

My Father's House

— **Element, Space, and Architecture**



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July 10, 2000

for my father

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— **Element, Space, and Architecture**

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Thesis submitted to the Faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of Master of Architecture.

Approved:

William W. Brown, Chairman

Jack Davis

William U. Galloway

Acknowledgment

I want to thank my family. Without their generous support, I would not be here.

Thanks to my committee members for their guidance and help.

I also want to say “thank you” to my friends because we supported each other as we went through the days in architecture.

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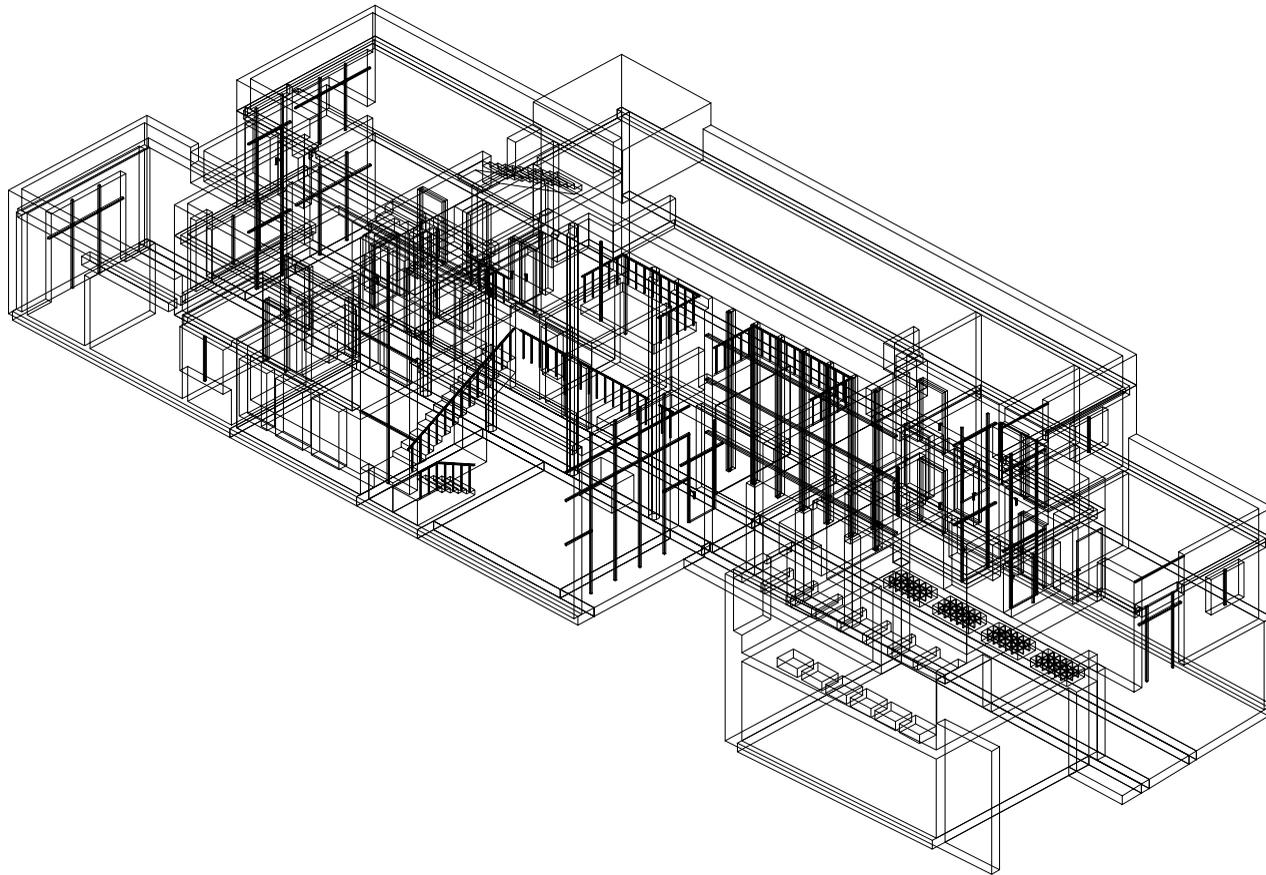
Abstract:

The study of architecture is a journey. This thesis is a stage in that journey that allows me the opportunity to wonder, to explore, and to investigate. During the design of a house for my father, many issues concerning architecture are visited and these inquiries help me to search and develop my own position in architecture. The process of making this project is also a journey. It is a journey to see how an idea can be developed into a building by various means.

A building is composed of many elements. The elements play functional parts and represent the aspirations of the architects. In this thesis project, I seek to create desirable spaces by the manipulation of the elements. The inseparable relationship between the element and the space is essential not only for this project, but also in the study of architecture.

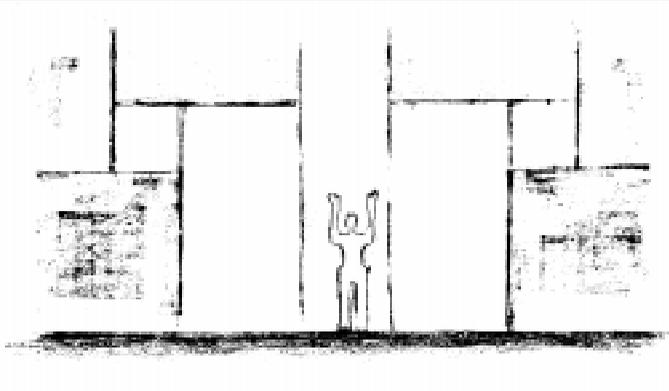


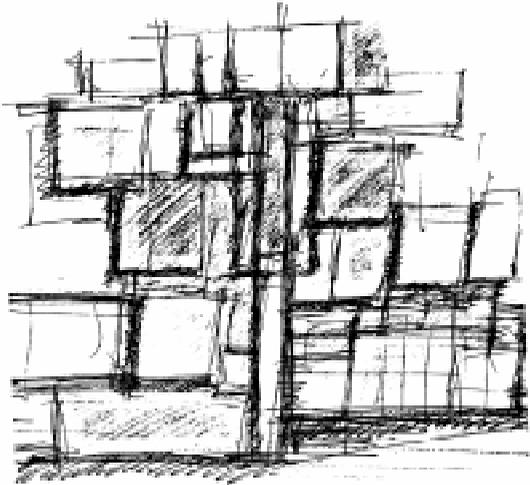




Architecture is the reaching out for the truth. — Louis I. Kahn

THE IDEA





a tree that grows

The idea for my father's house comes from the relationships in my family. Like a tree, a family grows. Children grow up and leave, but their parents' house is always there for them. For my father, his house is also his children's house.

The idea is to bring the inner relationship of a family into the formation of the house. Using the analogy of the tree, the objective is to develop a hierarchical order between different units and create desirable space. The public area is the trunk; the bedrooms are the branches. The hallway is the vein. Space flows without obstruction. People can connect visually from different parts of the house.



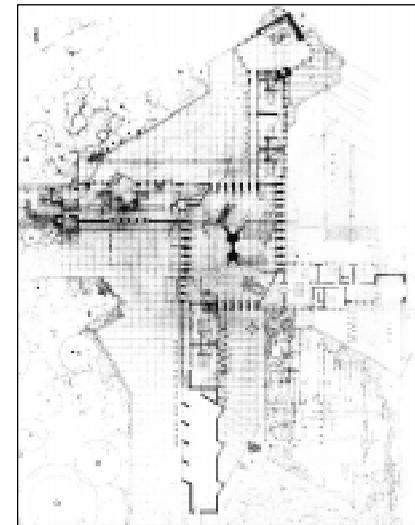
vertical + horizontal

Space can be connected vertically or horizontally. In Villa La Roche, designed by Le Corbusier, the central space connects the house vertically. As you ascend, you leave the central space only to turn and see it again. In Wingspread, designed by Frank Lloyd Wright, the space is connected horizontally. Four branches stretch out from the core of the house, which is the living room. A hallway connects each branch to the central core and provides access to the bedrooms.

The development of my father's house starts with the relationship of the units, including direction and size. The location and volume of each unit is determined by the program, the site, and the idea of the space, which is the analogy of the tree. The form and order governing the units are found and developed through a series of experiments.



Villa la Roche, Le Corbusier



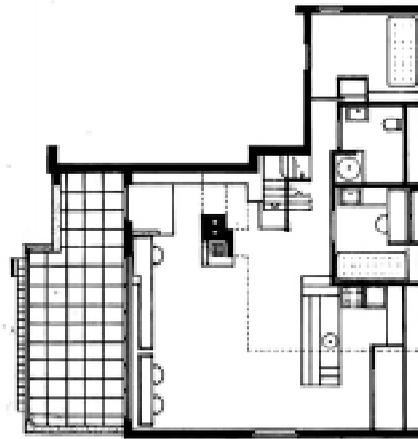
Wingspread, Frank Lloyd Wright

House Conversion in Laren, Herman Hertzberger

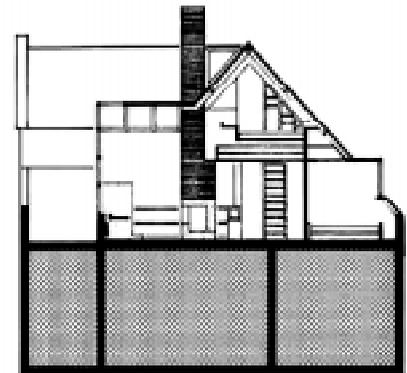
In this house conversion, the architect found the opportunity to bring ample sunlight into the house by introducing a north-facing glazing element. This element functions as both the window and the skylight. It is articulated that the indoor space is no longer separated from the outdoor space.



view of the living room



plan



section

Luis Barragan Residence, Luis Barragan

In Luis Barragan's residence, the walls of the living room frame the garden. The indoor and outdoor spaces are connected by the extension of the wall, which also reflects sunlight back to the house. In order to eliminate the obstruction of the continuous space, the frame of the glazing cannot be seen from inside.



plan



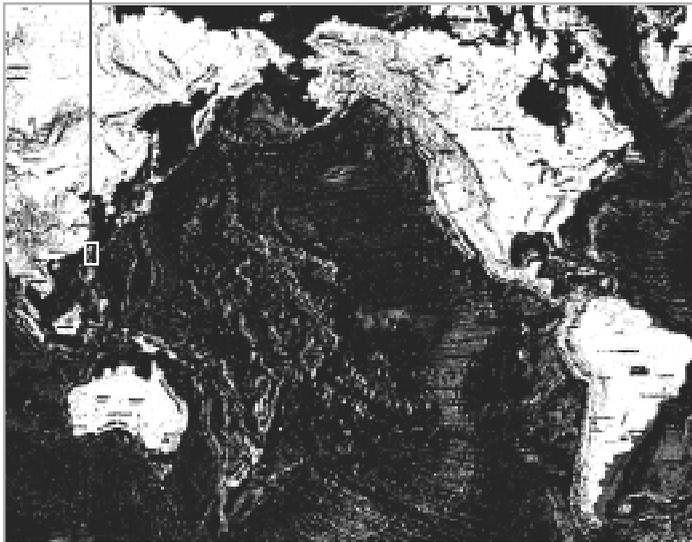
view of the living room

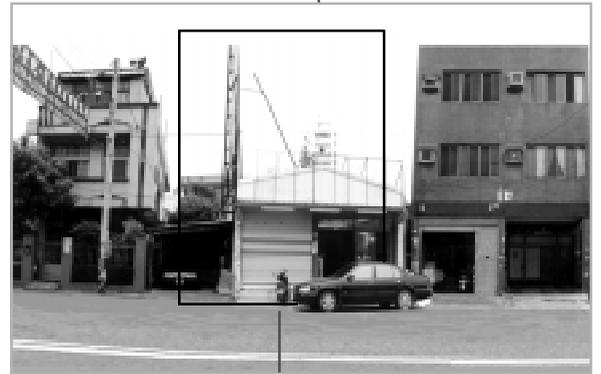
the context

Taiwan is an island on the Pacific rim, next to mainland China with Taiwan Strait between the two. The climate in Taiwan is semi-tropical. It is humid and warm most of the year. There are severe summer storms (typhoons) and occasional earthquakes on this island.

