

PANAMA VERNACULAR: A TROPICAL HOUSE

by

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Blacksburg, Virginia

## ACKNOWLEDGEMENTS

To my wife,           ;

To my parents,       and       ;

and

To                               , from whom I  
learned a commitment.

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## PREFACE

When I first encountered the Republic of Panama in 1969 I found it extraordinarily astounding. A developing nation full of the complexities and contradictions brought about by its peculiar world position and history. There were the Americans who occupied a strip of land ten miles wide and 60 miles long which bisected the country. They were a developed and educated people with broad experience and knowledge. There were the West Indians and Chinese, decedents of the physical laborers who actually dug out the canal. Then there were the handful of families of mixed European American decent known as Rabi Blanco's who actually held the power, being in control of the major businesses. Last of all, economically if not spiritually, were the native Indians who, maintaining whatever part of their culture they could, watched all of this pass in front of them. From this socio-economic climate of duality (elements related one to another) and plurality (relationships among relationships)



one could sense the obvious tension. Not the same tension which is to be found in a technologically advanced Western nation but a dynamic tension possessed of a young nation state on the verge of self-awareness. Today, in 1977, this small republic has travelled well into its nationalistic phase of development in terms of economics and politics. In architectural terms, however, a diversity exists which is even more widespread than the social heterogeneity. This is not to imply that architectural diversity is bad or undesirable, on the contrary, a diverse architecture can be as rich and rewarding to a culture as a diverse peoples. However, the outstanding difference is the architecture in no way reflects the environment, culture or attitudes of its people. The people, however different, have one thing in common, they are of Panama, a product of its climate and culture, whereas the architecture of Panama is an imported one, a product of North American technology developed for North American culture and

climate (little wonder that Panamanian dwellings are uninhabitable during the heat of the day). There are two exceptions to this: one, those buildings which are mechanically climate controlled and two, the vernacular structures which are naturally cooled. It is this second type upon which I have focused my study for it is this type which has a tropical bases, evolved over time to deal with the issues of tropical shelter. It is this vernacular architecture combined with modern concepts of architecture such as open space, ambiguity, expression of structure, expression of function, and experimentation with perception which I have synthesized into a vocabulary of form and materials. I do not intend this to be a nationalist architecture for I am neither a nationalist nor Panamanian, but I intend it to be a universal architecture, establishing a cultural link between developed and undeveloped countries. The vernacular architecture which is a product of a region, i.e., the tropics, on one hand, and modern

architecture a product of Western culture. I do not mean this to be a salvation of man and the redemption of the earth: it is only architecture.

## INTRODUCTION

### AND WHAT THERE IS TO CONQUER

By strength and submission, has already been discovered  
Once or twice, or several times, by men whom one cannot hope  
To emulate—but there is no competition—  
There is only the flight to recover what has been lost  
And found and lost again and again: and now,  
Under conditions that seem unpropitious.

T. S. ELIOT, "EAST COKER"

This thesis is a record of what I feel to be the first of a series of design intentions and evolving solutions dealing with architecture in tropical environments, Panama in particular. I have undertaken to communicate the nature, purpose, and certain cultural implications of this architecture which I have evolved. My area of study is architecture and its cultural significance. In this type of study the merely historical understanding of architecture, in this case architecture of Europe and North America, is too frequently considered the complete and authentic understanding: whereas the sense of spiritual activity

expressed in architectonic forms of the vernacular, not to mention the functional and aesthetic aspects of this form, is all too often misunderstood or ignored.

The scale of this work (the house scale) was selected partially by my personal preference to this scale which allows a thorough ingestion of issues from conception to detail as well as for historical reasons (the residential scale is the one which Gropius and Breuer began their development of a teachable vocabulary of form upon arrival in the United States). The attempt here again is to develop a teachable vocabulary of forms which arise out of the special issues of architecture in the tropics and based on the time tested truths of the vernacular. This vocabulary, once established, can then be translated for use in the full range of scales, from a door latch to the city.

There are two aspects to my concept of house—one ideal and abstract, the other real and analytical. These aspects are interdependent.

The abstract concept of the tropical house and the ideal aspect of the concept (the vision of reality), affects and is affected by its real and analytical response to problems related to site, circulation, program, entrance structure, and enclosure.

## SITE

This house is to be located on a five hectare site in the Republic of Panama, overlooking the Pacific Ocean.

It is characterized by small rolling hills covered with dense jungle flora which ends on a wide beach front. These hills, having been eroded by the ocean, form cliff lines contrasting with the gradual transformation from soil to sand. It is one of these cliffs, combined with the waves which form directly in front of it as a result of its erosion, that provide the outstanding view. Due to the shape of the coastline, this view is enhanced by the morning sun which rises out of the Pacific at least once a day.

The existing dense foliage allows for selection of preferable shrubs and trees. Trees based on the factor of ventilation, shade, rarity, and the dynamic balance between the man-made

form and nature. Approaching through an avenue of palms, one can catch a glimpse of the house contrasting its whiteness with the primary blues and greens of the sky, water, and trees, enhancing its own presence as well as nature's.



## ENTRANCE

The primary entrance is signaled first within the field of the North plane of the house, then directed along the gravel walkway to the ramp which leads to the entry. This entry reads as a void penetrating heavy massing of solids in a metaphorical relationship to the many small caves along the shoreline which are a result of the action of waves.

Upon entering, the view is blocked by the plane which divides the master and guest bedrooms on the lower half of the middle level. Partial glimpses of the ocean can be obtained, however, through the open risers and bedrooms. A full unobstructed view is not obtained until reaching the living level which opens up to the trees and ocean giving a sense of arrival into the view itself.

The secondary entrances are located on the lower level and read as large fenestrations in stone and do not connect directly with

the circulation system signaling a division between public and private zones. The doors in these two entrances are special in that they are solid, for security, and pivot which allows for two alternatives: one, they can be latched open to any degree allowing for ventilation or, two, simply allowed to pivot under its own weight into a closed position. All other doors are sliding doors made up of teak and glass and perform as moveable membranes between in and out.

