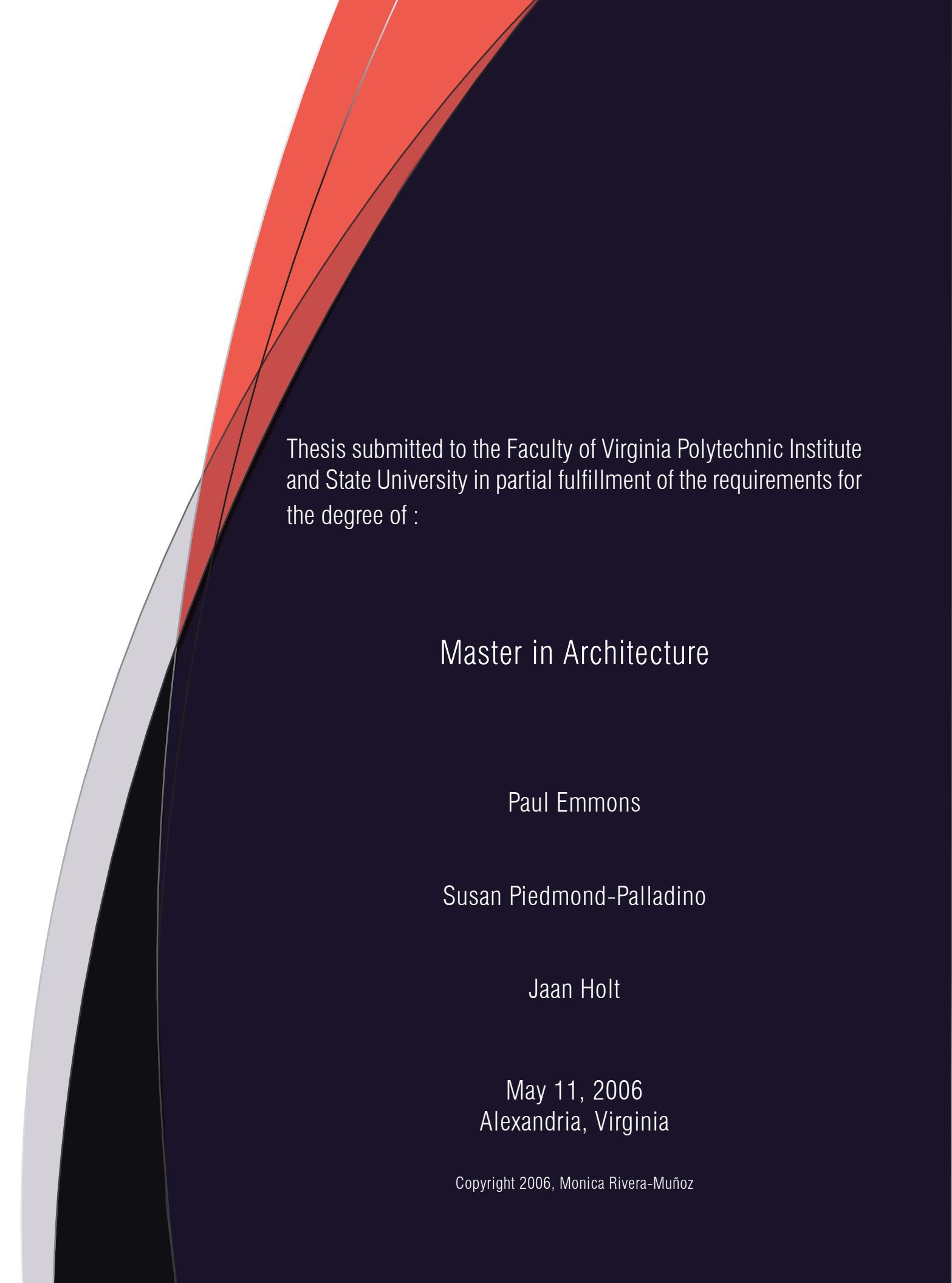


Slowing Down Time

studies on spatial time



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

Monica Alexandra Rivera

Master in Architecture

Paul Emmons

Susan Piedmond-Palladino

Jaan Holt

Virginia Polytechnic Institute
and State University

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ABSTRACT

Slowing Down Time

studies on spatial time

The experience of time is not fixed by a rigid mathematical measure, instead, it flows at varying rates.

There are certain occasions in which we would like to extend time with all our force, up to the limit of our stretched arms and further. Conversely there are moments which we'd like to last no more than the sparkle of a flash, but as we all have noticed, those are the longest in our life.

How does the space that we inhabit influence on our perception of time? May we identify especial elements that contribute in one or other sense to accelerate or slowdown the time?

It's said that time and space is an inseparable unity, as two aspects of the same thing. If this is so, then it also must be true that by shaping space in one way or another, we might influence the experience of time through it. Wouldn't it be delightful to believe that we may be magicians of time through manipulation of architecture?

Monica Alexandra Rivera

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DEDICATION

Al Señor, quien guía mis caminos y me fortalece.

A Edgardo, mi amor, mi esposo, mi novio, mi amigo, y mi compañero de vida. Gracias por la ternura de tu amor, tu apoyo incondicional, y la alegría que me regalas cada día. Te amo

A mis padres y hermanos, que me confirman que el amor verdadero se fortalece con el tiempo, y a pesar de la distancia.

ACKNOWLEDGEMENTS

I'd like to thank all my professors at Virginia Tech, who taught me a different way to speak architecture.

I'm very grateful to my thesis chairman, Professor Paul Emmons, who has taught me what is to be a true educator. Thanks for your sound advice and encouragement, not only in this goal, but in the future ones.

My most sincere gratitude goes to the members of my committee, Susan Piedmont-Palladino, Jaan Holt and Marcia Feurstein for their guidance and interest in the project.

To all the students of Virginia Tech, who are in the journey of developing their own language to speak architecture. Thanks for sharing your great ideas and for growing together.

INTRODUCTION

There are certain occasions in which we would like to extend the time with all our forces, up to the limit of our stretched arms and further. Conversely there are moments which we'd like to last no more than the sparkle of a flash, but as we all have noticed, those are the longest in our life.

I define the spatial experience of time as **thin** and **THICK** time, and they are determined by numerous factors, simple and complex, which endow the topic with some subjectivity, almost insurmountable.

To illustrate what I mean by thin and THICK time, I'll give the following example. As children, with enormous impatience we want to become older,



bigger, to go through all those fascinating things that big people do. How slow the time passes in those years, and how dense it is. Even though childhood is a comparatively short period in our life, which we only remember in a small part, it is felt as a very dense memory, as if the lived time would had been truly thick, dense, and therefore heavy time. Here is one of the characteristics of the duration of time; that it is directly proportional to our impatience and conversely proportional to our desire. Of course, there are a lot more factors that define how we experience time, the one in which we will concentrate our study is the one that in some way we can manipulate from the design, THE SPACE.

How does the space that we inhabit influence on our perception



of time? May we identify special elements that contribute in one or other sense to accelerate or slowdown the time?

It's said that time and space is an inseparable unity, as two aspects of the same thing. If this is true, then, we might assume that whatever affects the space, affects also the time that is intrinsic to such space. Wouldn't it be a magic craziness to believe that we can truly become on "manipulators of time" through the design of the space? We wouldn't be the firsts on doing so. Literature has repeatedly done it, but of course, Literature has always had more liberty to dream than architecture.

This study doesn't intend to be strictly scientific, neither does it pursue to find the rules under

which humans must feel and perceive, but only an honest effort to give a message that maybe we need to listen:

Slow down!

What is the urgency?

Everybody is going to the same place,

There is no way of being first, or last

There is not even any way of being late,

Everybody is going to get there!

ESSENTIAL CONCEPTS and resources

The idea of time as the guide for this project arose first as a natural question when we are dealing with an existing building, but soon it became a question in every instance of the project.

The following concepts are essential to the project. They were studied along the whole process of design, and have contributed to the molding of spaces that enrich the experience of a spatial time, and specifically of a slow spatial time.

The artificial division of time as chronology that history has developed has deeply pierced our understanding of time as the succession of several stages filled of events that share common traits inside each stage. In this sort of time we have divided also our lives in: childhood, adolescence, youth, adulthood, maturity, elderliness. However, time is not divided. It is a wholeness that feeds and creates itself in a continuous and endless “continuity of change, preservation of the past in the present; real duration”. Time might be considered as matter in a continuous process of re-generation, past that generates the present, and is also part of future, in an endless chain of action and reaction.