The site is in the southern part of Taiwan, 20 minutes from Kaohsiung, the second biggest city in Taiwan. It is in a suburban area where former villages are now becoming developed communities.

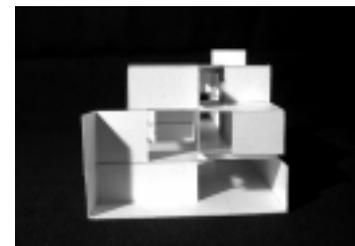
The site is adjacent to the main road in that area. Along the road are buildings used for both business and residence.

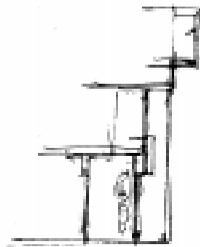
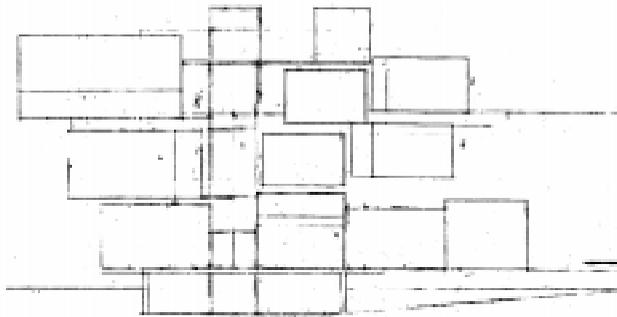




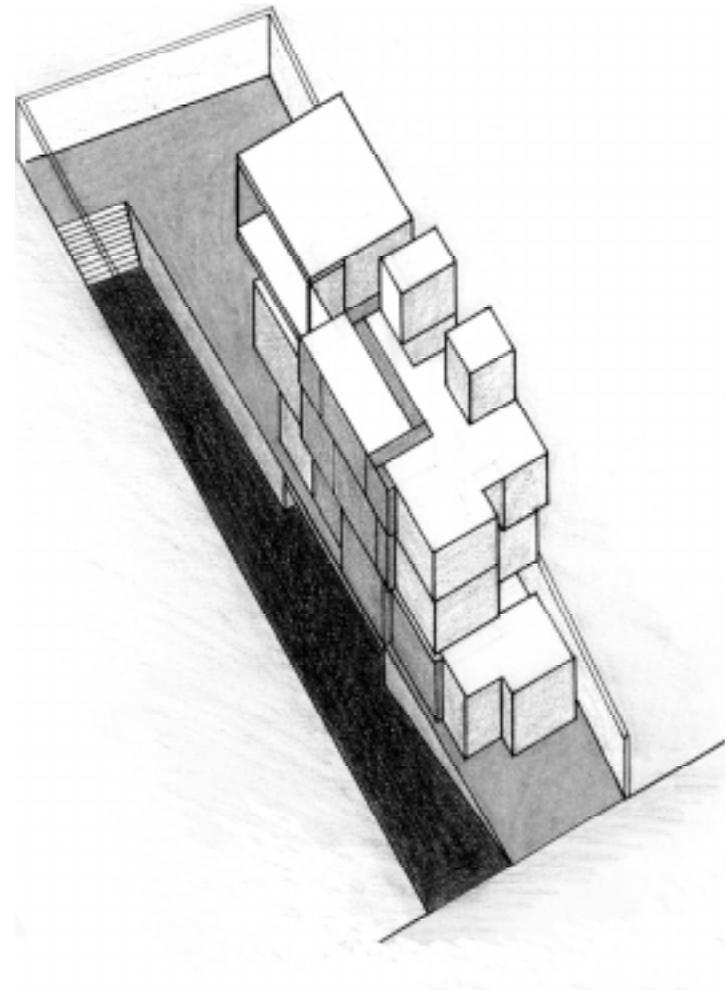


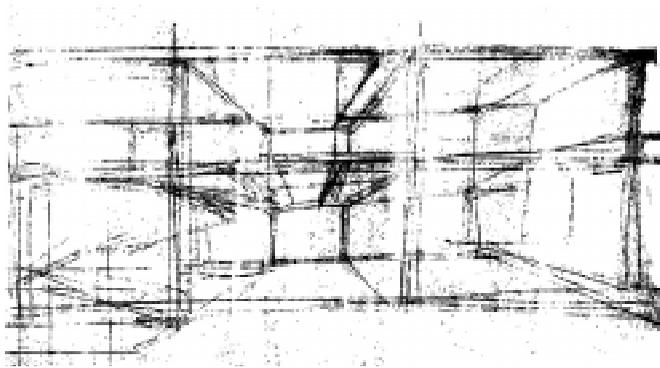
THE EVOLUTION



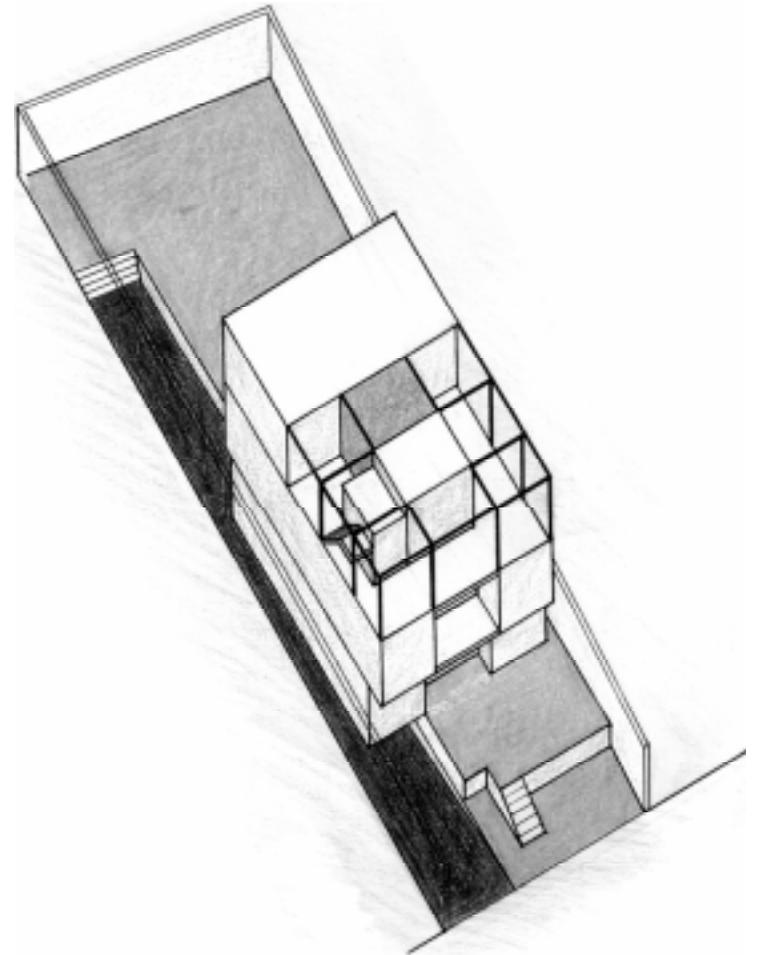
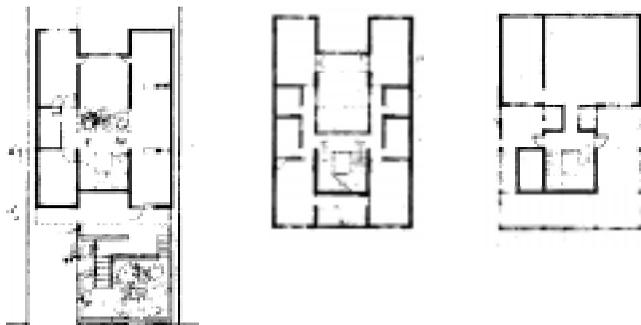
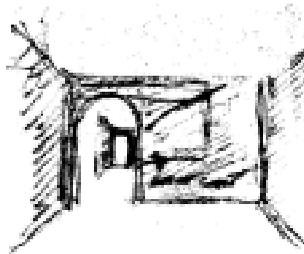


SCHEME 1: This scheme derives directly from the analogy of the tree, regardless of the practicality of the structure. The focus is the relation and dimension of the spaces.



