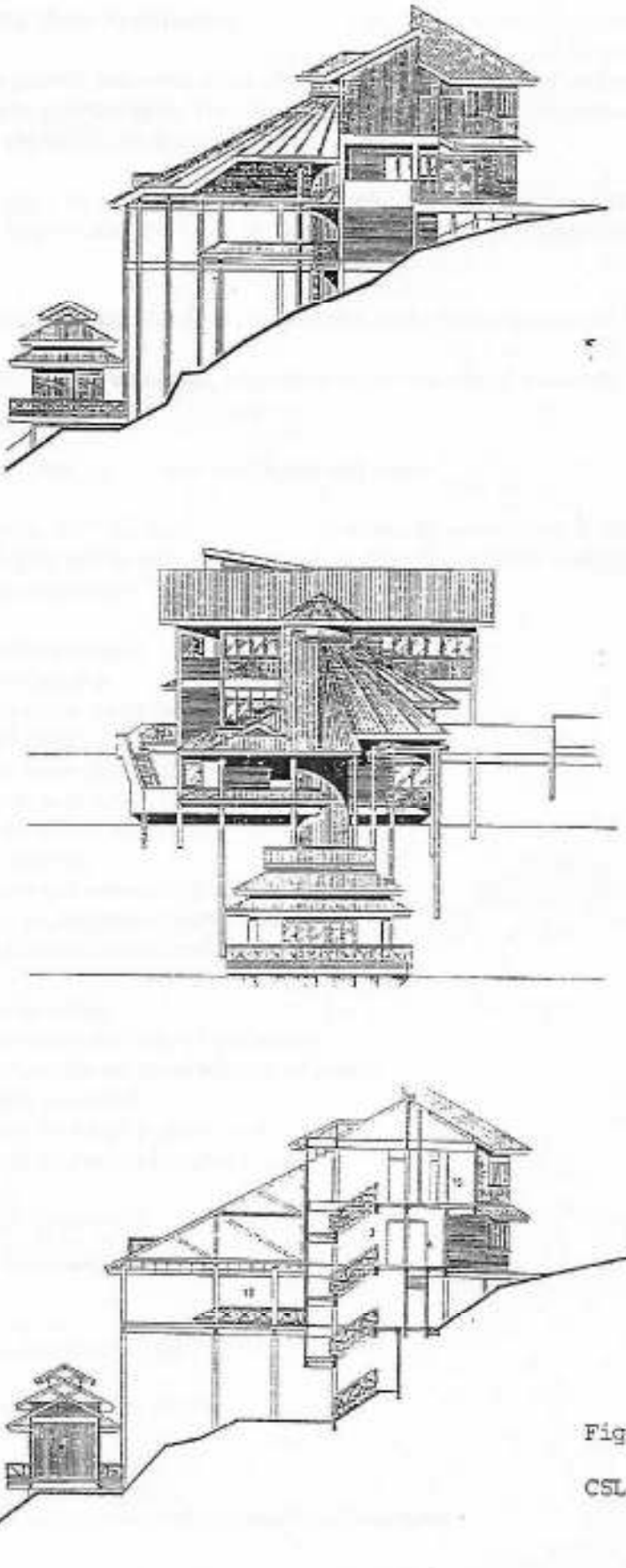

Fig 5.

CSL Associates

Side elevation (top); rear elevation (middle);
section (bottom)

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5.1 Jimmy Lim talking about Architecture

"Lim works on the premise that every piece of architecture is the result of an interaction between the Architect, the site and the Client. The Client impose the functional requirements, coloured by his personal lifestyles, tastes and needs".[43]

"The work shows how Lim's personal views, philosophy, heritage, are manifested in his designs for private homes. In particular, his belief in *'tai chi'* of Architecture affects the creative process from" :

(i) the visual/aesthetic aspect-light and shade, proportions, movements, texture and landscape;

(ii) the functional aspect - space utilisation, adaptation to the site, use of materials, consideration of end user needs and:

(iii) the spiritual aspect - harmony between man, house and nature.[44]

Architecture has to do with spiritualism . One's response to spiritualism is influence by one's background, upbringing and attitude to life. All these factors contribute towards influencing the type of Architecture one creates.[45]

Consider what a mosque,
a temple or church is.
It is a place where we try to elevate ourselves spiritually
to meet with GOD - The creator.
It is a place where He dwells,
a place we go to to solace and to
communicate with Him.
It is place we go to,
to seek solace and communication with Him.
It is a place we feel most at ease, and
where His presence, peace and comfort are
most felt
It is indeed our refuge
If I can use that as the basis of symbolism,
then a house is your personal mosque, or temple,
a place where your total.
spiritual-self, on a higher plane, and
physical-self, on a secondary plane, dwells.[46]

---

[43] Chris Abel. Architecture on Architecture, page 7
[44] Ibid. page 8
[45] Jimmy Lim . Architecture on Architecture. page 9
[46] Ibid. page 16

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Because we live in the tropics it is important to create space with the feeling of movement. How can air movement be achieved? By creating lofty spaces contrasted by low spaces. Lofty spaces, coupled with light filtration at the top allows hot air to rise upwards ad escape. This helps to create body comfort. It has functional implications and is an important aspect in designing. This is also part of movement in Architecture which is important.[47]

> In designing, I look for unity, harmony and proportion. These three elements are very important. There has to be oneness with nature and harmony of the physical and spiritual. The physical must be able to capture the sole so that the spiritual can be aroused and when there us harmony between the two, the being is at peace. This is *'fung shui'* - the unity and harmony of the spiritual and physical which plays such an important roles in the lives of the Chinese.