“There is, moreover, stuff neither more resistant nor more substantial [than time]. For our duration is not merely one instant replacing another; if it were, there would never be anything but the present –no prolonging of the past into the actual, no evolution, no concrete duration”¹

The present is much more than simply a point on the line of time, or an ephemeral instant. It is formed by the events that allow the present happenings, and the direct and indirect effects that such happenings will shape. Hence, one moment and its events are never completely independent from another, then, cannot be a sole point on the line of time.

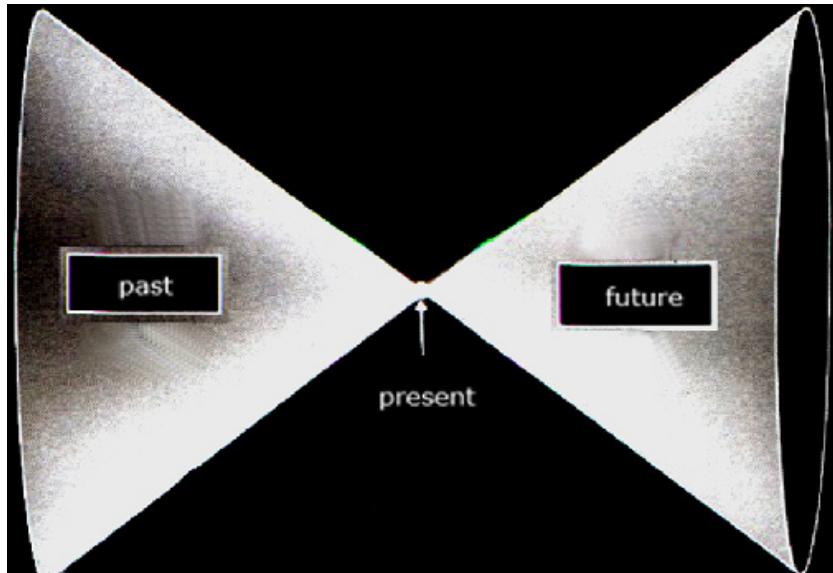
The idea of the present that on the 80's Stephen Hawking² represented on a space-time diagram as the point of a cone (our position at the present time), where the

past events lie on what is called our past light cone, and the future ones on an opposed future light cone, differs very much from the understanding of present in this thesis work, where the present is something more substantial .

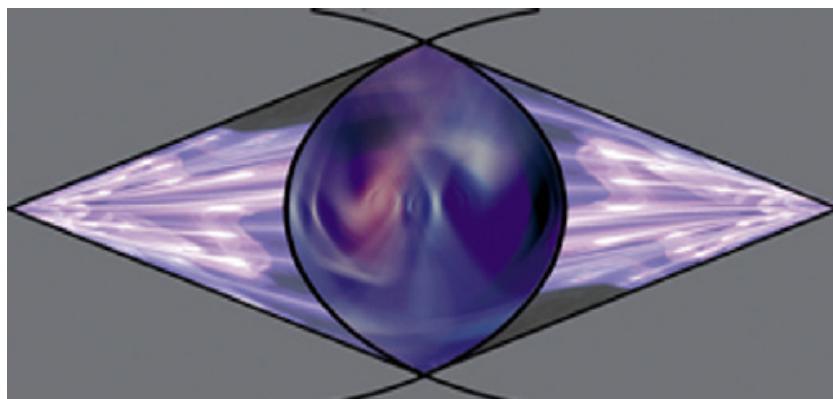
The present draws its essence from past, gnaws into the future, and swells at the same time that slowly moves forward, leaving behind spectra of its form and substance. However, there is not only one present. In its interior, present time encompasses the infinite presents of our lives, our particular time, our personal story.

¹ Bergson Henry, Creative Evolution, McMillan & Co. Limitec, London, 1928

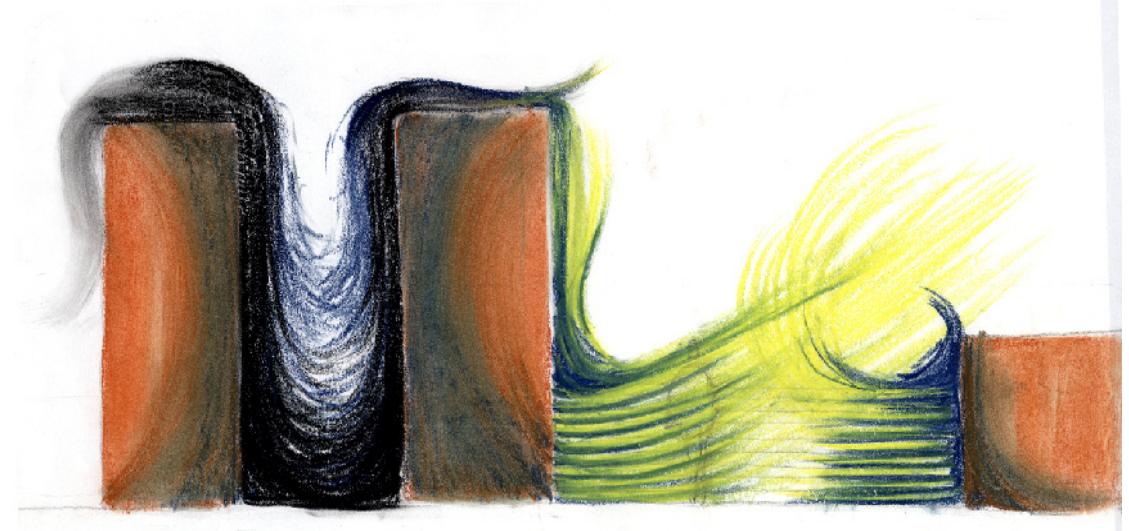
² Stephen Hawking, A brief story of time: from the big bang to black holes, Bantam Books, New York, 1988.



Stephen Hawking space-time diagram



The present draws its essence from past , gnaws into the future, and swells at the same time that that slowly moves forward.



Slow Dark Time & Slow Light Time



Spatial Time

Among the many main factors that condition our perception of time are the age, the state of mind, the mood, the activity that we are performing, surrounding people, and the place and space we occupy.

The space that we inhabit has a deep influence in our sensorial experience, leaving in our mind the memory of a moment as an extract of the whole experience. To our subconscious mind, the memory, just as our perception of time, is like a dense substance. To our conscious mind all the weight of our memory is resting over supporting points (memories); essential moments; extracts of the real experience, which tells us about sensations, feelings, and

duration of the experience; all this related to sounds, smells, space, forms, textures, etc. The stronger one or other element is in the experience, the stronger will be its presence in the memory, and the easier to recall the experience.

When the space and architecture where the experience was developed becomes the most important element, and it influences on our perception of time, we got Spatial time, which is therefore, the time whose perception has been touched (therefore affected) by the space it inhabits, leaving in our mind the memory of a faster or slower experience of time.

In this work, we've focused on study and design architecture that encourage a stronger experience of time, looking for a richer and long-lasting sensation of time in our memory.

Every component that shape space and architecture are potential factors to influence the perception of time, but two main factors have been took in account in this thesis, mass and light.

Light and mass shape space. Space defines our temporal experience in it; therefore, light and mass give form to spatial time. The quality of temporal time is directly associated with the mass of the solids that shape the space and the light that touches the surfaces. This implies that by shaping in one or other way the space, we might influence the experience of a faster or slower spatial time. We'll concentrate on reaching a slower spatial time; modern city life and the inexorable pass of time in our lives, gives us enough experience of fast time.

Slow Spatial Time might also be considered as thick time, because it is a denser and substantial time.

There are two kinds of thick time:
Slow dark time._ Determined by ponderous masses and the heaviness that they affect upon us. When immensity overwhelms us, it deeply affects our perception of our own size and of the speed of time, making everything to happen as if in slow motion.

Slow light time._ Defined by the fine detail of the surfaces, drawn by the light that shapes the forms. Time and light assist each other in drawing the forms; light making them apparent to our eyes; time, traveling with the eyes through all the corners that light did, making the forms comprehensible to our mind.