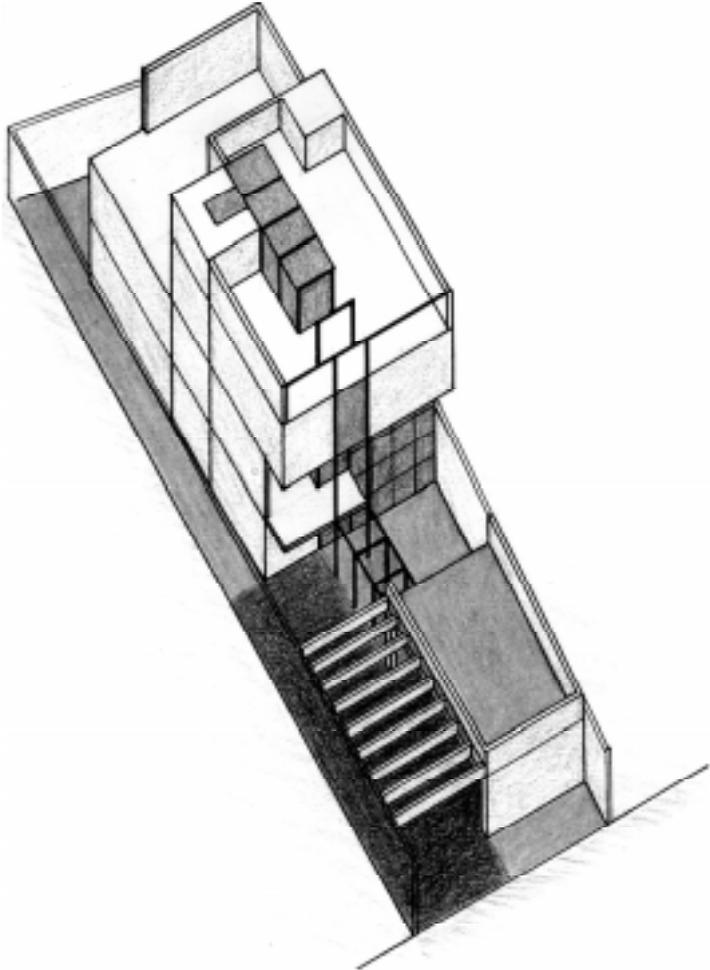
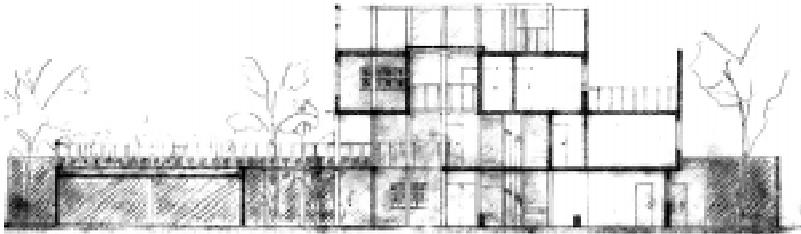


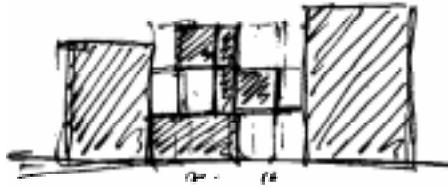
SCHEME 2: Different rooms are contained within a simple structure. The living room is in the center. Bedrooms and other utility spaces are on the sides.



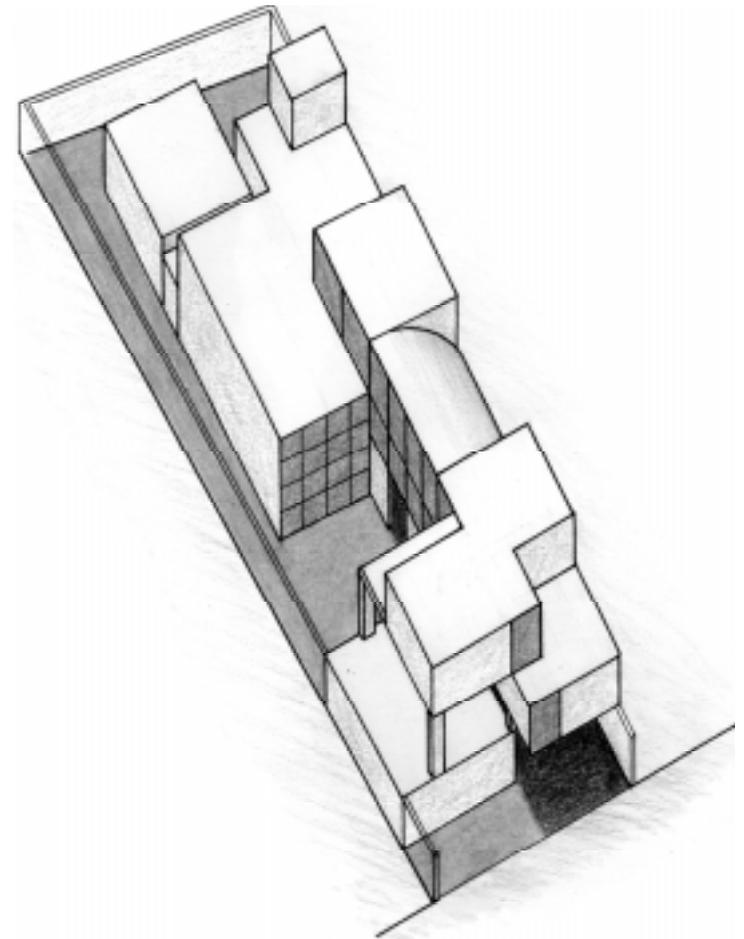
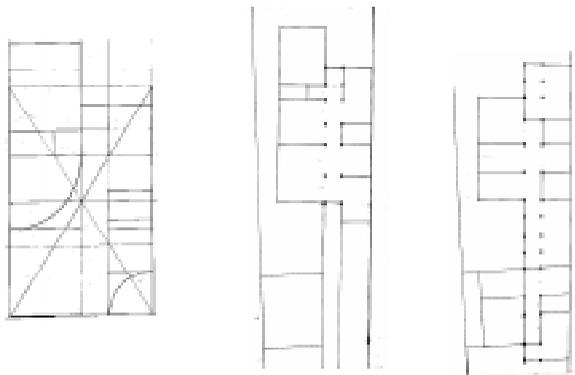
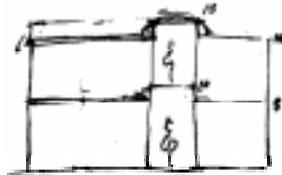
SCHEME 3:

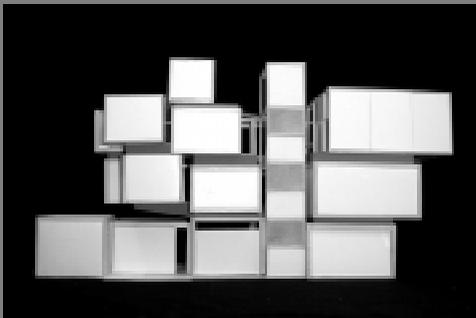
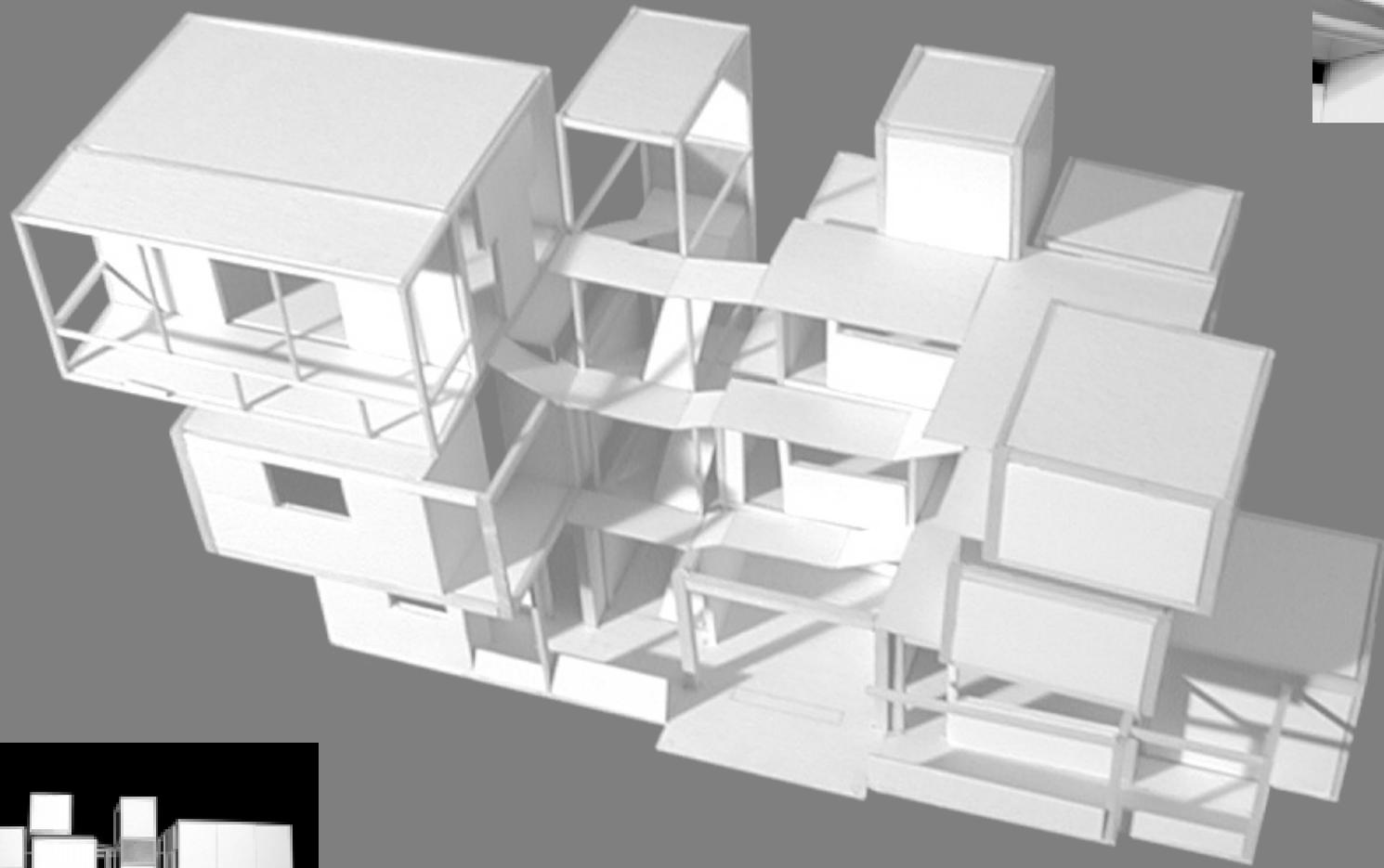
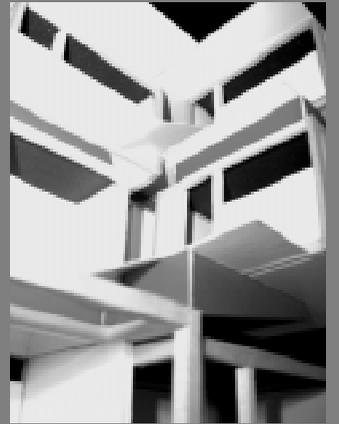
The garage is moved to the front. A garden is on top of the garage and linked to the second floor of the house. The central space in the house is open to the sky. An axis connects all the rooms in the house.