When you step into a house that sits right then you will feel right. You can almost feel this, there is no end to what you can achieve in life .....[48]

(A) GEOMETRY

Geometry: is a basic tool used in Architecture. They are the *'building blocks'* that the Architect uses in organising spaces within a building. You start off with the simplest shape - the square, and work up to the cube and within this geometric shape that the Architect plays around with the spaces to create the rooms that are needed. I look too, at the geometry of nature e.g. the angle of repose of a heap of earth is conical in form with a broad base finishing off at a peak - this being the most natural shape as provided by nature. It is the source if our reference. What you want to design is always dictated by geometry.[49]

(B) PROPORTIONS AND AESTHETICS

Building are meant for people, and hence must be designed according to the human proportion. The parts of the building must bear relationship to human sizes. There are buildings around that give no clues whatever to the size of human being. On the other to the height of the average person - these buildings relate to the human size. Looking at buildings of this sort makes you feel good and the Architect who can do this has achieved a good solution. There are certain elements in a building, that are governed absolutely by the human size and proportion which cannot be changed. Take the staircase for example. All stairs have a *15 cm* riser and *30 cm* tread at any one time. You cannot have stairs with *30 cm* riser, or *15 cm* tread. The reason is obvious. Consequently, when you have stairs expressed in a building, be it ornamental or otherwise, it immediately gives you a gauge of the human proportion.....The proportions that I use tie in with that of the average person.[50]

Proportions has everything to do with beauty. A building must be in proportion - the parts of it must be in proportion to one another and also to the land.

---

[47] Ibid. page 55
[48] Ibid. page 56.
[49] Ibid. page 51
[50] Ibid. page 53-54

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05.

ジミー・リム自邸

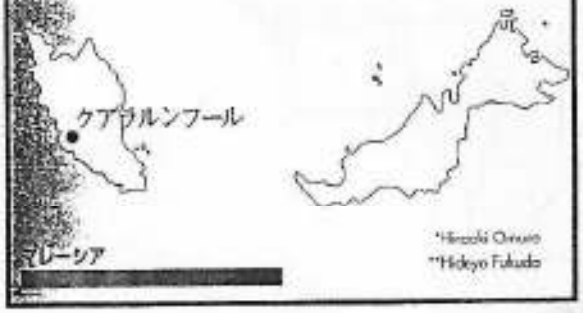
[マレーシア、クアラルンプール]

Jimmy C. S. Lim House,
Kuala Lumpur, Malaysia

ジミー・リム
Jimmy C. S. Lim

1944年マレーシア、ペナン生まれ。1968年オーストラリアのニューサウスウェールズ大学卒業後、1978年にCSL Associates設立。

Born in 1944, Penang, Malaysia. Graduated from University of New South Wales in Australia in 1968. He established CSL Associates in 1978.



*Hiroshi Omura
**Hideyo Fukuda

■緑の森の谷間タマン・セプテ住宅地区の9,600sq.ftの敷地に建っていた一般的な住宅に改造や増築を繰り返し、材料、低エネルギー、低労働量、低コストというテーマについての建築的実験が行われている建築家の自邸である。

■重ね合わせや並列、拡張あるいは縮小されてできる複雑な平面は舞台セットのように常に変化し、正面にあるエア・ウェル(吹き抜け)を中心にまとめられる。多層の屋根、れんがの柱や木材で構成され、昔のゴムの燻製場を思い起こさせるとともに空気の流れをよくしている。

■マレーシアでは伝統的に木造住宅が建てられているが、美しいだけでなく、熱帯地域では機能的で快適な環境を生み、建設や維持管理は簡便で掛かる経費も安価である。ここで使われている構造や建築の構成要素の多くは、急速に少なくなっている伝統的な家屋の部材を再利用している。

●生きもの

この独特な家は「常に改造中の家」とか「有機的な家」ととられることが多いが、まさに「生きもの」であるのだ。呼吸する生物としてではなく、記憶や思い出とともに生きており、物語を秘めた個人的な持ちものや埋もれ忘れられていたものが重要な部分を占めている。

●保存と増築

製図板の上で練られるプランよりも直観力がもとになって増築や改築が予告なしに行われる。これが周辺の自然環境と調和してみえる理由でもある。

ここはまた建設方法のアイディアの実験場でもある。建築家が思いつく革新的な建設方法を有用かどうか確かめる場である。

■The original house (a typical standard developer's house) is sited on 9,600 square feet of land in Taman Seputeh residential district, in a valley that rises gradually to meet a forested hillock.

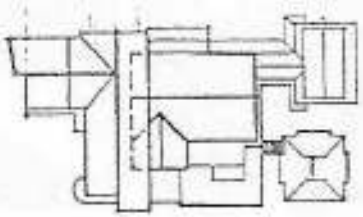
■The design consists of an extension in five phases, which are developed in an experimental progressive hand to material, low energy manner, requiring a minimum of labour and cost. Most of the structural and architectural elements are recycled from the traditional houses that are now fast disappearing. The complex plan of extensions, overlaps and consolidations are in constant change, like a theater set design, and are brought together in the central air well at the front of the house. This air well is reminiscent of the old rubber smoke houses with their multitiered roofs, brick piers and timber trusses, and induces cross ventilation.

■Coined as a house that is in "constant renovation" to some or an "organic house" to others, this house is definite "alive". Mind you, not as in "breathing-alive" but as in alive with memories, as personal possessions and salvaged materials become part and parcel of the house.