## PROGRAM

The house is an oceanside retreat to be used on weekends. It is also designed, however, with the possibility in mind as a future full-time residence. The organization of the plan is expressive of the programmatic separation of public, semi-private and private areas of beach living. Reference to the spatial ordering in terms of levels or layers extends that stratification of space: level one being public, level two private, and level three semi-private (family, guests, and close friends). A further subdivision of these spaces in the horizontal plane separates the service facilities and functions from the living facilities. This layering in the horizontal plane at the entry zone on the middle level, allows for a smooth transition by family and friends from entry to upper living area without intrusion upon the private zone. This horizontal layering of each level also allows for and enhances vertical ventilation through the central stairway core from lower to upper level and out the clerestory as well as from

the bedrooms on the middle level through the living area and out the clerestory without sacrificing visual privacy in the middle level.

## CIRCULATION

The volumes of both the public and the private areas are organized around a central circulation spine. This spine plus the entrance ramp lends horizontal and vertical continuity to the interior, while responding to the rhythm of the site. This circulation core also serves as a layer between the cells of each zone and thereby defines and mediates space between these cells.

## STRUCTURE, ENCLOSURE

The structure is a coordination of two systems relating to the organization of enclosure. Where the house is enclosed by stone the load is transferred to the ground by stone bearing walls. Where the enclosure is glass, bamboo, and stucco the loads are distributed directly to the system of teak trusses, independent of the exterior walls. The shift in structural emphasis simultaneously allows for growth of space in the vertical dimension as well as protection from solar radiation for the lower levels. With an umbrella effect, the structure, at the point of greatest diversion, is capped by poui wood and palm thatch providing ample protection to the enclosure from driving rain and radiation.

The enclosure is composed of 2 x 4 studs two feet on center and subdivided into 2 ft x 3 ft. rectangles of 2 inch by 0.25 inch material which is further subdivided by a grid of bamboo lathwork.

To this lath is then applied several coats of plaster on the interior and stucco on the exterior. The openings in this skin are sliding glass panels framed in teak or screened fenestrations for light and ventilation.

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FIGURE 17. STUDY MODEL, NORTHWEST ELEVATION