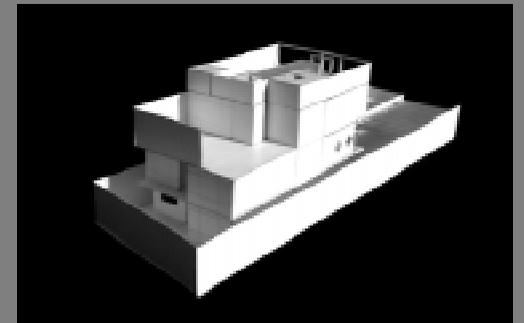
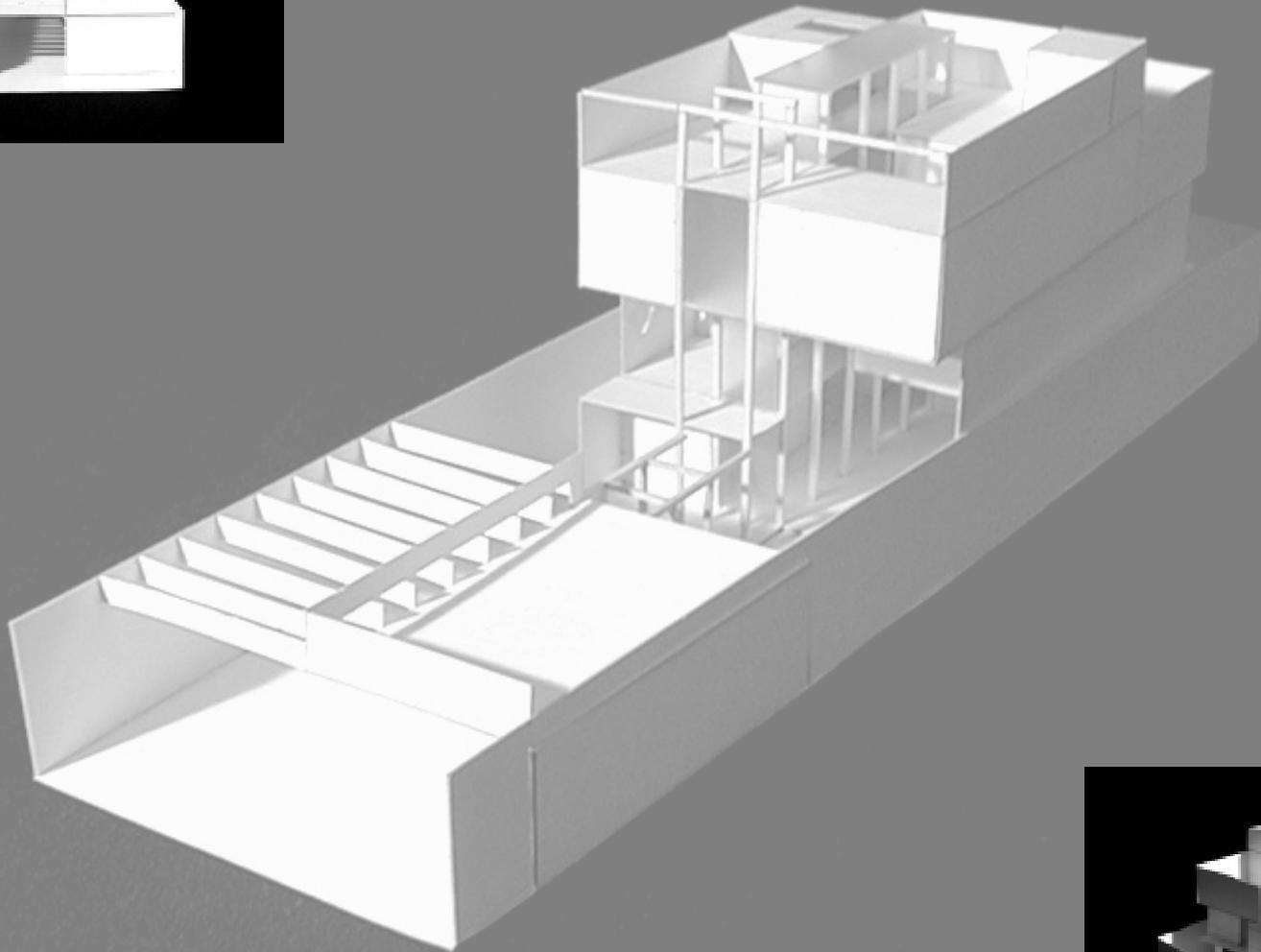
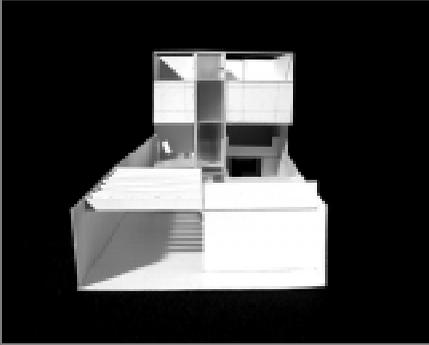


SCHEME 4: The house goes back to the analogy of the tree with a reasonable structure. The space is connected both vertically and horizontally. The facade corresponds to the street front. A courtyard in the center brings light and nature into the house.