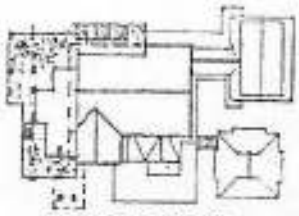
■A unique feature of the house is that the extensions or additions are being or additions are being done unpredictably, with gut intuition rather than proper drawing board planning. This is probably the reason why the house seems to be so in tune with the natural surrounding, where romantic meets geomantic with harmonious results.

■The house also becomes a place for experiments; on building construction that is. Here, architect Jimmy Lim would actually take time to build the extensions himself to obtain first hand experience on building construction method.

■The house extensions are done according to the "true" function of the building material. This is because, according to Jimmy Lim, in order to obtain the best performance out of a certain material, one must first have a deep understanding of the material's true nature and only then can one be able to find its strength and weakness. Thus timbers and bricks are used extensively in their best "natural performance".

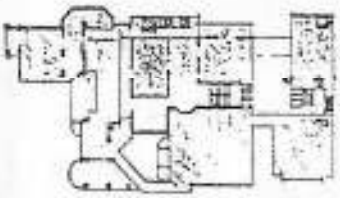


ROOF PLAN

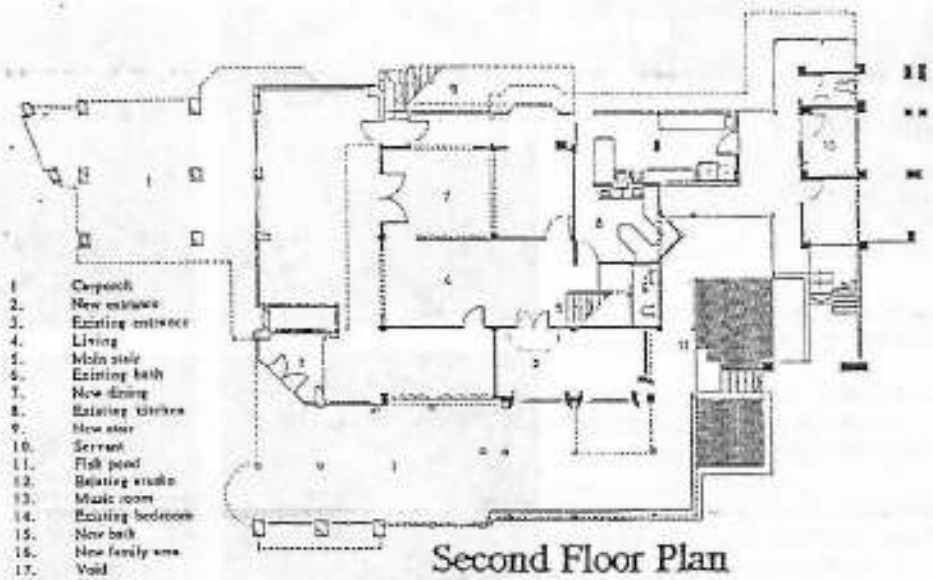


SECOND FLOOR

GROUND FLOOR

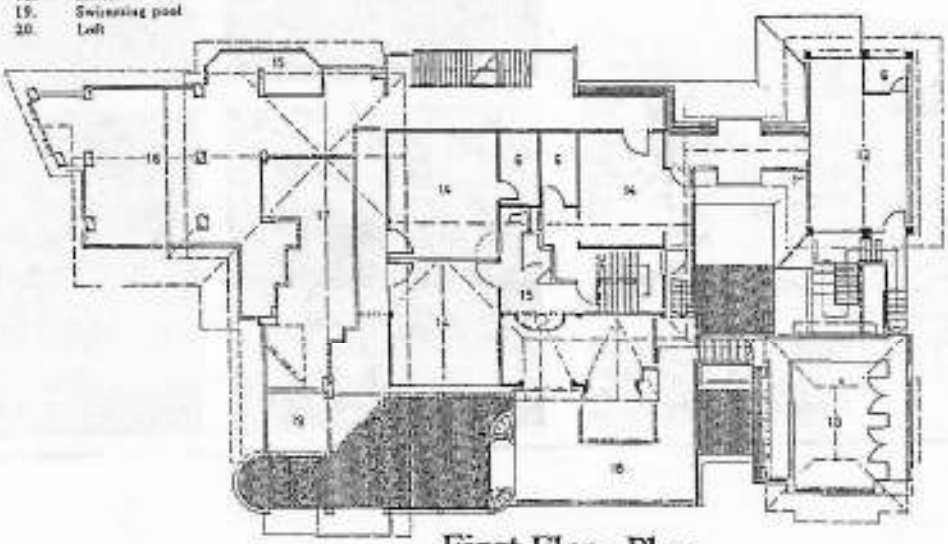


FIRST FLOOR



1. Carport
2. New entrance
3. Existing entrance
4. Living
5. Main stair
6. Existing bath
7. New dining
8. Existing kitchen
9. New stair
10. Servant
11. Fish pond
12. Existing studio
13. Music room
14. Existing bedroom
15. New bath
16. New family area
17. Void
18. Pinchaws
19. Swimming pool
20. Loft