FIGURE 18. STUDY MODEL, VIEW FROM PARKING

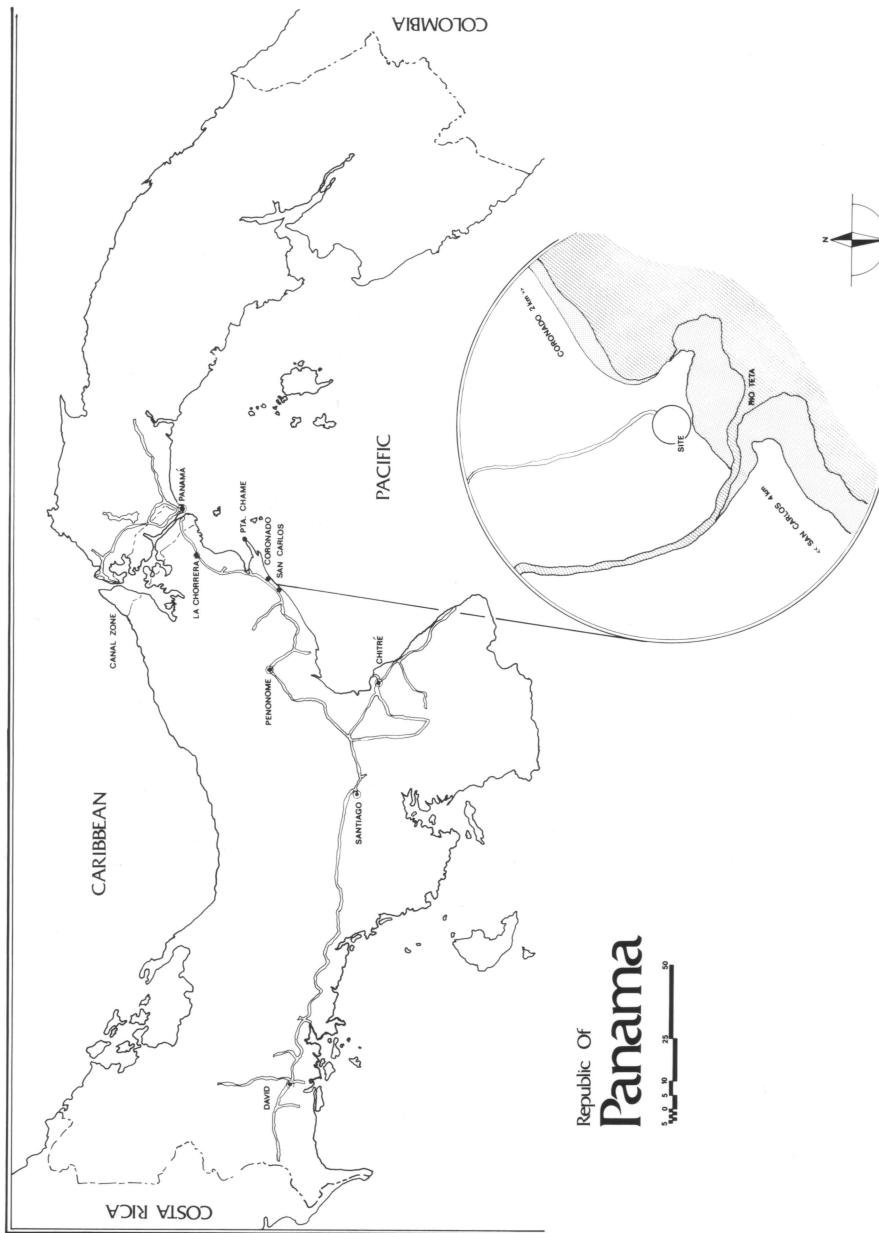