One hundred years of solitude

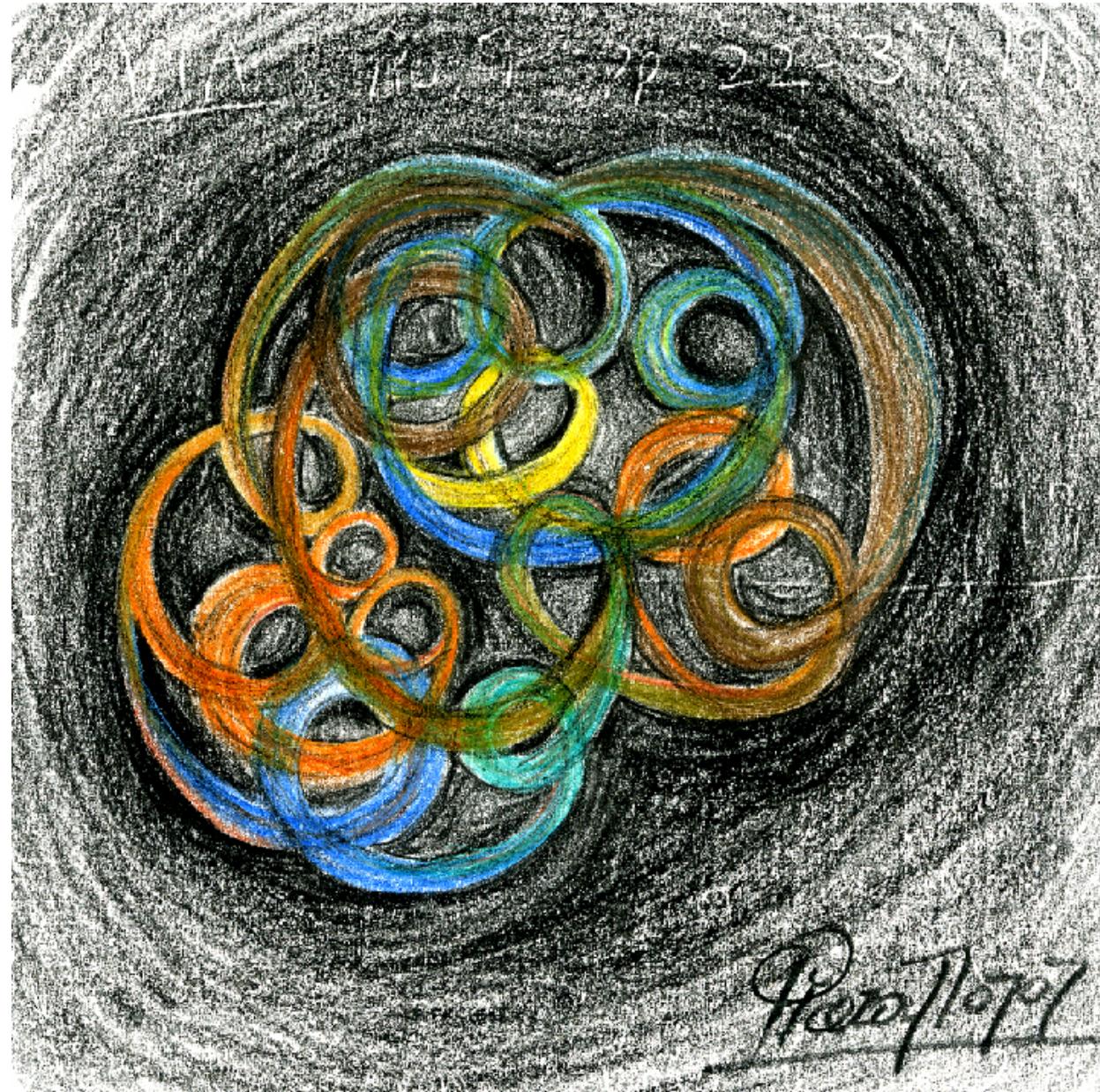
The work of Gabriel Garcia Marquez is an excellent resource to understand the idea of thick time. This Colombian Nobel Prize-winner writer has the power of being a truly manipulator of time through the marvelous use of words. His masterful handling of the detail in the description, allows him to capture the time in a bubble that swells, and swells, concentrating time, making it denser, heavier, and longer. He goes back and forward on time, brings back memories, foresees fates, explains present by means of future, constructing bit a bit that complex structure of the eternal present of his narrative; that dense time that sucks from future and past to compose its own story, its

own moment, its own substantial PRESENT.

One hundred years of solitude is the perfect excuse to start an endeavor on design, and sometimes that is the only thing that we need to start any enterprise, a pretext, an initial sparkle of lucidity on our confused and busy minds.

"Nobody ever really understood how in such incommodey, breathing the lime and molasses of tar, it arose from the entrails of the earth not only the biggest house that the village had ever seen, but the most welcoming and fresh that never existed on the surroundings of the whole bog"³

Guided by this thought I started the design of my project, allowing to the "entrails of the earth" to tell and to give form to what needed to be on the site.



Circular time diagram

With the idea of the eternal present of García Marquez in *One Hundred Years of Solitude*, and the idea of the condensation of time I understand that yes, it's true, Time condensates, up to a point that it is so dense, it gets circular. Circular because it is conformed by the cycles of our lives and the events that in them seem to repeat incessantly, and which allow us to measure the time in our own lives without having to turn to a calendar to find out what point of our lives we are living.

One Hundred Years of Solitude is a prophesy of one hundred years that will take the same number of years to be decoded; in the very moment that the last prediction is happening. One hundred years, because the prophet didn't tell the story in chronological order, but "condensed one century

of daily incidents, in such a way that all would coexist in a sole instant". The time assumes then a circular character; the events have a cyclical nature. They are part of the destiny of the family, as a fate sealed by the prophesy existence.

The episodes in the life of the family are incessantly repeated, leaving always the open possibility for a new cycle repetition. However it is not the same time. The new time has been nourished, transformed, and determined by the track that the past and the projections that the future have spilled over the point that is being narrated, and that only for a while will be the present; one of the infinite presents in the novel.

The narrative in *One Hundred Years of Solitude* determines spatial relationship among the different

rooms in the hotel. They are not sequential, they are not gradual, and they are not hierarchical. All of them are in some point protagonist, and also secondary characters in the story. All of them are open and are connected, allowing the possibility of an endless journey throughout its spaces.

3 Translation from García Marquez Gabriel, *Cien años de Soledad*, Editorial Norma, Bogotá, 1967, by Monica Rivera.

CASE STUDY.

Eijuri Residence

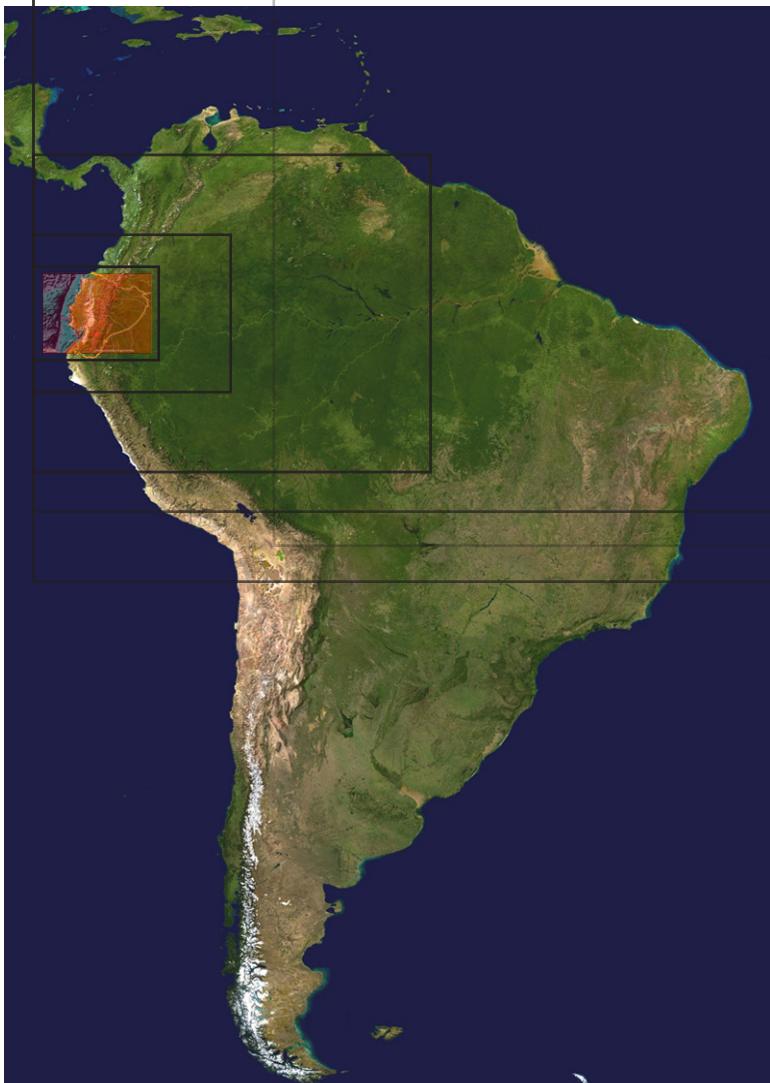
Eijuri Residence is located in Cuenca, the third biggest city and one of the most important tourist destinations in Ecuador. This building, built in 1937, is among the first examples of modern architecture in the country, and was the first residence to be built in this style in Cuenca, where modern architecture started to be built after 1950.