Second Floor Plan



First Floor Plan

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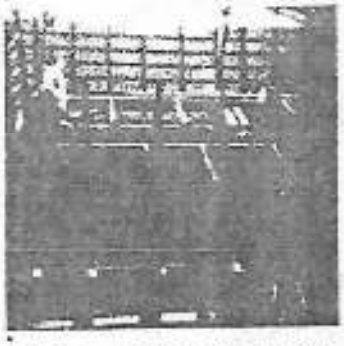
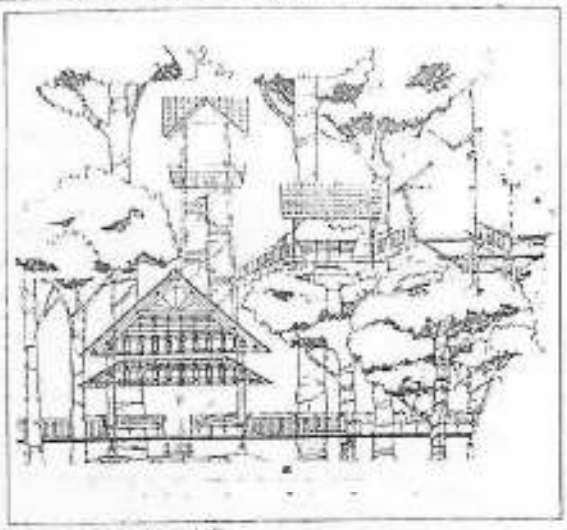


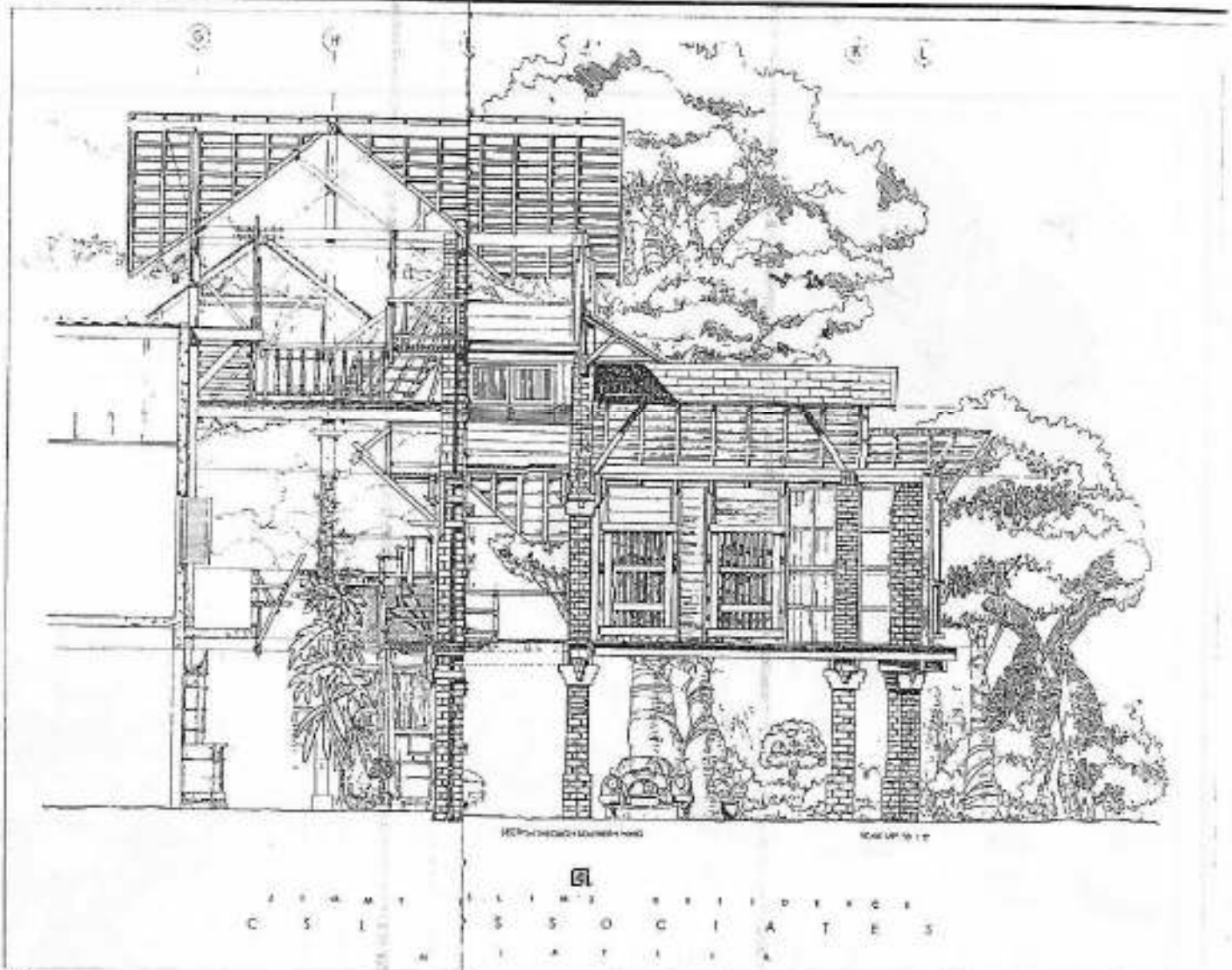


熱海後半のホテルのためのコンセプト

ルーツの手がかりを求めて、遺されたものを探る
そのルーツからは「伝統の木」が芽を出そうとしている

「伝統の木」に建築家は「なにか」を接ぎ木することができる
そして寄せ合わされたものを新しく創りだす
これは今わたしたちが置かれている近代のなかでも生き残ることができる