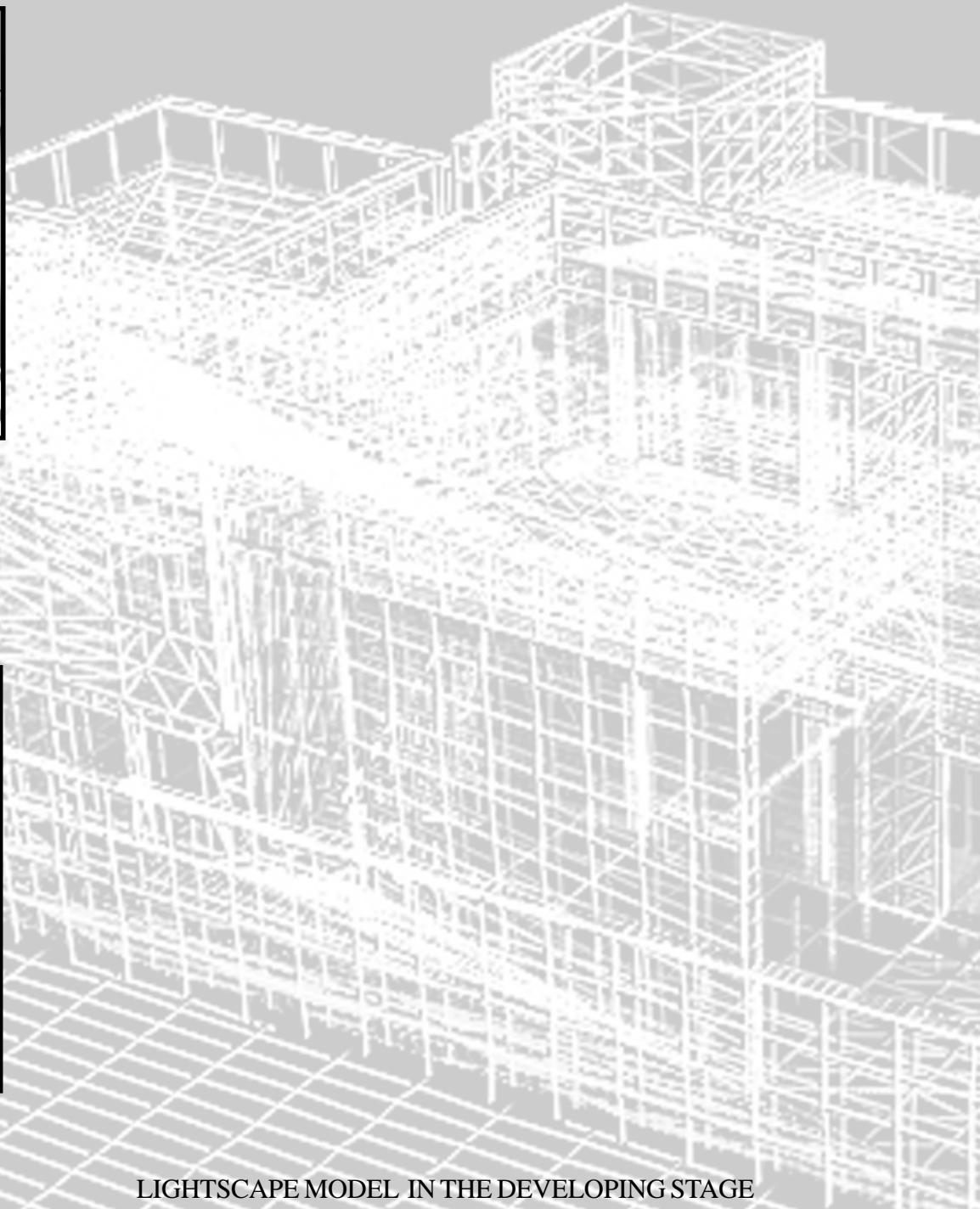
MODEL, SCHEME 1



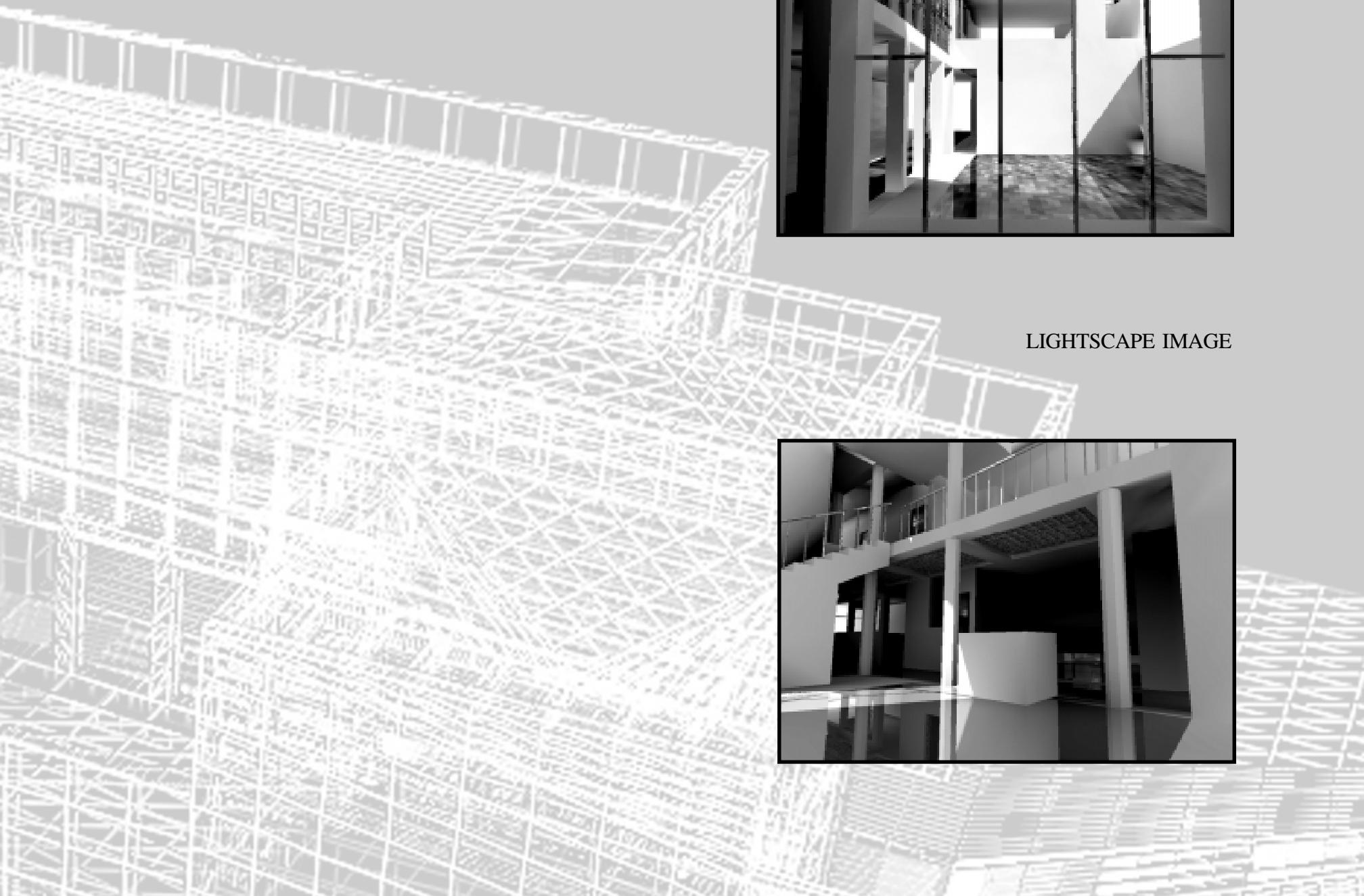
MODEL, SCHEME 3



LIGHTSCAPE IMAGE



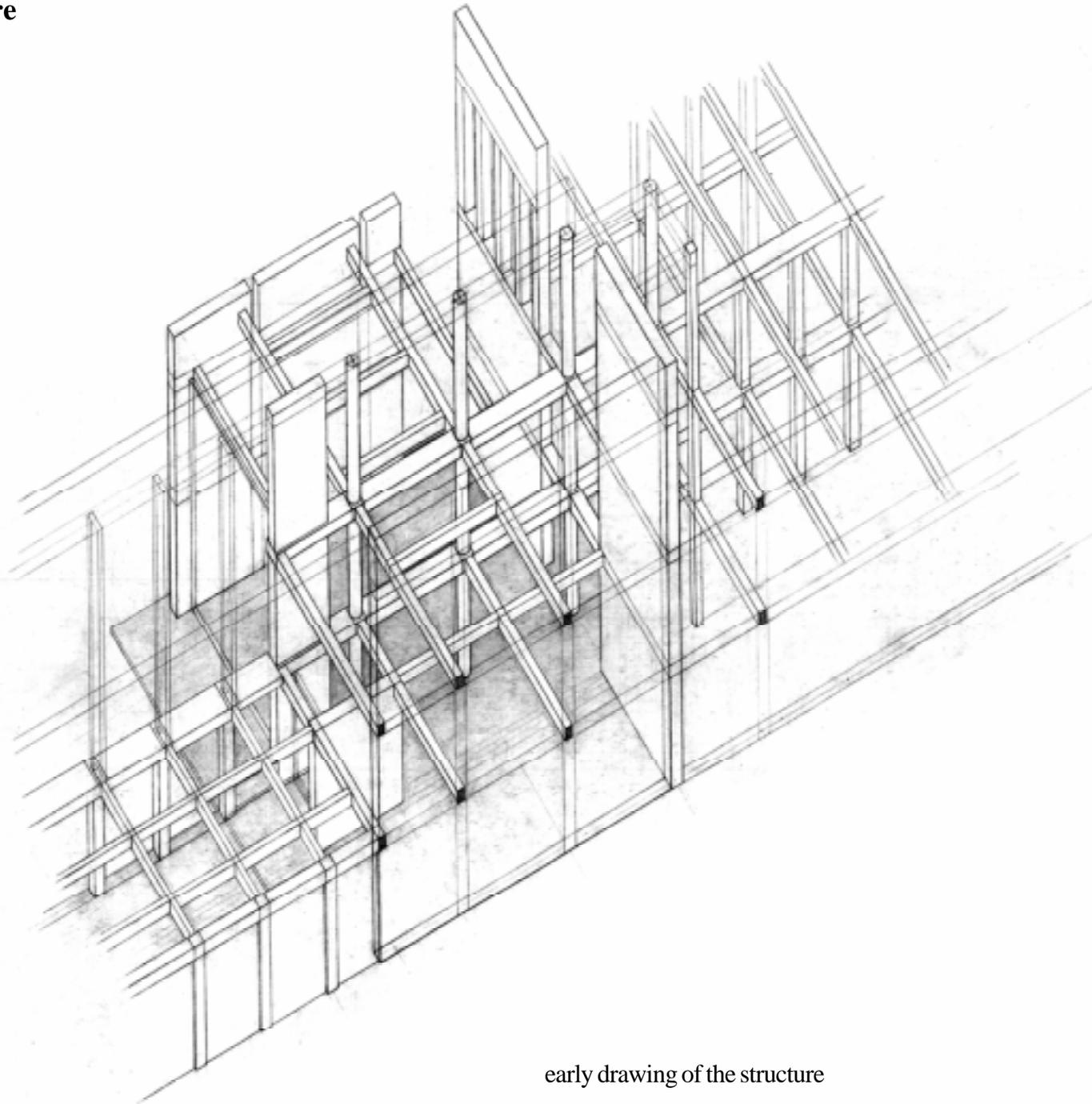
LIGHTSCAPE MODEL IN THE DEVELOPING STAGE



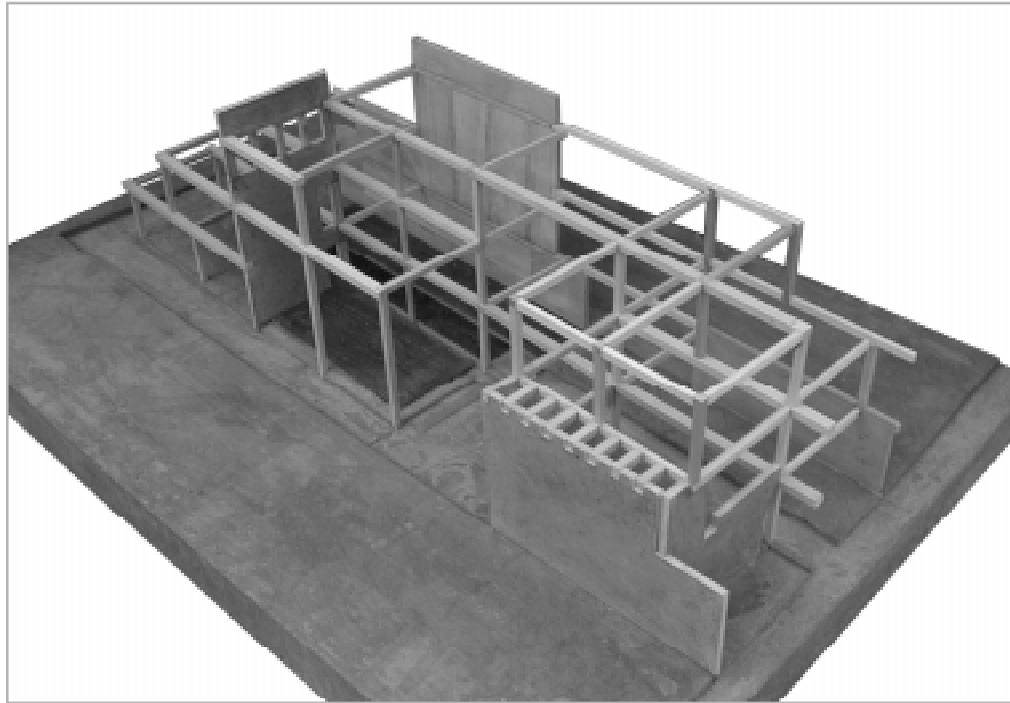
LIGHTSCAPE IMAGE



the structure



early drawing of the structure



The main structure of the house is sitecast concrete walls, columns, and beams. The concrete walls show the texture of the material in plain surfaces while the others show the capacity of the material through their lengths.

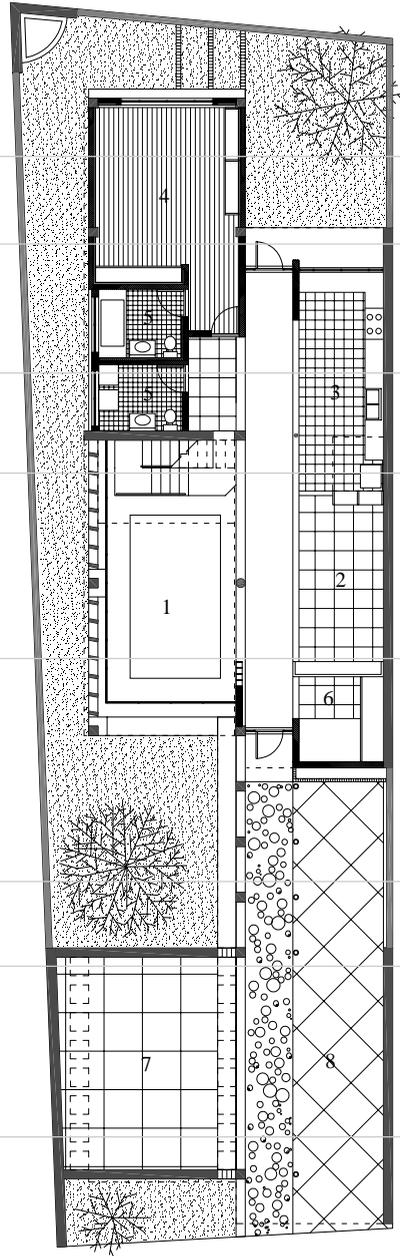
The infills for the bedroom units are made of concrete blocks and wooden panels.

A cavity between them keeps the water out.

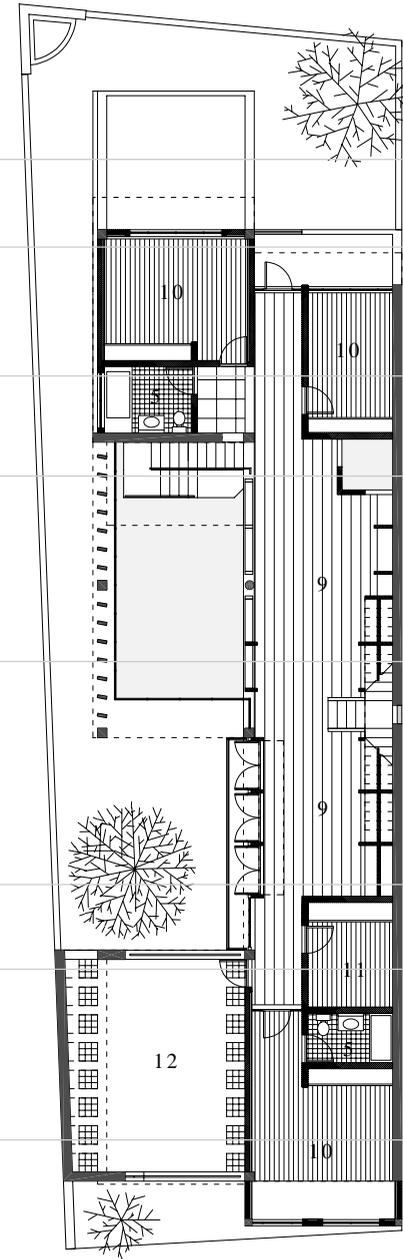
Different materials are used in order to develop a clear order within the parts that make up the house.