The City: Cuenca

Surrounded by the Andean mountains in the South of Ecuador, Cuenca is set in a valley crossed by four rivers that shape her singular and beautiful town-scape.

This is a millenary city. Two cultures had founded their cities in these lands before the coming of the Spanish conquerors. First, "Guapondelíg", "prairie vast as the heavens", was the city of the Cañari people. Later, would be the Incas, who on their own conquest campaigns founded "Tumipamba" over Guapondelíg, which come to be one of the most important cities of the Inca Empire.

Geographically Cuenca is divided in 3 terraces, which also have





marked the process of growth of the city. The middle terrace houses the historic part of the city. This is also the main core of commercial & government activities. For almost 400 hundred years, the orthogonal urban pattern & the limits of the city had remained almost unchanged. The formulation of the first Master Urban Plan, and great economic changes in the regional economy in the 50's determined the accelerated expansion than the city underwent in the following years, towards the lower lands. That would be the modern city, from the other side of the Tomebamba River, with detached houses and in general, a less compact organization.

Eljuri residence must have been one of the first residences of its class in this side of the city. Only the "Virgen de Bronce" parish

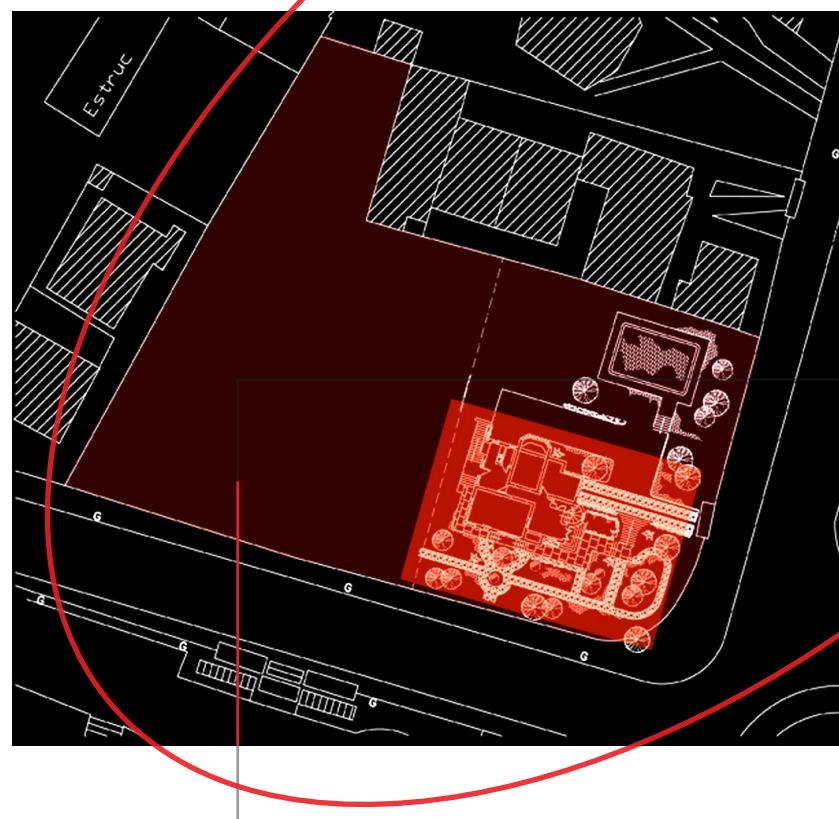
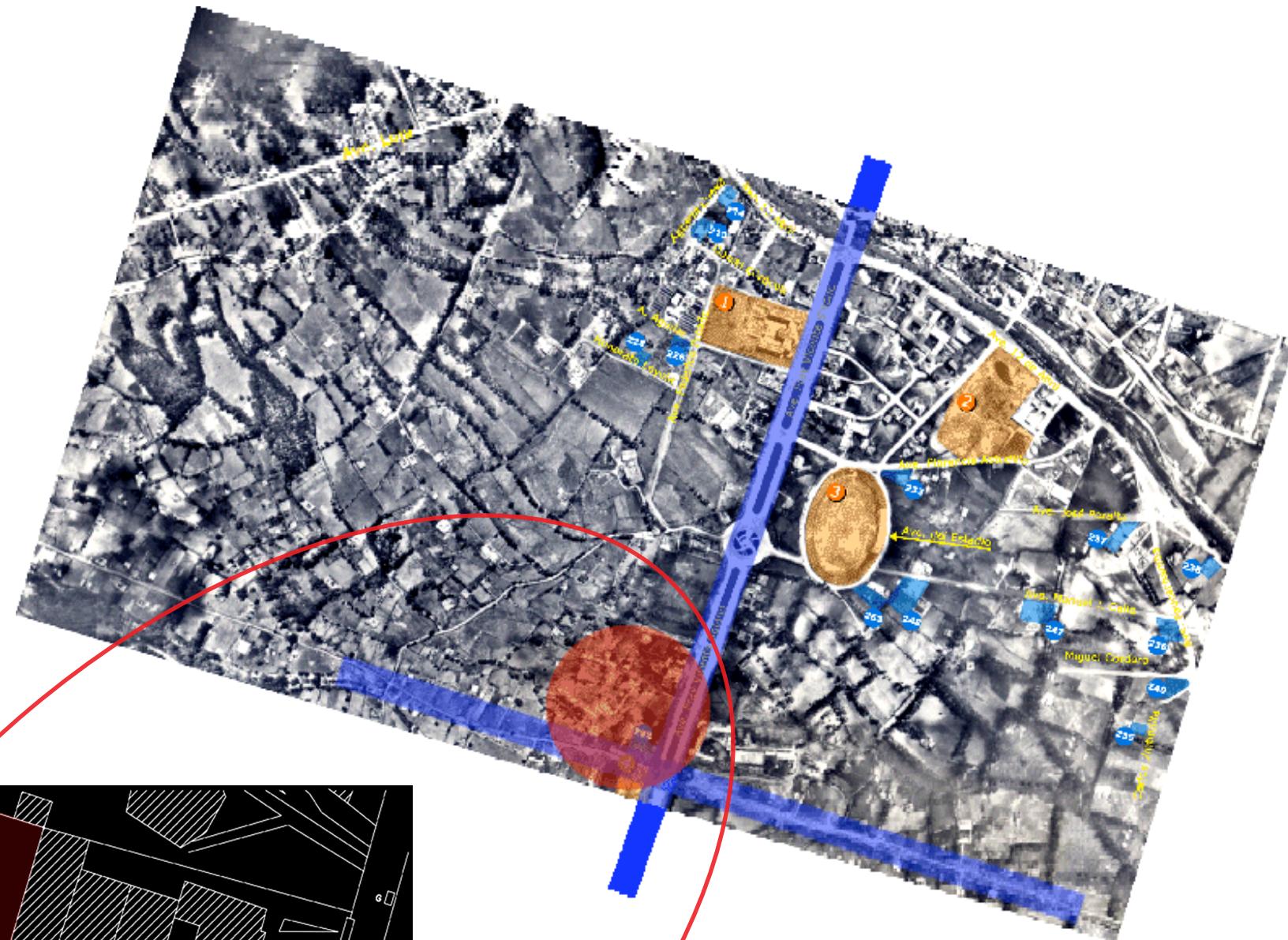
church had been built by the time the house was build. Cuenca is nowadays, an obligated place to visit in Ecuador. The beauty of its setting and architecture, the social and cultural diversity of the groups that form its people, and its distinctive and unique traditions, earned her the recognition by the UNESCO in 1999 and its inclusion in the list of WORLD HERITAGE PROPERTY, which has increased greatly the tourist development in the area.