伝統的なコンテクストのなかにある伝統的な要素を
そのまま現代のコンテクストに置き換えるということではなく
「新しい木」を創る「なにか」を合体させよう



J A M T L I M I T E D
C S L S O C I A T E S
I N D I A

●敷地への応答
みてみよう
丘を　谷を　川を
木を　岩を　なだらかな平原を
包みられるのをまっている
感じよう
風を　太陽を　水を
建築と自然景観が調和する
デザインを目指す

建築は建築家とクライアントと土地の関係のなかから生まれるものである。

クライアントは自分のライフスタイルの反映、趣味や必要なものの条件を提す。

土地は地勢、植物、材料など、建築家が加工する生の素材を提供する。また建設作業者、職人の能力や技術を決定する。

建築家はこのようなせ況のなかで、与えられた条件と技術的なノウハウの可能性のもとで仕事を進めていくうちに、自分に固有、文化、建築真理、個人的な影響、個人的な哲学などの情報が蓄積されていく。

こうして創られる建築は、これら3つの力の混合によるものである。建築家自身の個人的な視点や哲学が、創造的な解決の方向性を決定し、完成した建築の形態に表現される。特にリムの表示では、中国春治の太極拳の考えが応用され、創造のプロセスにおいて以下のような要素が配慮される。

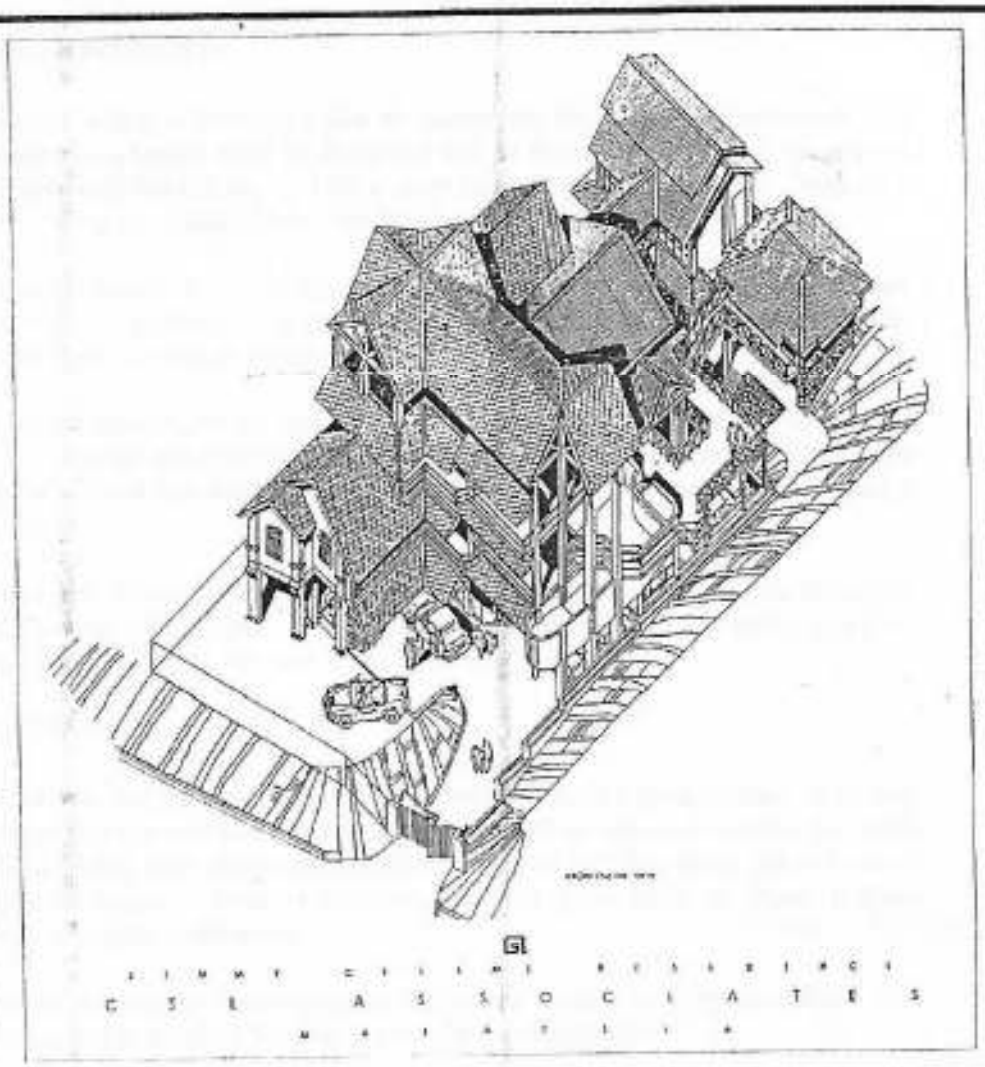
1.抗寛・美的な面において
　光、陰、プロポーション、動き、質感、ランドスケープ
2.機能的な面において
　空間利用、敷地への適応、使用する材料、建物利用者の要求
3.精神的な面
　人間、家、自然の調和