PLAN

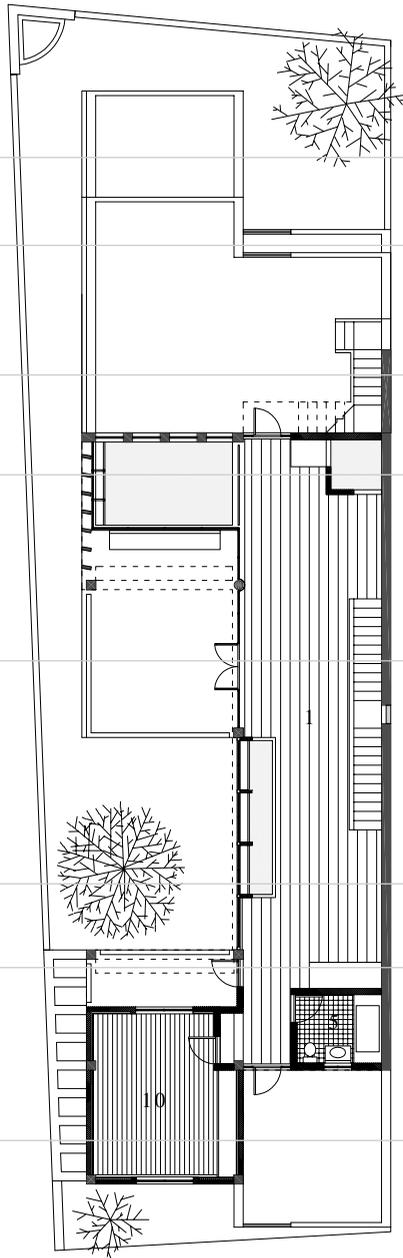
A
B
C
D
E
F
G
H



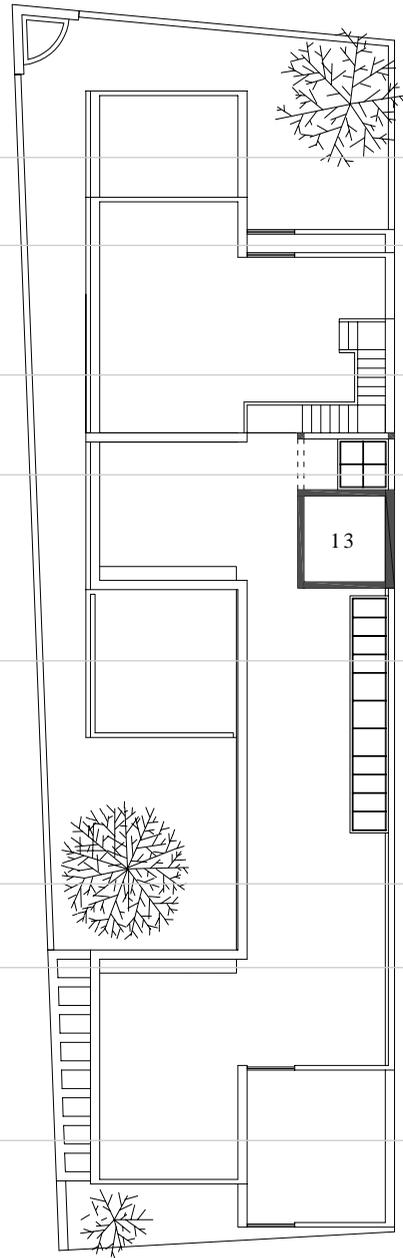
GROUND FLOOR



SECOND FLOOR



THIRD FLOOR

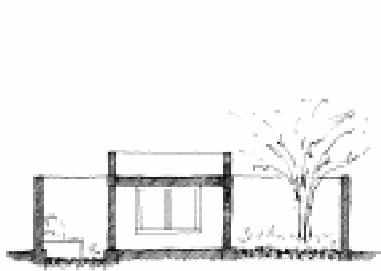


ROOF

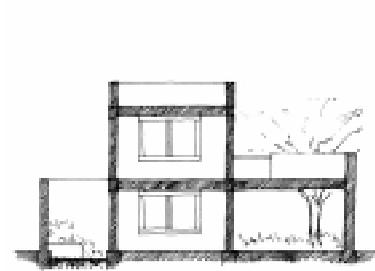


- 1: LIVING ROOM
- 2: DINING ROOM
- 3: KITCHEN
- 4: MASTER BEDROOM
- 5: BATHROOM
- 6: FOYER
- 7: GARAGE
- 8: DRIVE WAY
- 9: FAMILY LIBRARY
- 10: BEDROOM
- 11: GUEST BEDROOM
- 12: PATIO
- 13: WATER RESERVOIR