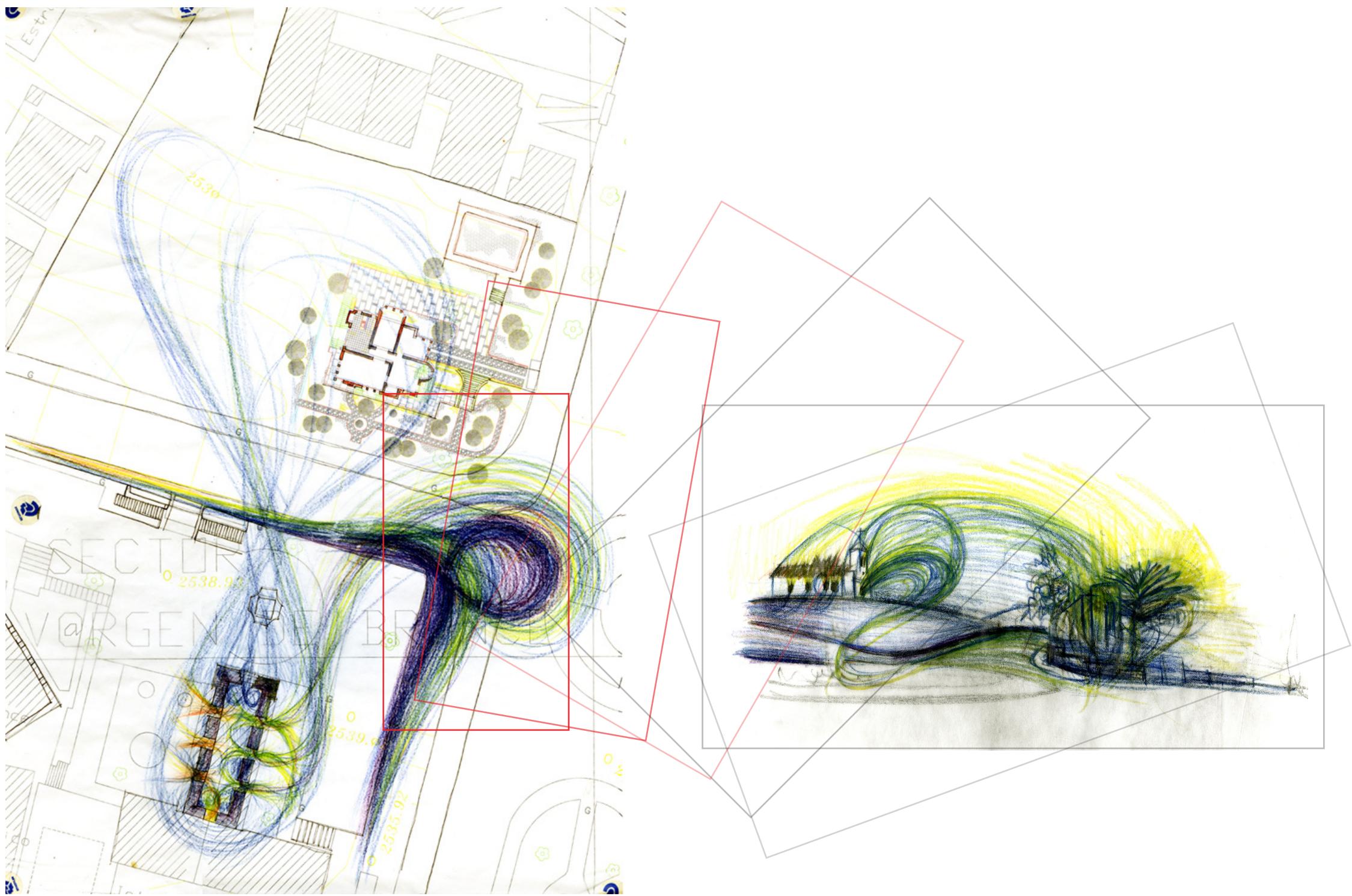
The Site

The house is on the modern part of the city, in the intersection of 2 major avenues that nowadays are undergoing a deep process of change on its land use, from residential to commercial use, what is transforming also their image.

The house uses only a 25% of the total site of approximately 3250 square meters, around 32500 square feet (house has 144mt² or XXX square feet).

To the south is the Virgen de Bronce parish church, build in the top of the hill, in which slope is also the house. The influence of the church over the site was also considered on the design process, and it determined where the



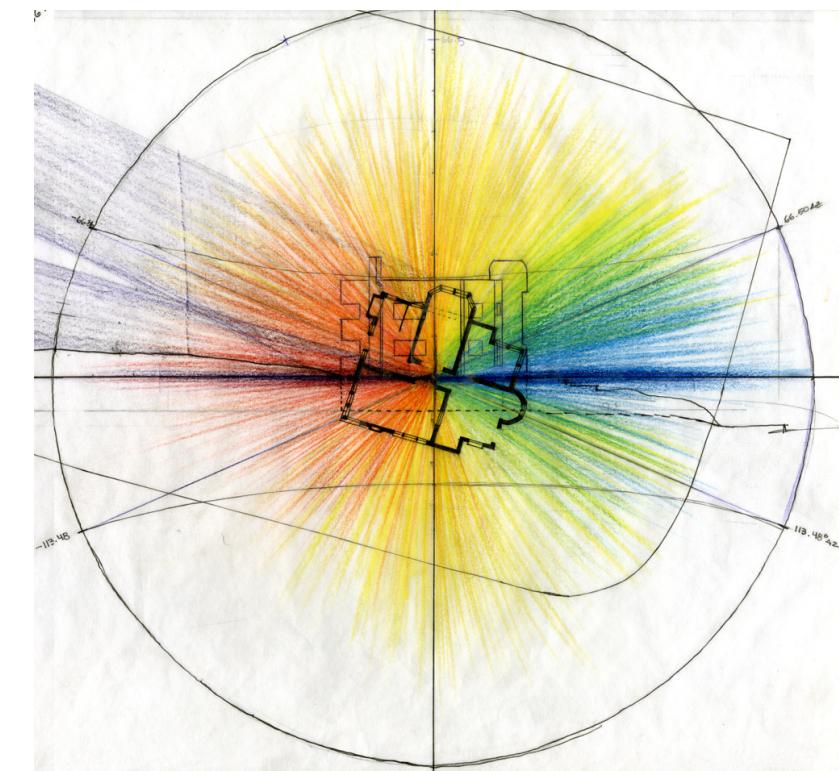
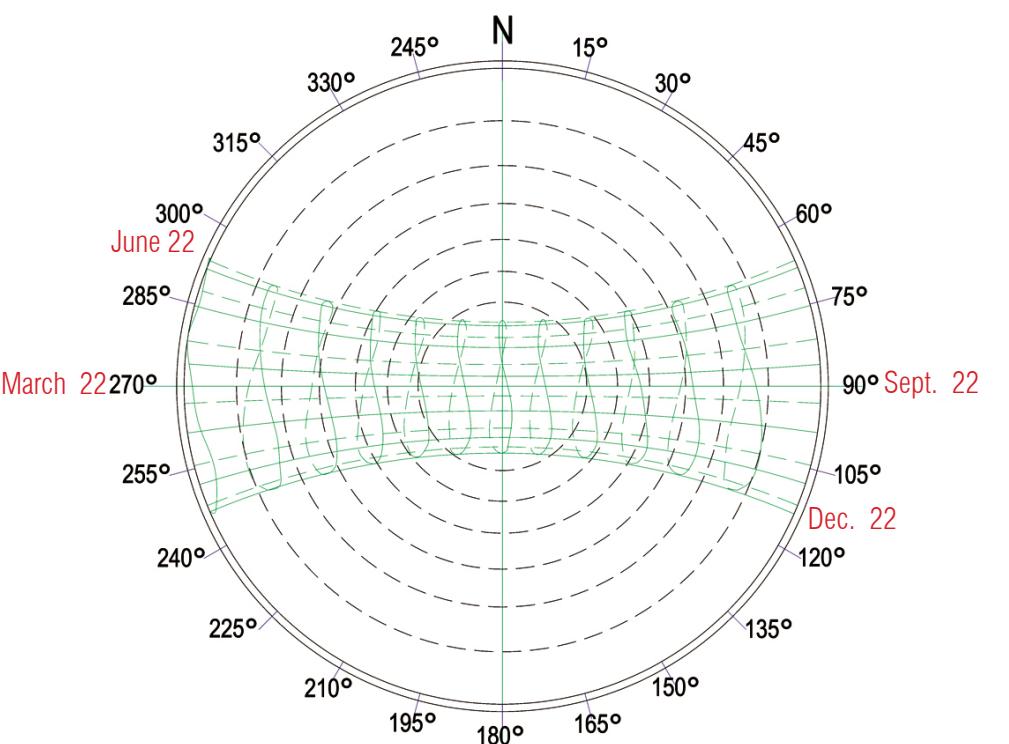