●土地の材料と技術の利用
土地の職人の能力や技術、材料の質や性質に適合した建築を建てるべきである。

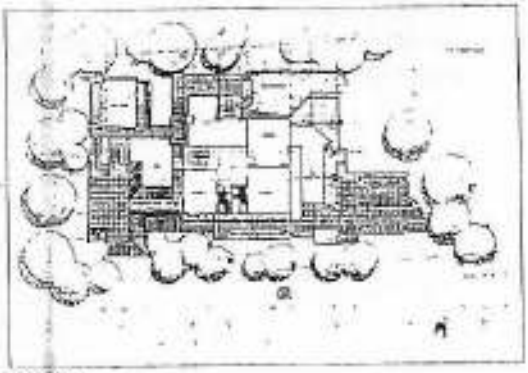
●デザインの源
先に進むべき方向性を探るため、過去に一度たち帰る必要がある。歴史には手掛かりがある。建築を学ぶのに古い建物はすばらしい教材となり、現代の都市地域での暮らしに応用するのに良い例となる。古いものをまったく踏襲するのでなく、新しいものと融合するよう努めるべきだ。

●建築の本質
建築家にはまったくの理想的な条件のもとでの創造行為はありえない。不利な点も有利な点に変えるよう、対決する相手の力を利用する。これは太極拳の考え方に基づいている。サーフィンに置き換えてみると、波に乗るためには向かってくる波に進むことが必要だが、単に対立しているだけでは自分が波にのみこまれるだけであるように、有利なものに変える機会を見逃さないことだ。

T　S



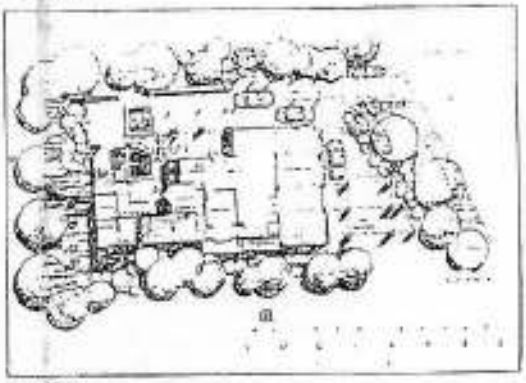
東側立面図



2階平面図

北側立面図

西側立面図



1階平面図

の源

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まれるだけであるように、有利なものに変える機会
いことだ。

(C) SPACE AND MOVEMENT

When I create spaces within a building I like to incorporate the feeling of movement both horizontal and vertical.....Spaces must be lively not flat or dead. I like to give space light, especially at high levels, to liven it up.....This is what makes the space interesting. Nothing is more boring than walking into a space that is flat, static and monotonous.....

Because we live in the tropics it is important too create space with the feeling of movement. How can air movement be achieved ? By creating lofty spaces contrasted by low spaces. Lofty spaces coupled with light filtration at the top allows hot air to rise upwards and escape.....

In designing I look for unity, harmony and proportion.....There has to be oneness with nature and harmony of the physical and spiritual. The physical must be able to capture the soul so that the spiritual can be aroused and when there harmony between the two, the being is at peace. This is 'feng shui'.....

To achieve oneness with nature, combining both physical and spiritual is the ultimate aim of my Architecture. A Oneness with Nature - the feeling of completeness to be felt and enjoyed not only by those who see the building but most of all by those who live in it".[51]

(D) THE PROCESSIONAL ROUTE

All great operas, ballets, and dances are well choreographed or have a good routine. If all they had were great music but not well backed up by a good and well co-ordinated routine, the whole show would fall flat. Most story themes are the same. But what is it that makes the difference? The choreography of course. What choreography is to a great ballet or dance act, the *Professional Route* is to great architecture.

A buildings without a properly 'choreographed movement' cannot be fully considered well proportioned and explored. Its many beauties is not fully expressed and felt.

To express and experience the delights of architecture, the person must be brought into the structure and deliberately directed and channelled through the various spaces designed for the enjoyment of the user. This is the total physical manifestation leading one to the finale where one can at that point feel the uplift to the spiritual plane. [52]

[51] Ibid. page 58
[52] Jimmy Lim. Talking about Architecture

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5.2 Future/Direction for Tropical Architecture

(A) Sustainability

The concept of a balanced tropical environment must be based on the co-operation of everyone. Each accepting his role and playing his role altruistically and sincerely. That which is beyond one's scope ought to be left to the others. Architectural training is one meant for a universal macro overview of what constitute

quality environment for
quality living, leading to a
quality of life, which is

not an imposition on nature and the natural environment, but one in harmony and in complementary manner creates a balance where on the one hand there is sustainable Development and balanced on the with Conversation.

Since the Modern Movement and the establishing of formal Architectural training, the methodology, theoretical and teaching approach to Architecture has not changed greatly. Global technology since the Industrial Revolution has gone through the Electronics and now going into the Green Environment Era. The aftermath, impact, residue and consequences of Industrialization is now being felt, causing alarm, and concern; the 'Global warning', the depletion of the ozone layer, the increase of carbon dioxide in the earth's atmosphere etc. The sudden demand for quality of environment control and a need for an awareness of renewable and sustainable development question existing value. The realization and refocusing on a global basis towards conservation and preservation of earth's natural resources to counter-balance the non-sustainable or reusable resources has become a compulsion and necessity. Architecture is at the crossroad. In witnessing a shift in values and re-evaluation of existing norms, the body of Architects have to formulate a new role for the profession to craft a new architecture for the 21st century - a caring Architecture, a sustainable Architecture based on renewable resources, and an Architecture for global survival for the tropics.

Both our Architecture and the natural environment are at the crossroad and solutions may be difficult, but we may and can.

(a) plot and chart the path towards a renewable and sustainable management of natural resources;
(b) lay out some basic ground rules for a sustainable development for the future; and
(c) restrict and define terms and reference in the context of the change in global values towards maintaining sustainable and renewable developments; etc; for Malaysia so that some form of what we now have, will be maintained, retained, sustained, preserved and handed down to our future generation.