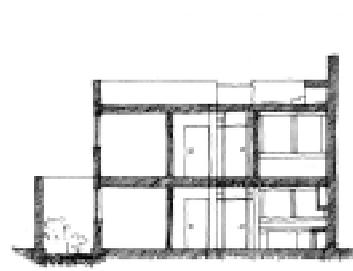
SECTION



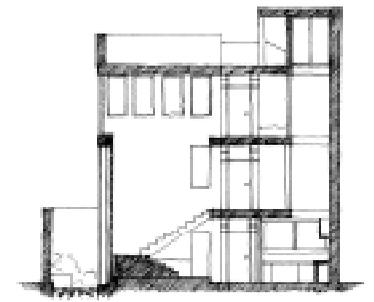
A



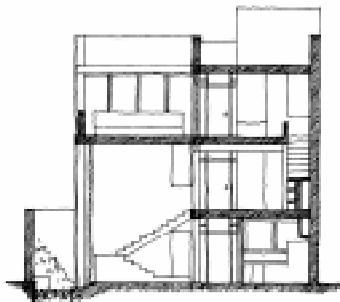
B



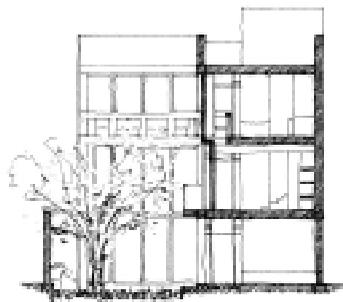
C



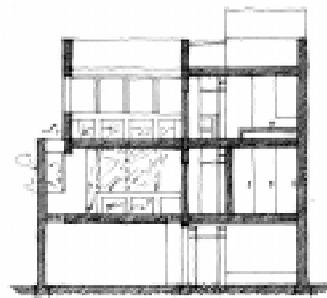
D



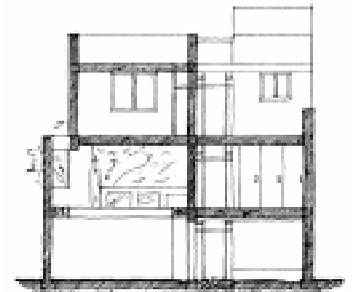
E



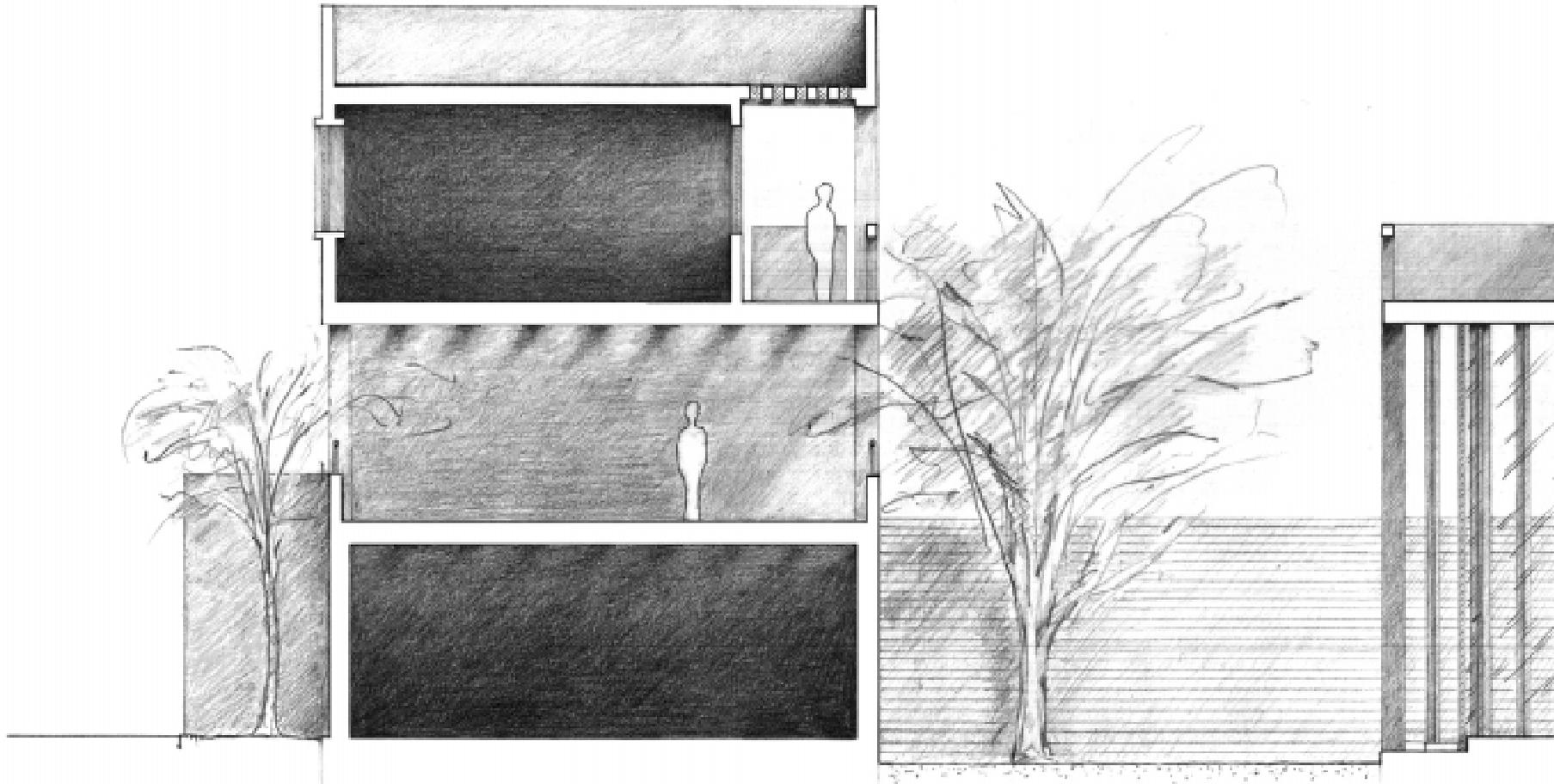
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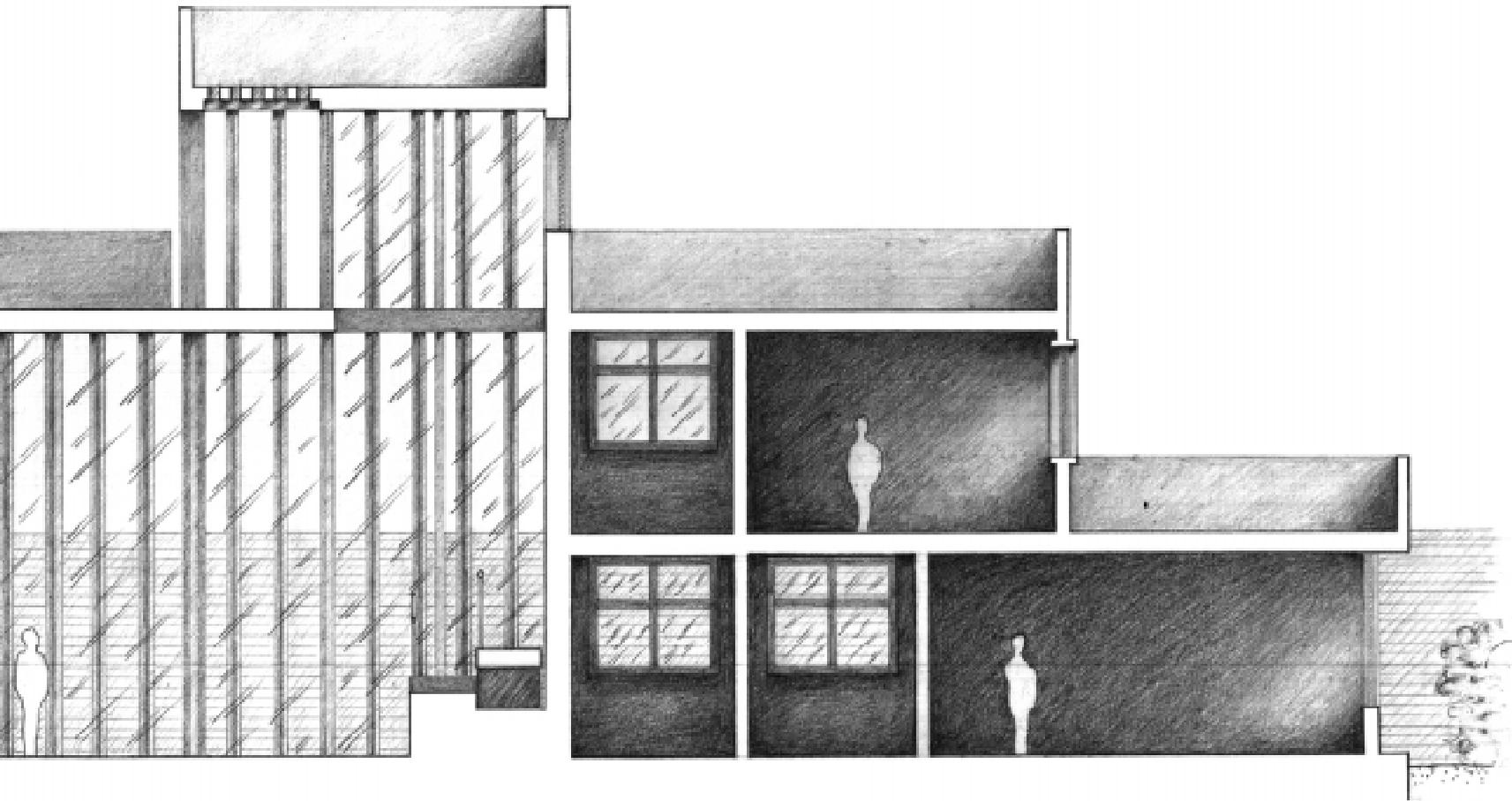


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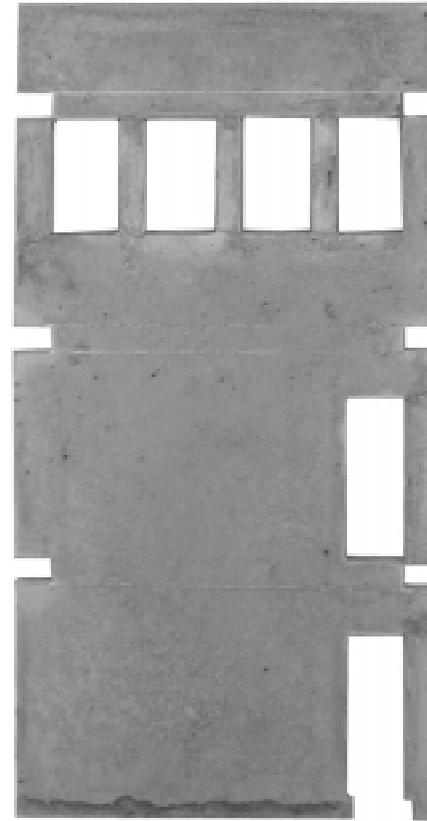




longitudinal section through the living room



THE ELEMENTS





The wall in the living room is not articulated. It is a wall you can ascend to and feel the material. It is also a wall where light comes through.



first floor

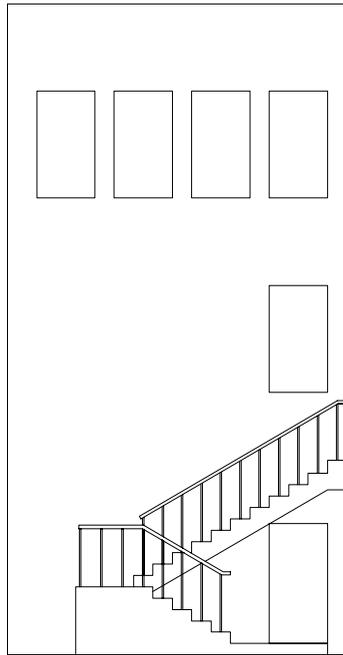


second floor



third floor

sections through the wall

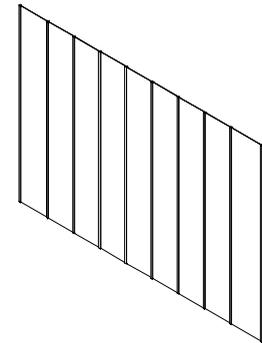
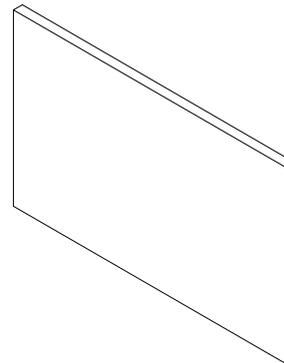
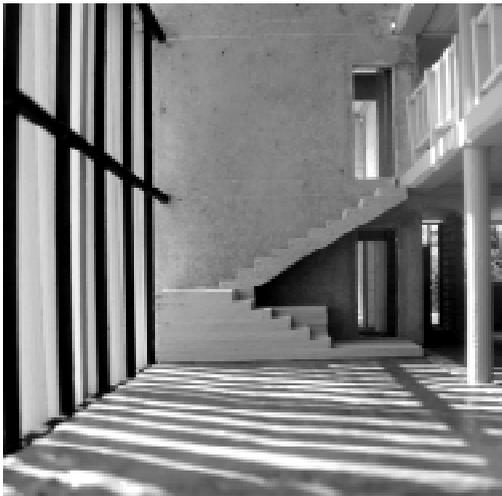


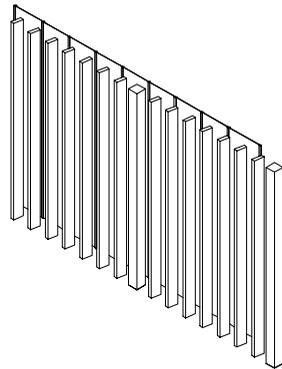
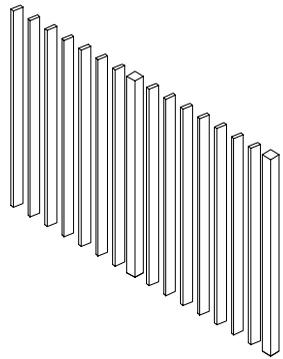
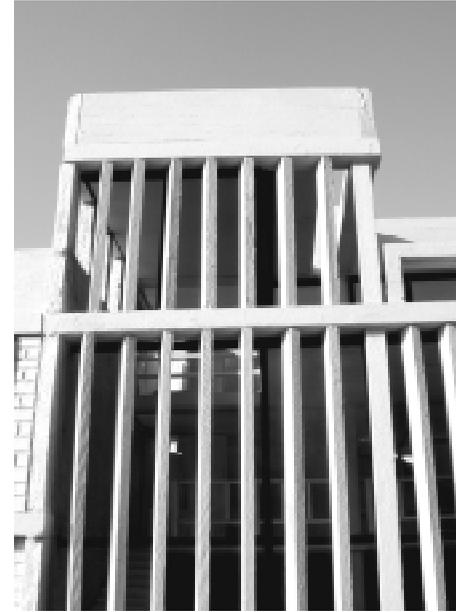
elevation of the wall and the stair





The thin concrete sunshades comprise a unique element of the house. It is an element that filters and reflects sunlight into the living room, but maintains privacy. It also emphasizes the vertical volume of the house in contrast with the horizontal movement of the space.





the development of the element

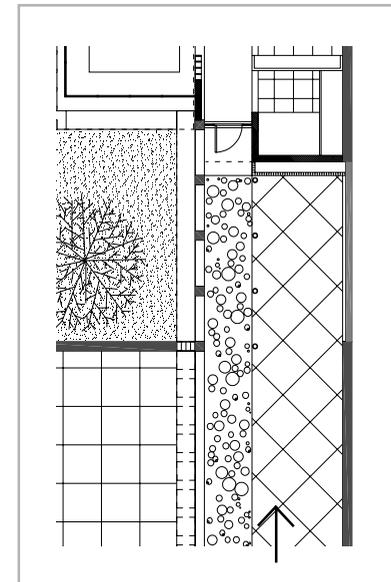


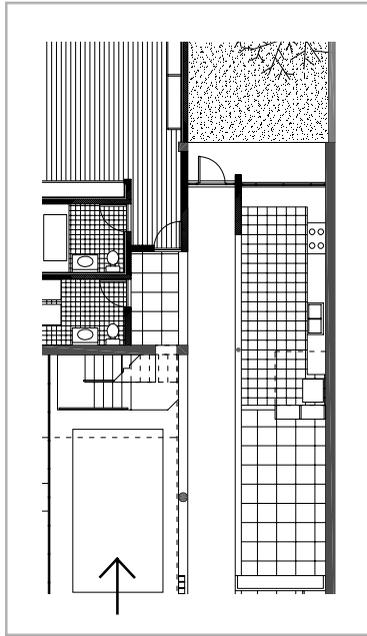
THE SPACE





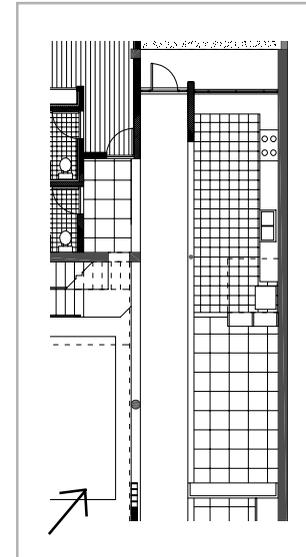
The entrance area serves both pedestrians and cars. The walkway is defined by a different material. The light coming from the courtyard gives a hint of the space ahead.