FIGURE 1. MACRO SITE PLAN

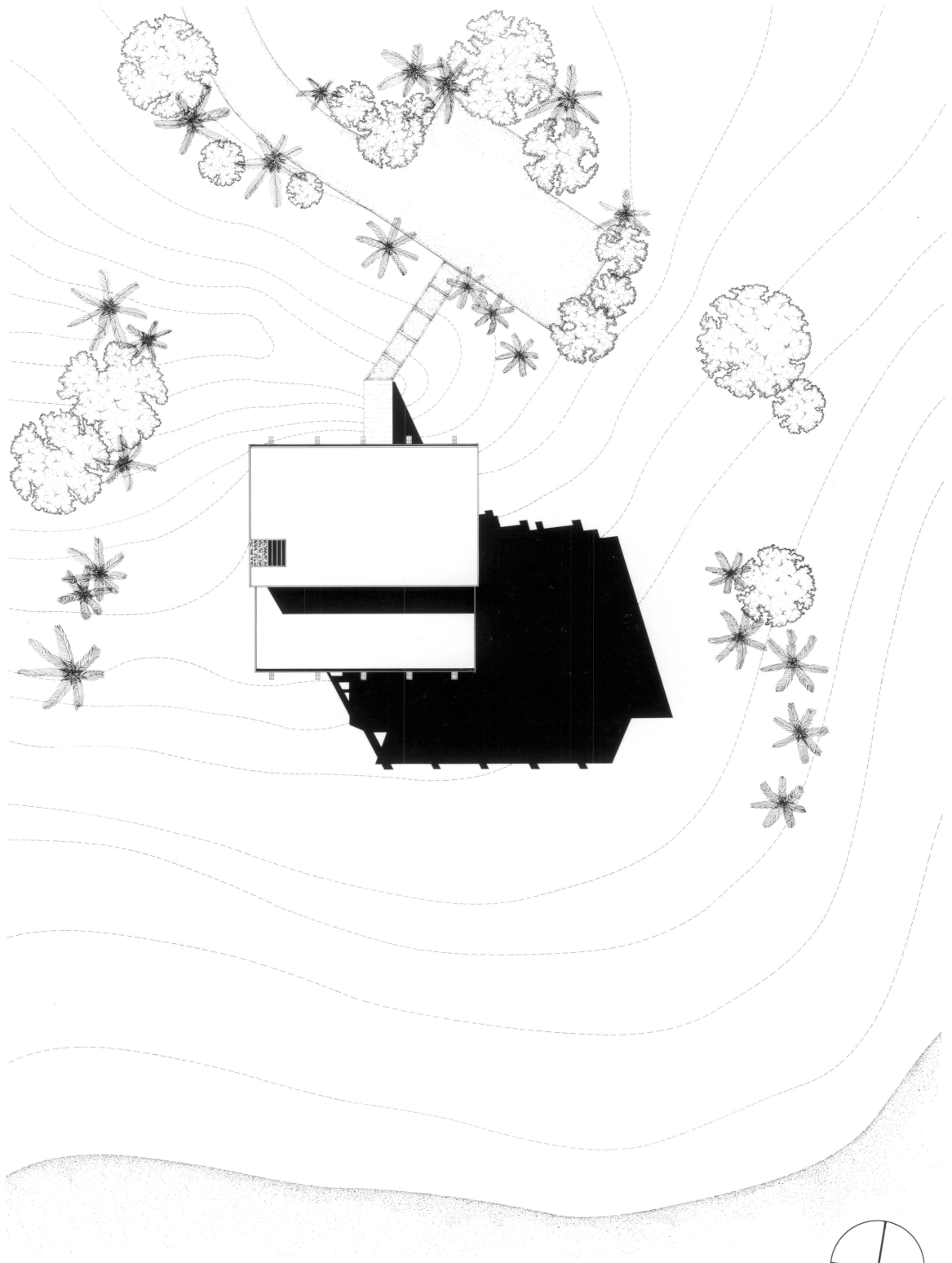
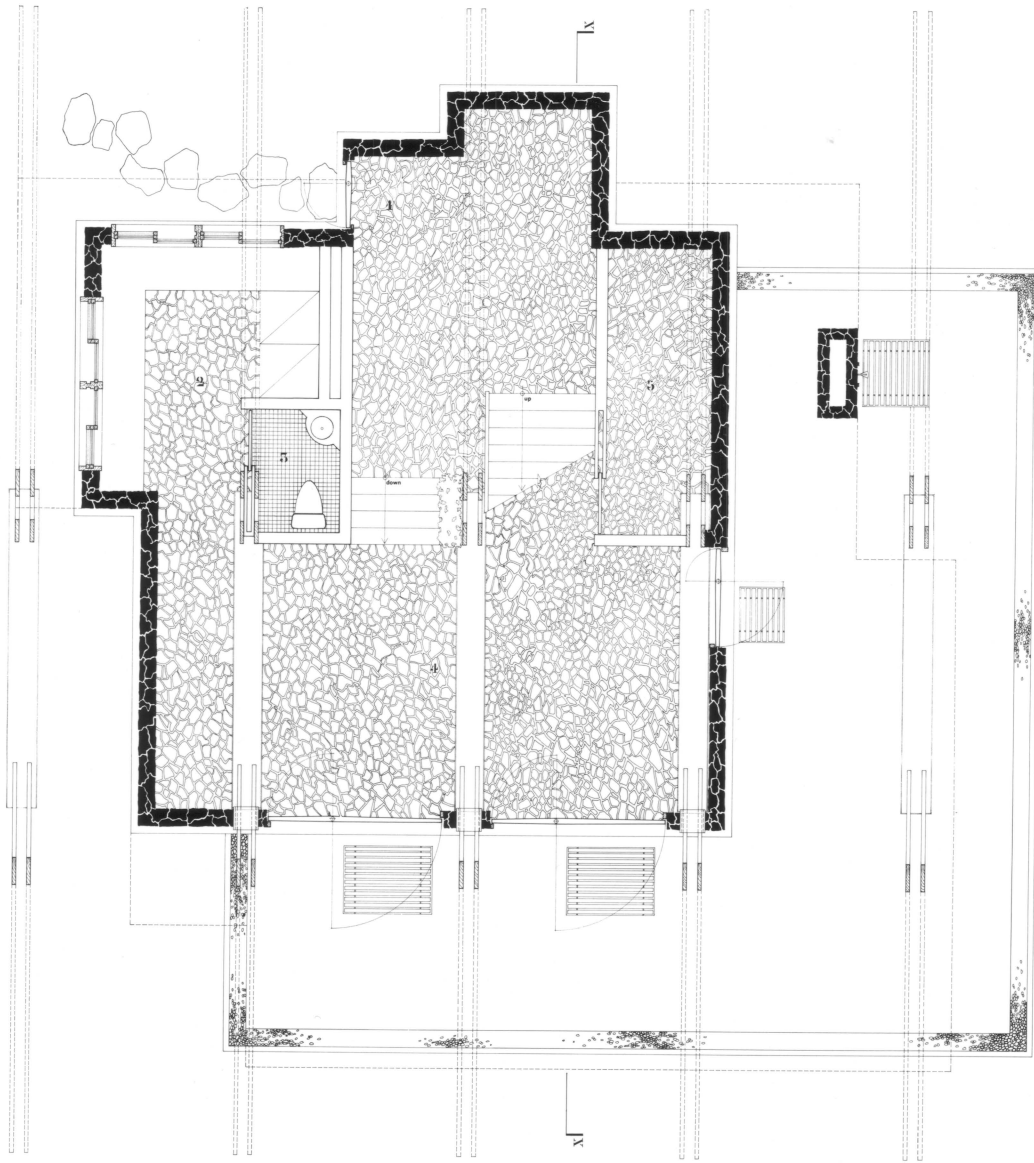