Architects and other professionals associates with development of new habitat and housing must be

aware of; conscious of, and sensitive to

the natural environment, be economical in their designs to conserve energy and to propagate an awareness and an attitude towards environment friendliness.

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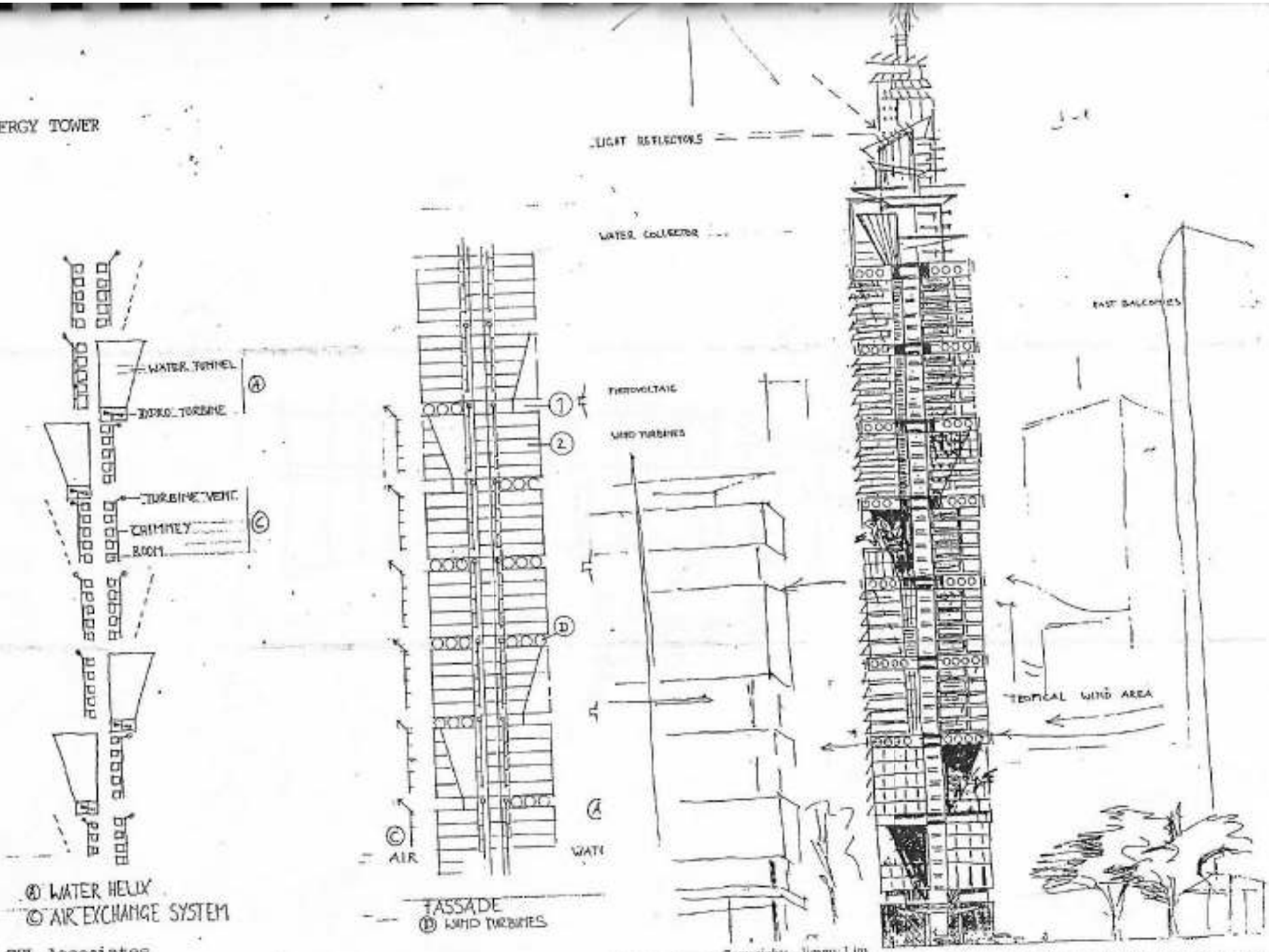
ENERGY TOWER



A WATER HELIX
C AIR EXCHANGE SYSTEM

CSL Associates

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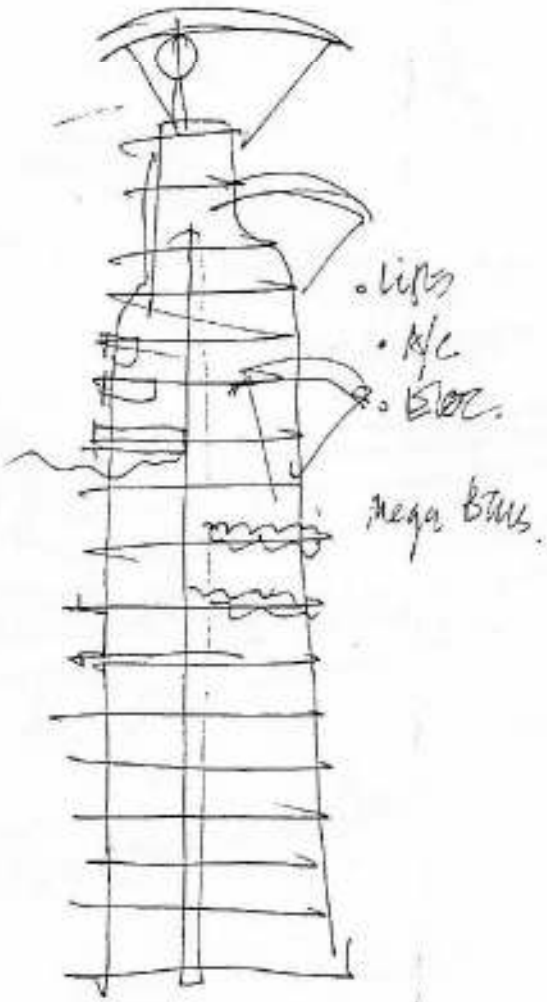