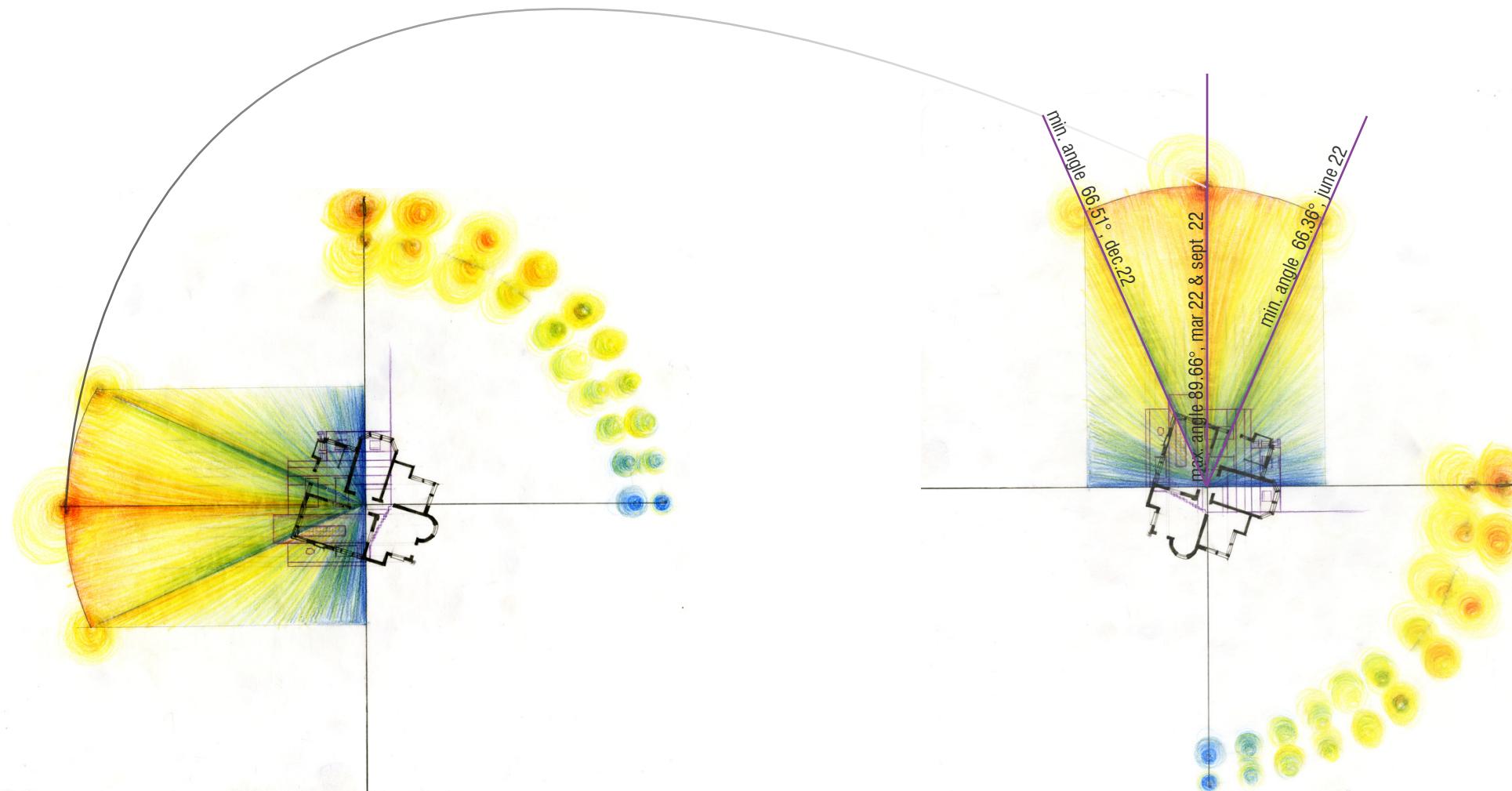
access for the hotel would be. The location of the house in the site was very convenient, since that allowed to make maxim advantage of the remaining area of the site without the house losing protagonism on the streetscape.

Orientation of the Site

The sun path diagram for Cuenca show us how because of the tilt of the earth, half of the year the sun light come slightly from the south, and the other half of the year it does from the north, nevertheless the sun always appears high in the sky.

This fact makes especially important the light coming from the zenith, which is more strong and constant during the whole year. For instance, on wall fenestrations with north or south orientation, direct sunlight doesn't enter too deep in the rooms.





Past

of the house

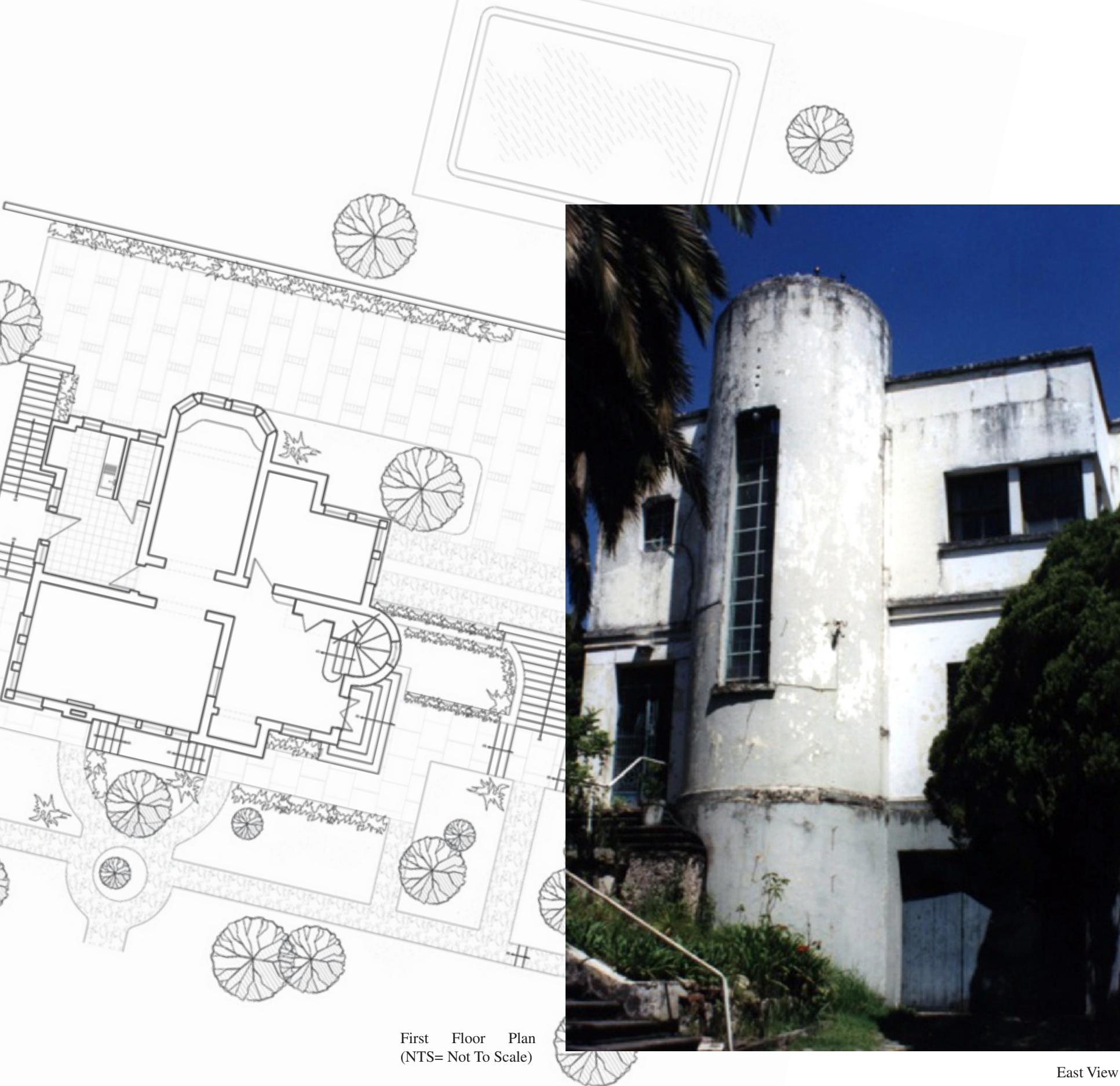
The owner, José Eljuri Chica, a lawyer and a prosperous merchant, was in his time one of the wealthiest people in Cuenca. His economic situation allowed him to build this house in a completely exceptional style for the time and place it was built. It is necessary to have in mind that Cuenca was at that time an isolated interior city, and the materials used on the new house were expensive and unavailable in the area.