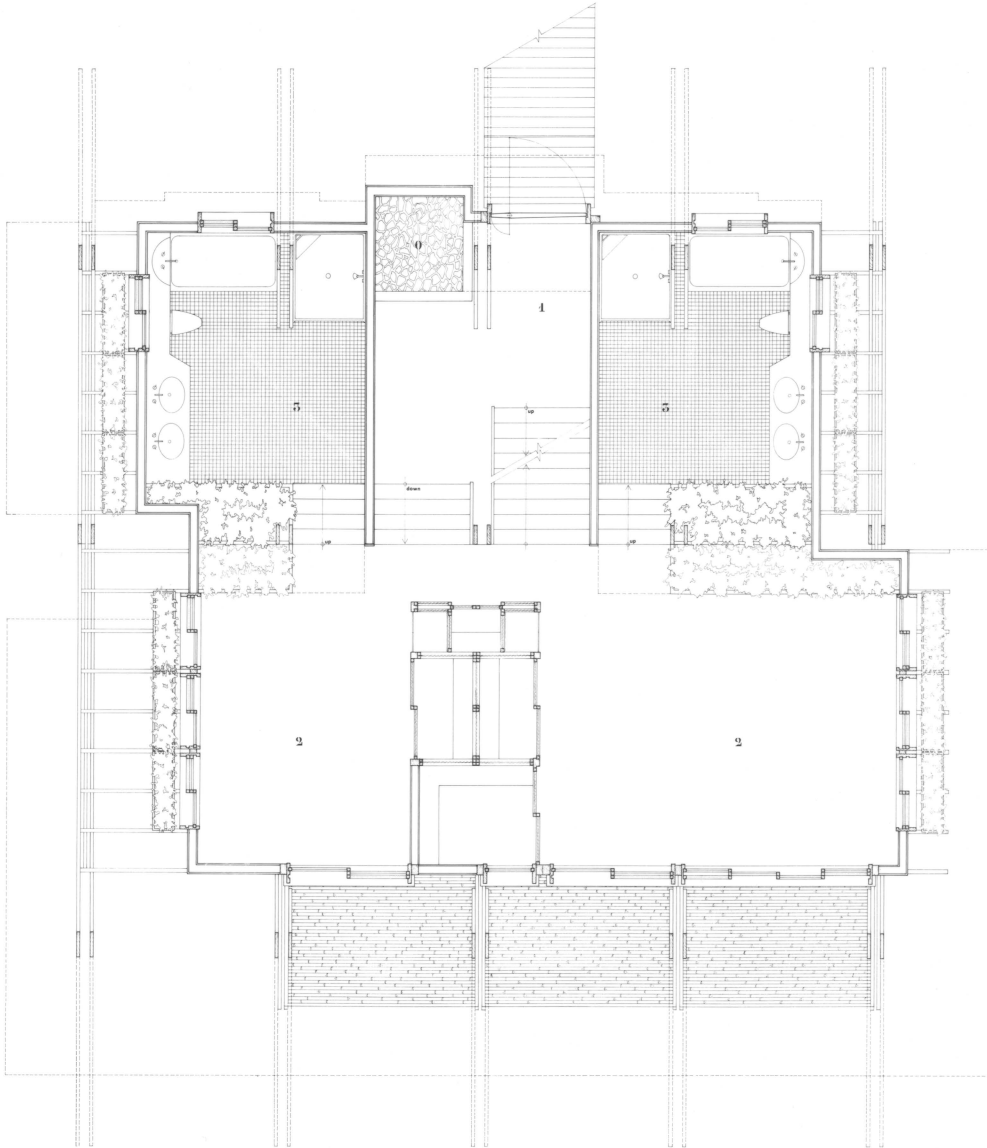
FIGURE 2. SITE PLAN



### LOWER LEVEL

1. to future studio
2. laundry
3. bath
4. entry
5. storage, utility

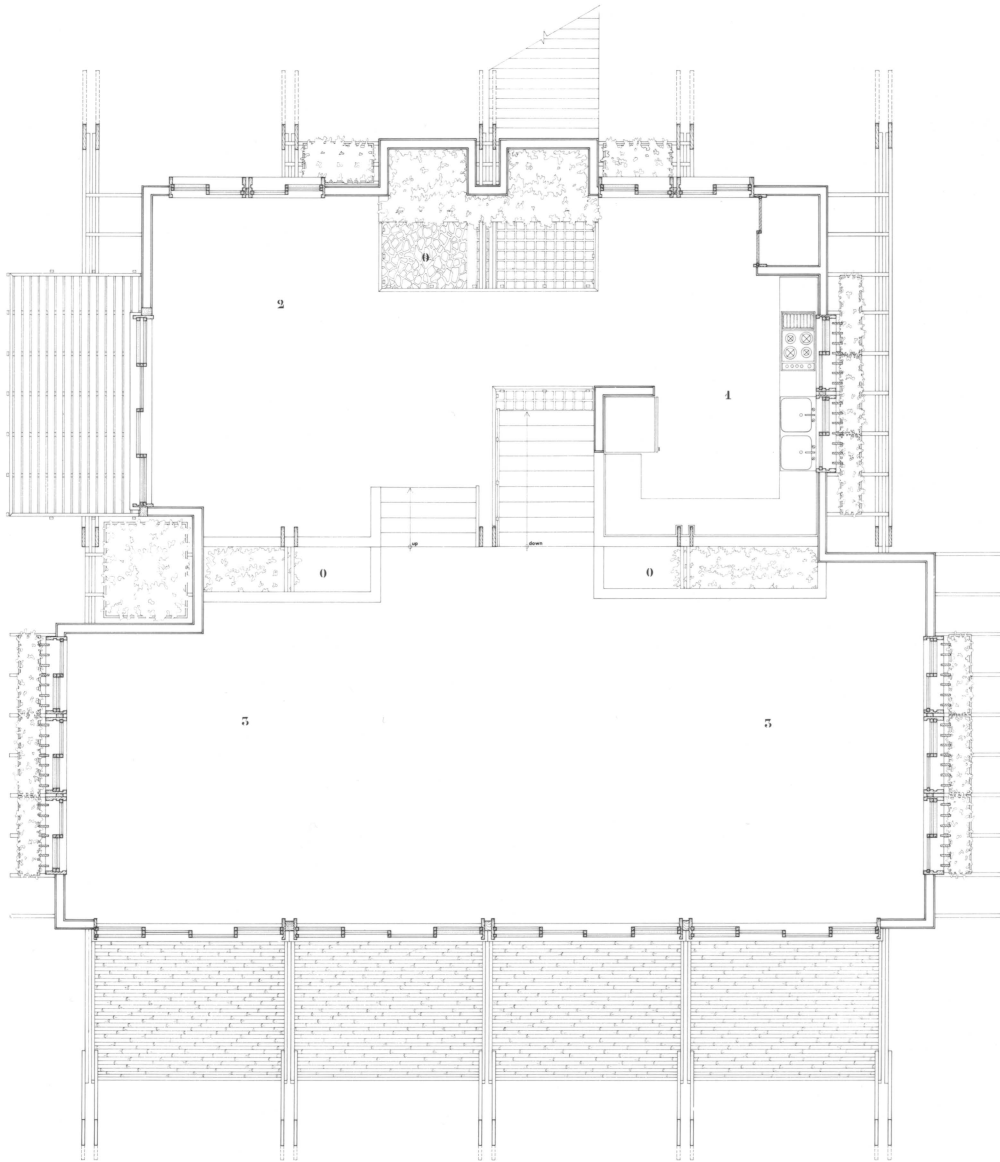
FIGURE 3. PLAN, LOWER LEVEL



## MIDDLE LEVEL

- 0. open to below
- 1. entry
- 2. bedroom
- 3. bath

FIGURE 4. PLAN, MIDDLE LEVEL



## UPPER LEVEL

- 0. open to below
- 1. kitchen
- 2. dining
- 3. living