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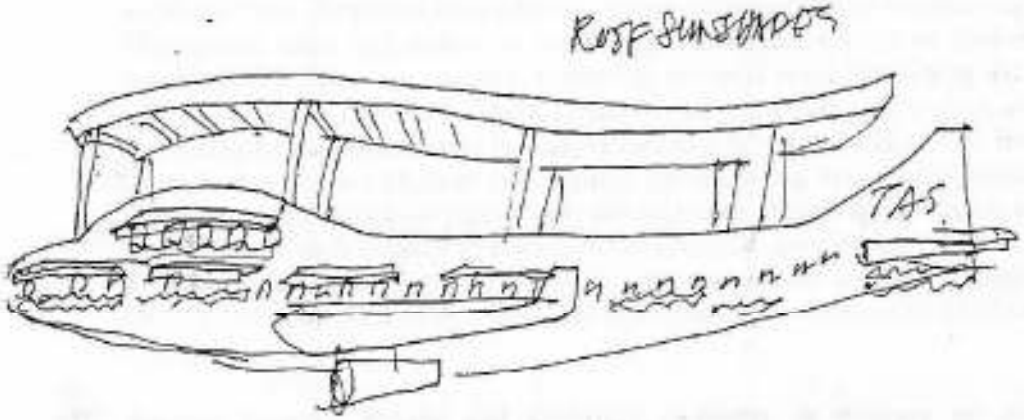

Fundamental Logic.

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Degradation of the atmosphere is caused by carbon dioxide emission and 80% is attributed to the development North whilst the South is responsible for only 20%. The need to re-discover, re-orientate and re-focus on building materials, construction *techniques and traditional values which will not be degrade the quality of our atmosphere* and environment becomes primary concern for Architects. The present route without foresight will lead the profession into a cul-de-sac; whereby we may be accused of being "uncaring", or even irresponsible.

Steel and concrete hailed as new technology were major breakthroughs for construction, in late 19th century and celebrated all over European with great elation. Today the 'celebration' which propelled the West is fast exhausting and depleting the natural minerals and raw material reserves. Debris of that great 'celebration' can be seen all over Europe and U.S.. The fuel and energy consumed in order to sustain the production of these materials must now evoked careful evaluation with respect to the deterioration of the natural environment and the quality of the atmosphere

Prevailing attitudes must change. Man-made structures must complement the landscape and co-jointly inspire and create a sense of belonging for its occupiers. In this context the Architects from the tropics have a heavy burden and responsibility towards our 'change'. The cultural spirit and texture of the tropical surroundings must be captured in the creativity of the local architecture, translating the local spirit into spaces and structure within the works expressed. There should be more concern and serious attempts at understanding and appreciating the deeper meaning of tropical architecture from among Local Authorities and planners when vetting and approving design submissions. Current values have no standard for precedence; and approving officers do not appear to have the basic requisite tools in order to evaluate what constitute good design. In this respect the Architect is required to educate the public on what is good or bad. A consistency of thought and work need to be encouraged from among the different strata of the tropical society.[53]

(B) Balance between Nature and Buildings co-jointly to produce an emotionally balanced substantial entity.

For architects to be committed towards an Environmentally friendly and balanced millenium we must observe the following;-

(a) we do not allow ourselves to be "intimidated" by other professionals, authorities and clients, but to maintain our courage ad conviction of what is the right course for the well being and best for tropical architecture;

(b) we are not afraid to commit ourselves or make a stand on any issues [even if it later proved to be a mistake]. For every issue there has to be a "win-lose" situation. We hope to "win" always but if we have to lose sometimes - so be it. We can only do our best;

(c) do not be afraid to take "chances" if the situation calls for it. If we win, the environment and tropical architecture wins. It is the case of "no venture, no gain" , and a new architecture for the tropics is a venture;

(d) do not give in without giving the issue a good fight. Architects have been

[53] Jimmy Lim. Architectural Commitment to an Environmentally Balanced Landscape

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"gentlemen" for far too long. We must make a stand, to say "enough is enough"; we must now make a stand in order to create an environment suitable for tropical living, which is not dictated by the developers or the Local Authorities;

(e) do not give into 'aging'. With aging one becomes senile. Samuel Ullman's essay "Youth has been adopted wholesale by the Japanese businessmen's life philosophy. This single minded approach after adopting this philosophy has taken them to where they are now. Allow me to quote a little from this fine essay:

"Youth is not a time of life;
it is a state of mind...

We grow old by deserting our ideals...
In the center of your heart and my heart, there is a
wireless station... it receives messages of... courage and power...

When the aerials are down and your spirit is covered with
snows of cynicism and the ice of pessimism, then you are
growing old... your aerials are up... there is hope you
may die young at 80".[54]

[54] Jimmy Lim. Architecture Towards an Environment Friendly Landscape

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