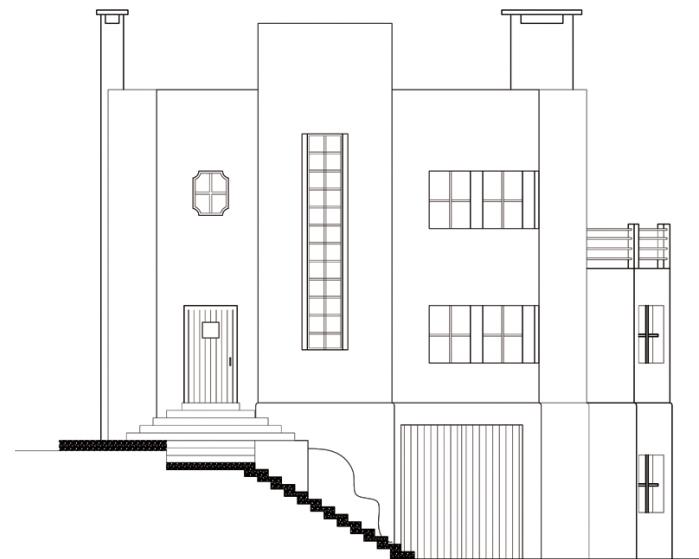
It is not clear how Jose Eljuri made contact with Hugo Fagioni, an Italian architect who was in charge of the design. Nothing else is known about

him, nor other buildings in the city are known to have been designed by him; however, it is clear in the expression of the building the influence of the Italian modernism.

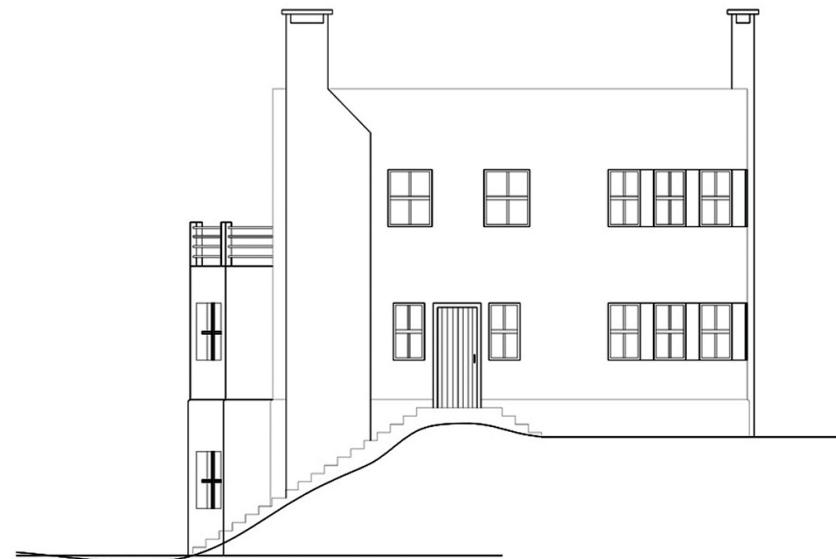
Even though the building techniques were completely new to the local tradition, the construction was executed by one of the Lupercios, a well respected family of masons that for years were the "builders" of the city.

The house was located in an almost uninhabited area of the city; only the Virgen de Bronce Church existed at that time, the rest were cattle fields, and would remain like that for at least 15 years more.





East Elevation (NTS)



West Elevation (NTS)



North Elevation (NTS)

During an economic shortage, the house was sold, but it returned to the family as part of the inheritance that Jose Eljuri received from his father, Gabriel, who had bought the house in an auction.

The house was in hands of the Eljuris until last year, when it was sold to a corporation that plans to build a hotel in the site, which might threaten the integrity of this valuable building.

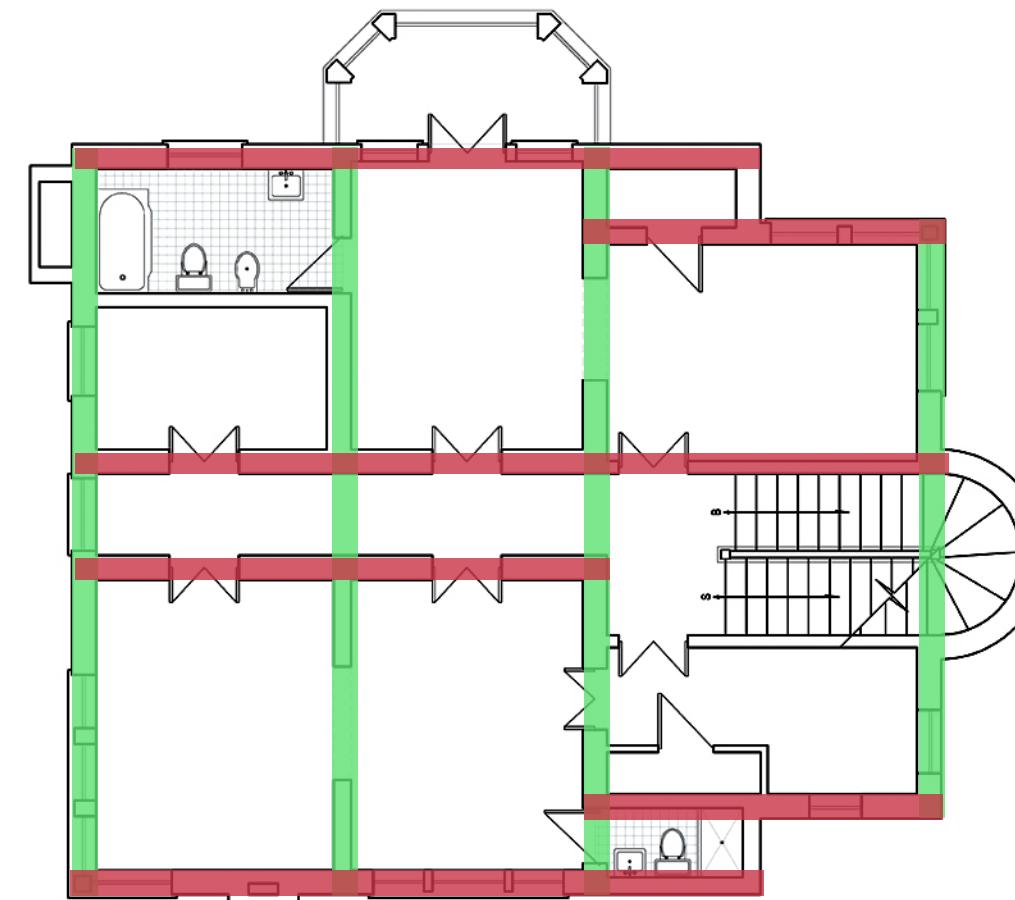
Materials

Elijuri Residence is most likely the first house in the city to use reinforced concrete, and definitely the first to have a reinforced-concrete-roof. Two difficulties had to be overcome for its construction; first, the shortage of materials in the local market, which meant higher costs for its order and transportation from bigger cities; and second, the experimentation with new materials and construction techniques until then, unknown in Cuenca.

The house is structured on supporting walls complemented by reinforced concrete beams that run perpendicular

to the direction of the walls, fastening the whole structure, and also supporting the wood floor on the first and second stories, and the concrete roof on the top of the building. Concrete is an important material in this house, it was used also for the construction of the pool, located to the side of the house, and for the garden paths and curbs.

The house conserves most of its original features, nothing has been changed on its spatial conformation, even thought during the time the house was in other people's hands, several pieces of the fixed furniture were removed.



Supporting Walls

Beams

Structure Diagram (NTS)



Present of the house



1



4



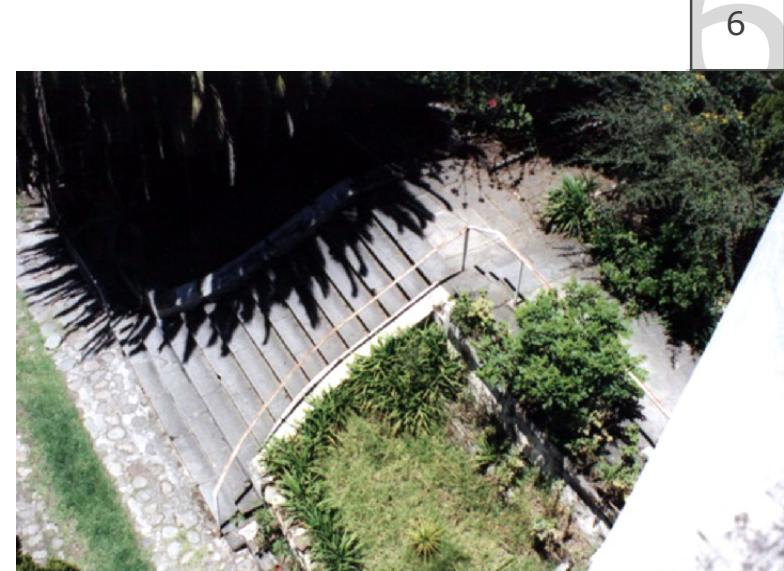
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2



5



6

1 View of the house from a south-east location. 2 North Facade. 3 West Facade. 4 South-West View of the house. 5 Windows on the north-east corner. 6 Aerial view of exterior entrance stairs.