FIGURE 5. PLAN, UPPER LEVEL

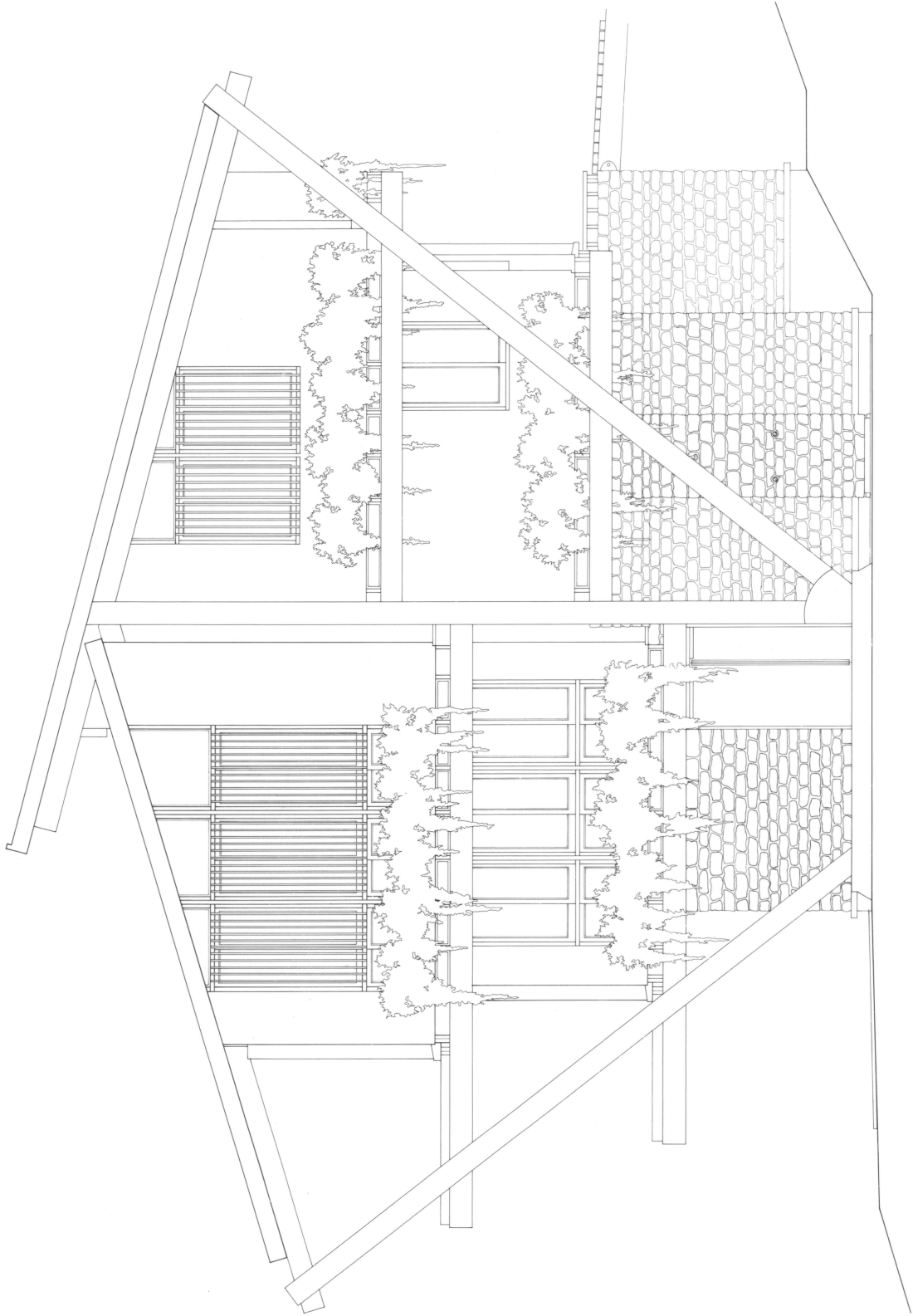


FIGURE 6. EAST ELEVATION

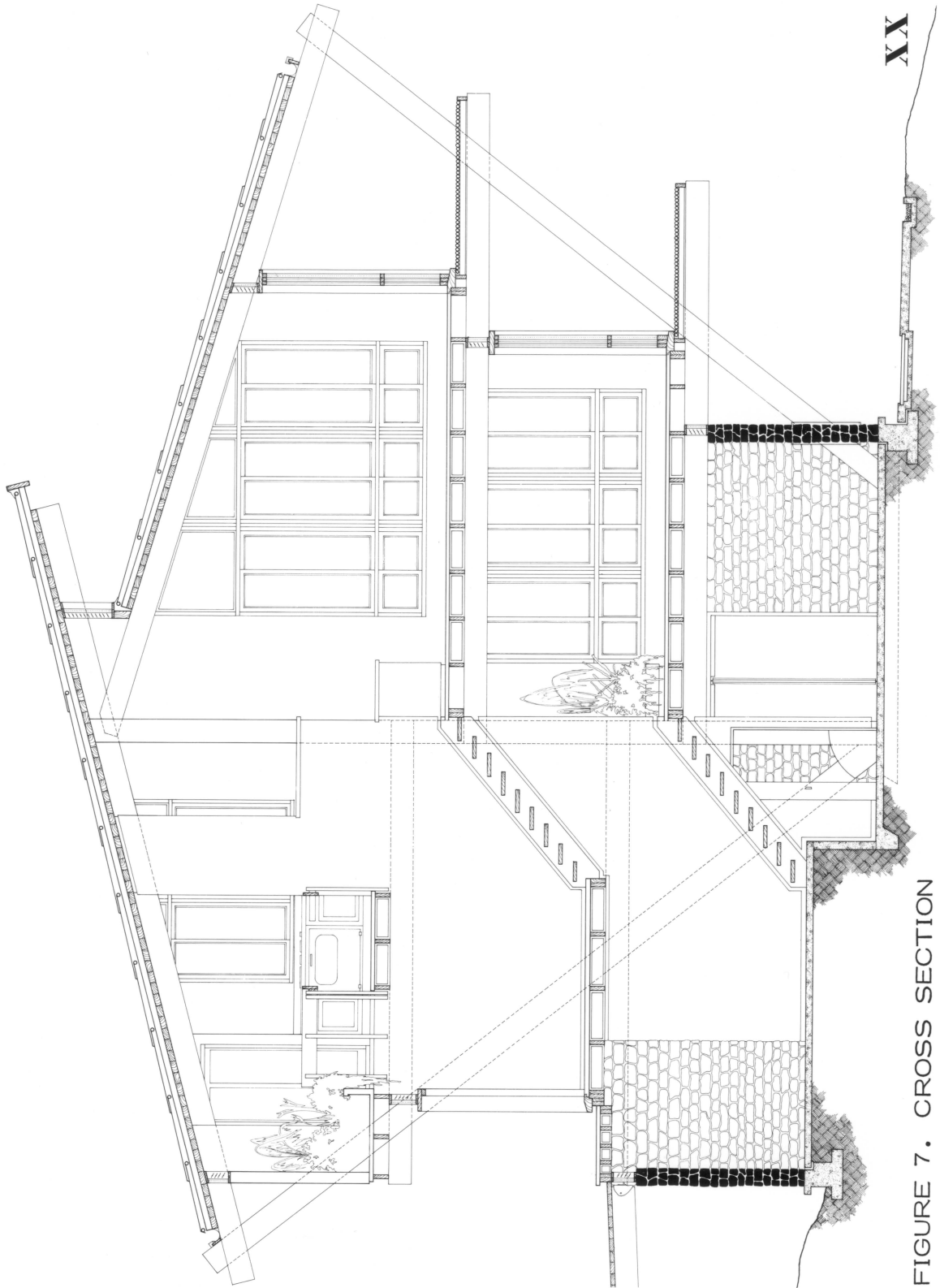


FIGURE 7. CROSS SECTION



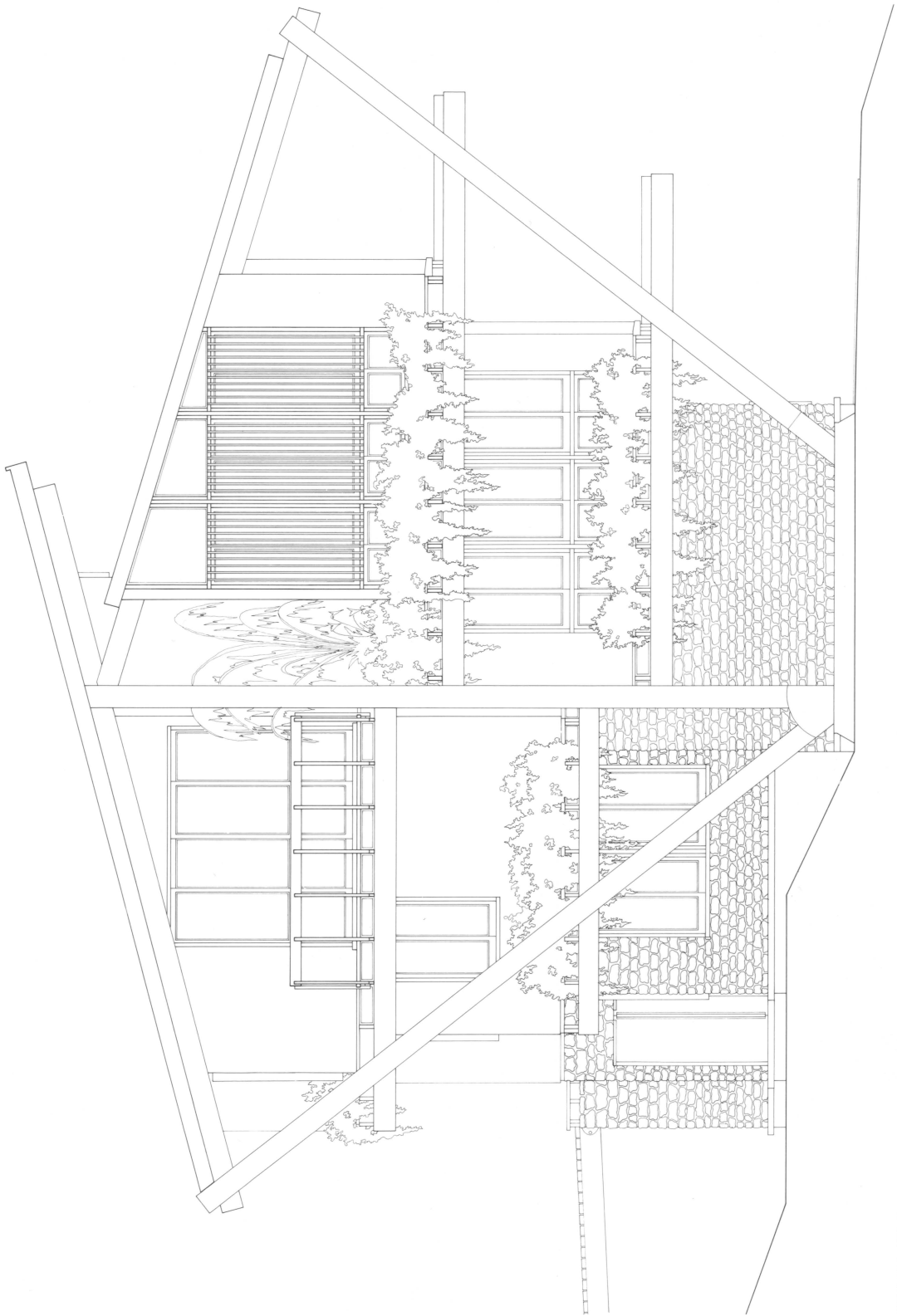
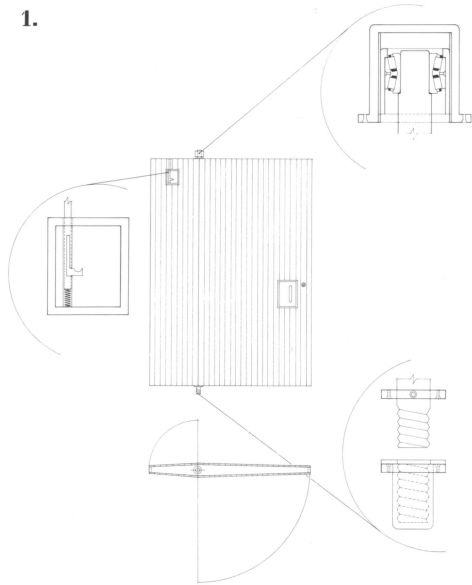


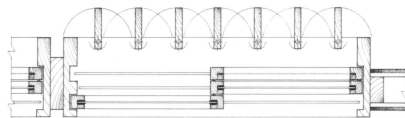
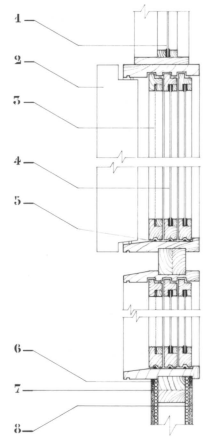
FIGURE 8. WEST ELEVATION



DETAIL, PIVOTING DOOR

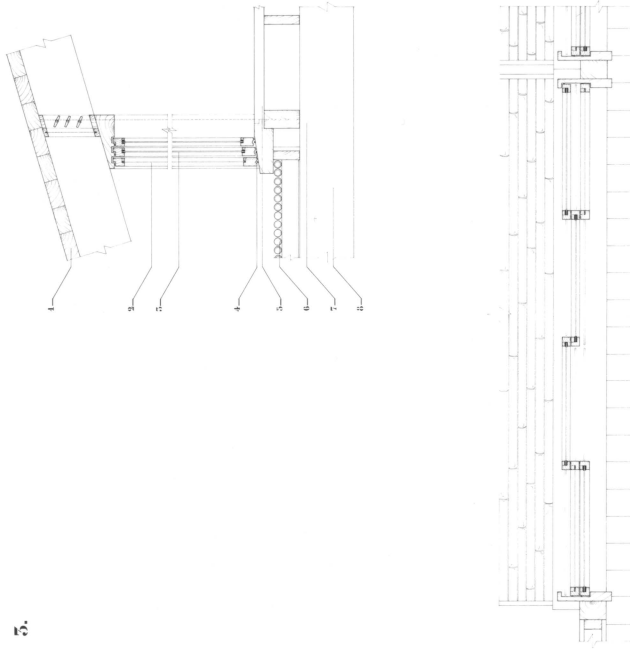
DETAIL, WINDOW

1. fixed glass
2. moveable louvers
3. sliding screen
4. sliding glass
5. brass track
6. bamboo lath
7. exterior wall, stucco
8. interior wall, plaster



2.

FIGURE 9. DETAILS, 1. DOOR 2. WINDOW



DETAIL, SLIDING DOOR

- 1. cold roof, poui wood
- 2. sliding screen door
- 3. sliding glass door
- 4. brass track
- 5. flooring, poui wood
- 6. bamboo, veranda
- 7. joist, teak
- 8. truss, teak