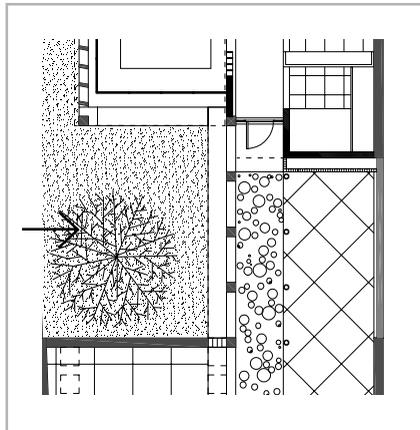


The living room is the core of the house. A three-story high concrete wall separates the public and private areas. The family library on the second floor overlooks the living room.



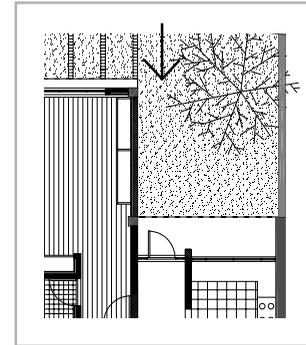


The column between the living room and the dining room marks the center of the house. It mediates different spaces as well as connects upper and lower floors.

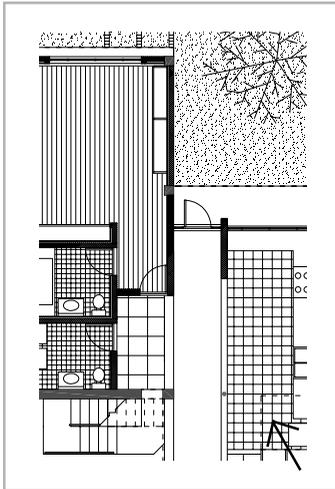


The courtyard provides light, air and nature to the house. It is the void that connects the solids at both sides.



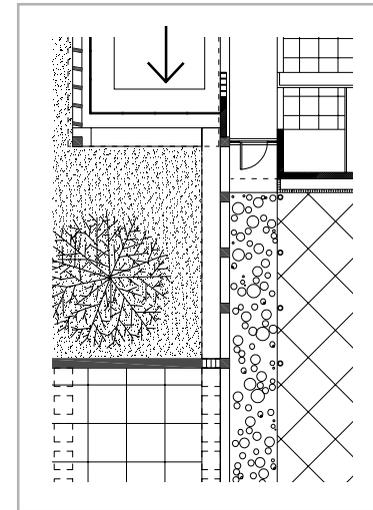


The backyard provides the kitchen with light and ventilation. The central hallway behind the door runs through the whole building and connects inside with outside.

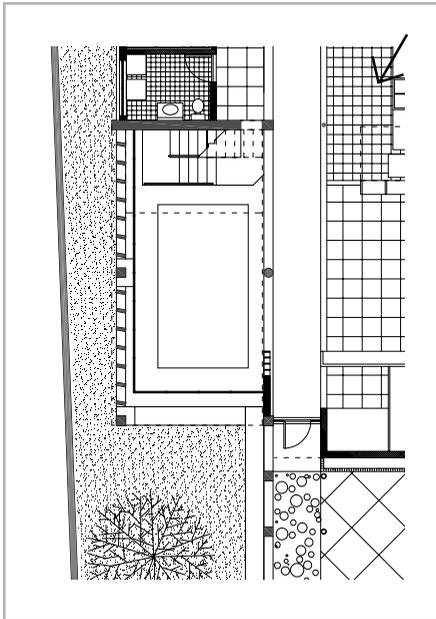


The central hallway is the primary path of the house. It provides access to different rooms.



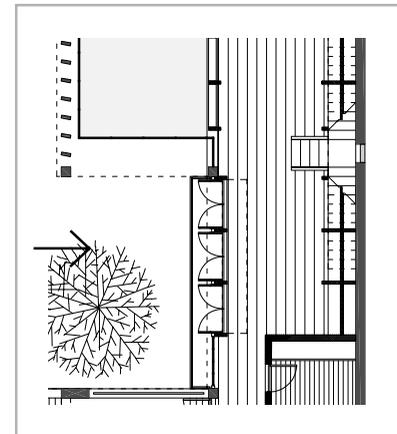


People can see each other from different places in the house. The visual connection enhances the relationship of the family.

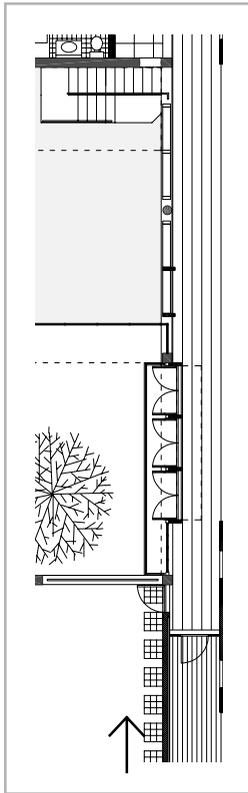


The kitchen, dining room and living room are not separated, but differentiated by floor materials, ceiling height, and columns.





One part of the family library overlooks the living room; the other part faces the courtyard. A stair between the two goes up to the third floor. A skylight is above the stair.

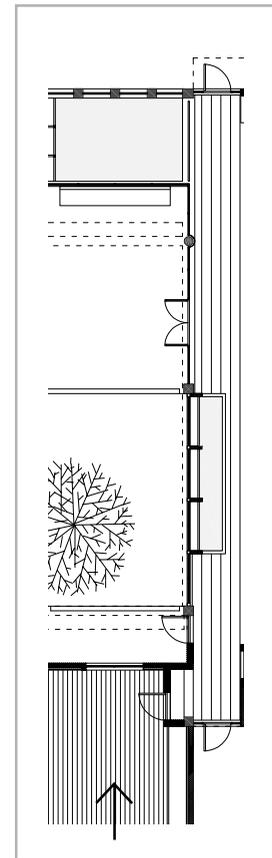


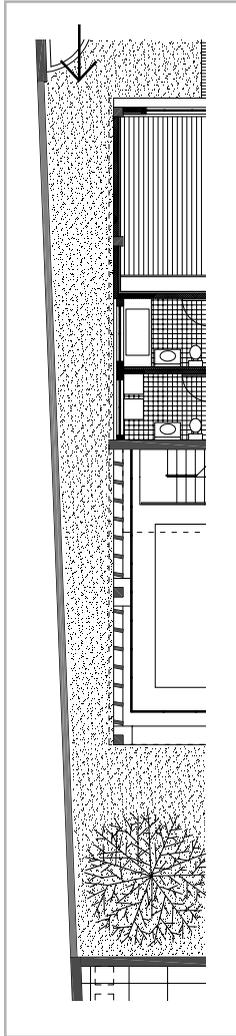
A patio is on top of the garage. People can see the street, the courtyard and the living room from the patio.





There is only one bedroom on the third floor. It is an individual unit that overlooks the street and the courtyard.





A path along the boundary wall connects the courtyard and the backyard. It is a path that people can wander through between the walls.



Space is not abstract. It is formed by concrete elements, which are the boundaries of the space. The differentiation of ordered elements gives rise to spatial complexity and the articulation of elements creates phenomena in spaces. Space and elements are complementary and inseparable.

Photo Credits

- P. 10, Villa La Roche
Tim Benton; Les Villas de Le Corbusier et Pierre Jeanneret; Philippe Sers; Paris, France; 1984; Page 51
- P. 10, Wingspread
Frank Lloyd Wright; Houses by Frank Lloyd Wright; A.D.A. EDITA Tokyo Co., Ltd.; Tokyo, Japan; 1976; Page 39
- P. 11, House Conversion in Laren
Herman Hertzberger; Buildings and Projects, 1959-1986; Arnulf Luchinger, Arch-Edition, Den Haag; Netherlands; 1987; Page 68-69
- P. 12, Luis Barragan Residence, plan
Luis Barragan; Barragan House, Los Clubes and San Cristobal; A.D.A. EDITA Tokyo Co., Ltd.; Tokyo, Japan; 1979; Page 42
- P. 12, Luis Barragan Residence, picture
Luis Barragan; Luis Barragan: the Phoenix papers; edited by Ignacio San Martin; ASU Center for Latin American Studies; Tempe, AZ; 1997; Page 22

Bibliography

Jean Jenger; Le Corbusier, Architect of a New Age; Thames and Hudson Ltd; London; 1996

Le Corbusier; The Modulor; translated by Peter de Francia and Anna Bostock; Harvard University Press; Cambridge, MA; 1954

Herman Hertzberger; Herman Hertzberger / Six Architectures Photographiees par Johan van der Keuke; Milano: Electa; 1985

Frank Lloyd Wright; Houses by Frank Lloyd Wright; A.D.A. EDITA Tokyo Co., Ltd.; Tokyo, Japan; 1976

Luis Barragan; Barragan House, Los Clubes and San Cristobal; A.D.A. EDITA Tokyo Co., Ltd.; Tokyo, Japan; 1979

Louis I. Kahn; Light is the Theme; Kimbell Art Foundation; Fort Worth, TX; 1975

Vitruvius; The Ten Books on Architecture; translated by Morris Hicky Morgan; Dover Publications Inc.; New York, NY; 1960

Andrea Palladio; The Four Books of Architecture; Translated by Isaac Ware; Dover Publications, Inc.; New York, NY; 1965

Leon Battista Alberti; On the Art of Building in Ten Books; translated by Joseph Rykwert, Neil Leach, Robert Tavernor; The MIT Press; Cambridge, MA; 1988

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