FIGURE 10. DETAIL, 3. SLIDING GLASS DOOR

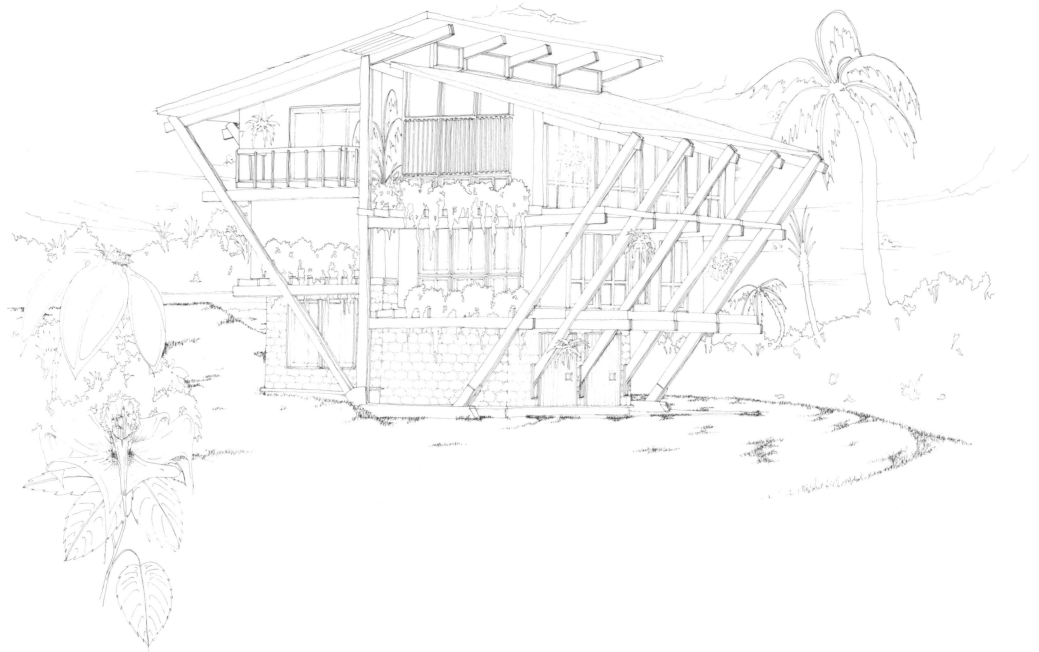


FIGURE 11. VIEW FROM SOUTHWEST



FIGURE 12. VIEW FROM NORTHEAST



FIGURE 13. STUDY MODEL, SOUTHWEST PERSPECTIVE

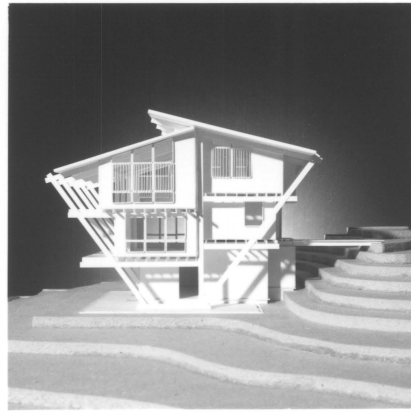


FIGURE 14. STUDY MODEL, CLOSE UP

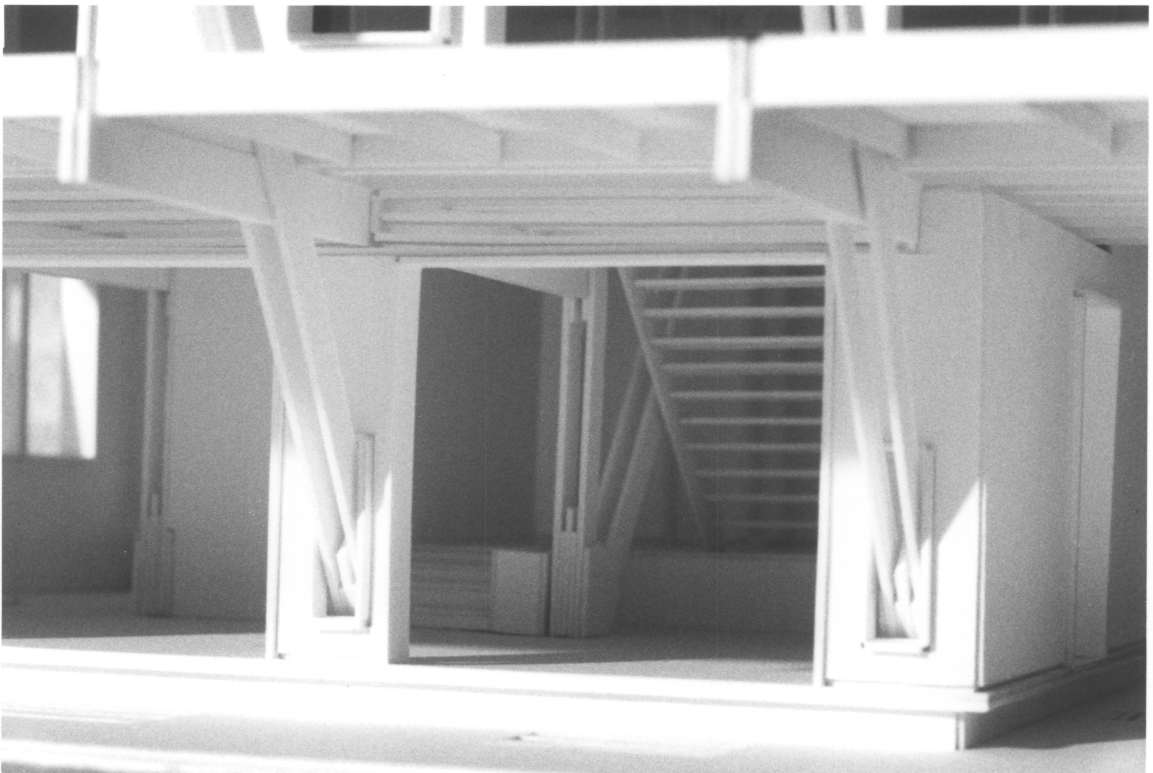


FIGURE 15. STUDY MODE, ENTRY, LOWER LEVEL





FIGURE 16. STUDY MODEL, CLOSE UP SOUTH ELEVATION



FIGURE 17. STUDY MODEL, WEST ELEVATION



FIGURE 18. STUDY MODEL, VIEW FROM PARKING

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## PANAMA VERNACULAR: A TROPICAL HOUSE

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### (ABSTRACT)

The criteria for design and construction of a single family dwelling in a tropical oceanside environment will be investigated.

Tropical vernacular architecture will be studied. Concepts established will be integrated in a modern architectural language, preserving the time tested truths of the local architecture.

The position of tropical vernacular architecture and contraposition of modern architecture will then be synthesized into a single family tropical dwelling based on established criteria.