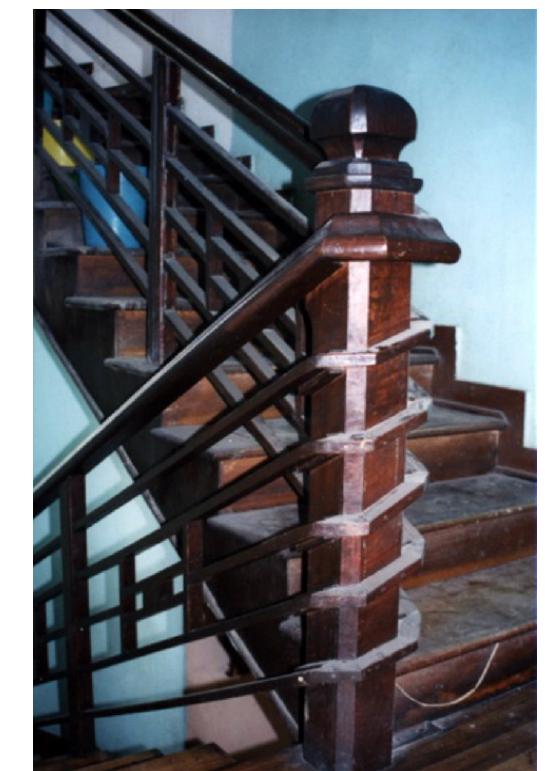
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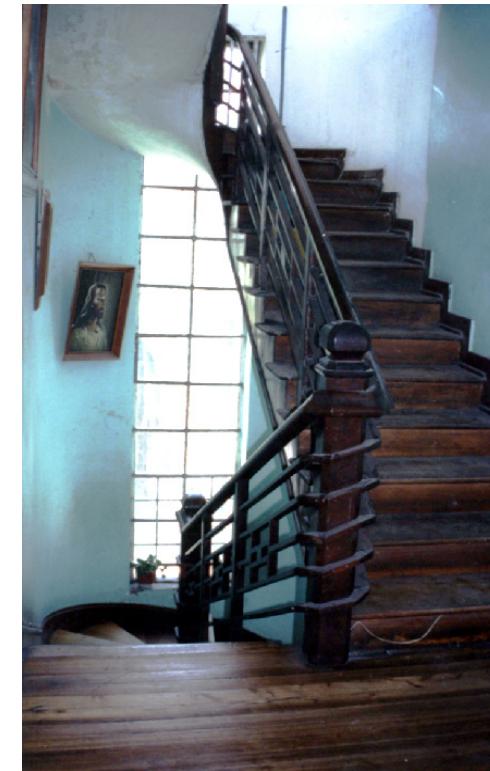
13



10



11



12

7 Living Room. 8 Dining Room. 9 Stairs from the foyer. 10 Family Room 11 Lighting feature detail. 12 Stair on second floor. 13 Stair detail at landing on second floor.

Future of the house

However the architectural and historical importance of the building, it isn't considered as part of the built heritage of Cuenca, therefore, it is not protected in any way by the city. Two factors have a bearing on overlooking the importance of this building; first, the house is outside the historic center which is protected by the city; and second, the general idea that the modern architecture come to destroy our historic heritage. The second is even more evident for many significant modern buildings located on the Historic Center of the city.

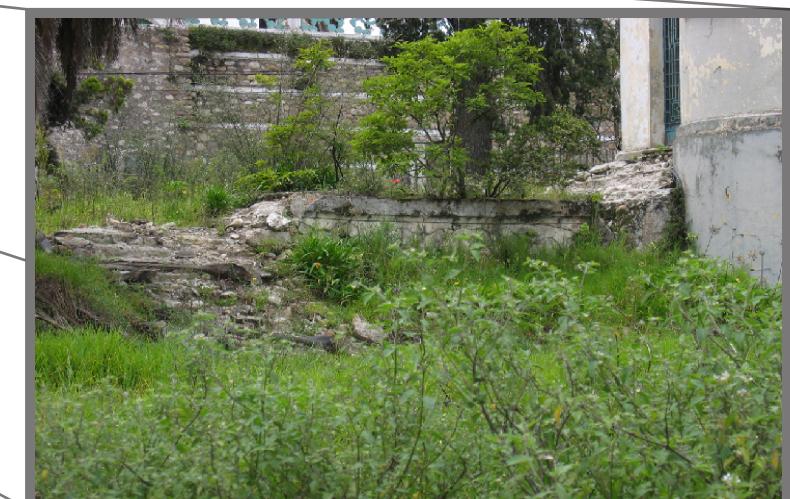
On a visit last summer to Cuenca, I learned the house had been sold to a corporation that plan to build

a hotel in the site. The evident abandonment of the house, its accelerated deterioration and the imminent construction of a hotel, led me to deeply worry about the eventual demolition of the house, which in the current circumstances would be perfectly possible.

That's how my thesis found me. I wanted to save the house, but I had to face two facts:

- First. This is a private property, so the owners can do in the site practically any thing they want.

- Second, there is no regulation that protects the edification. The house is out of the area of historic protection, and as people from Urban Control of the city have told me, they can't do anything to specifically protect this edification. They would have to formu-





late a broader plan to protect the architecture of the period, in order to save the house.

A way to protect the house would be to create conscience among the people, about the value and importance of the house. Although the house is located over a major avenue, because of the copious vegetation on its frontal façade, which impedes direct views of it, the edification doesn't stand on the memory of people. I realized of its existence, only when I was doing a study, specifically in modern architecture. This can be achieved through a series of articles with lots of visual information, which might be spread out through local media.

Other option, the one that I undertook with my thesis work, is

to offer an alternative to the construction of the hotel. Instead of turning down the house, as most likely would happen (based on past cases in the city), I propose to keep the house, and turn it into a part of a whole new building; not as a solo, but as a component of a whole new melody.



THE PROJECT: A question of TIME

A hotel as a topic of design, as well as the pre-existence of a building in the site, made “time” a central question in the project; the first, because of the inherent content of temporary or transitional state of the guests; and the second, because of the issue of how to deal with the relation past-present among the existing and the to be buildings.

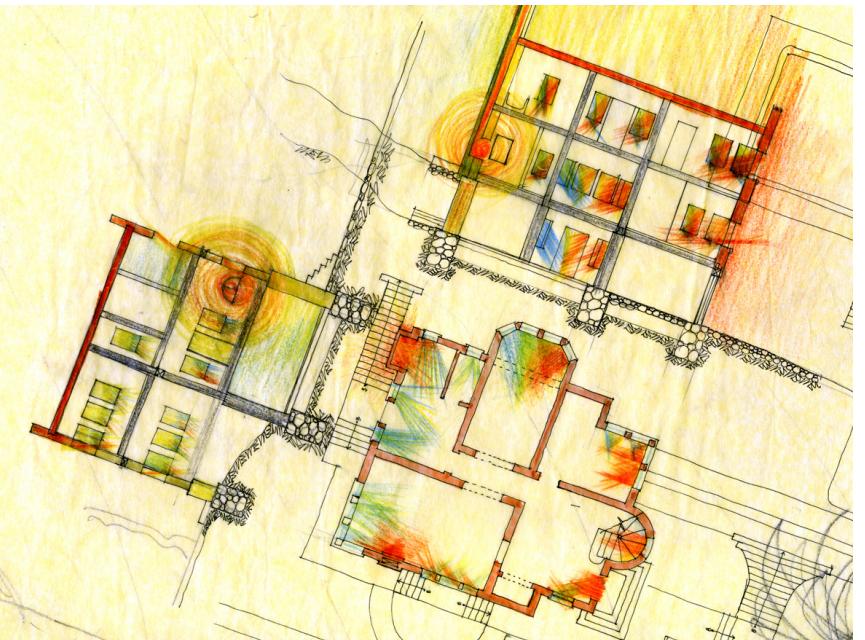
The aim was to reduce the speed in the experience of time for the visitors of the hotel. Slow time is understood here as a richer and more memorable time that may help the visitor to construct a “supporting point” for the memory, and experience the place not as a crossing site, but a place to stay.

Regarding the issue of the old and the new building, as it was noted on anterior pages, the aim was to make the old building part of the new, without losing the character and qualities from the first, but at the same time, reading the new building as a unity, and not as two parts.

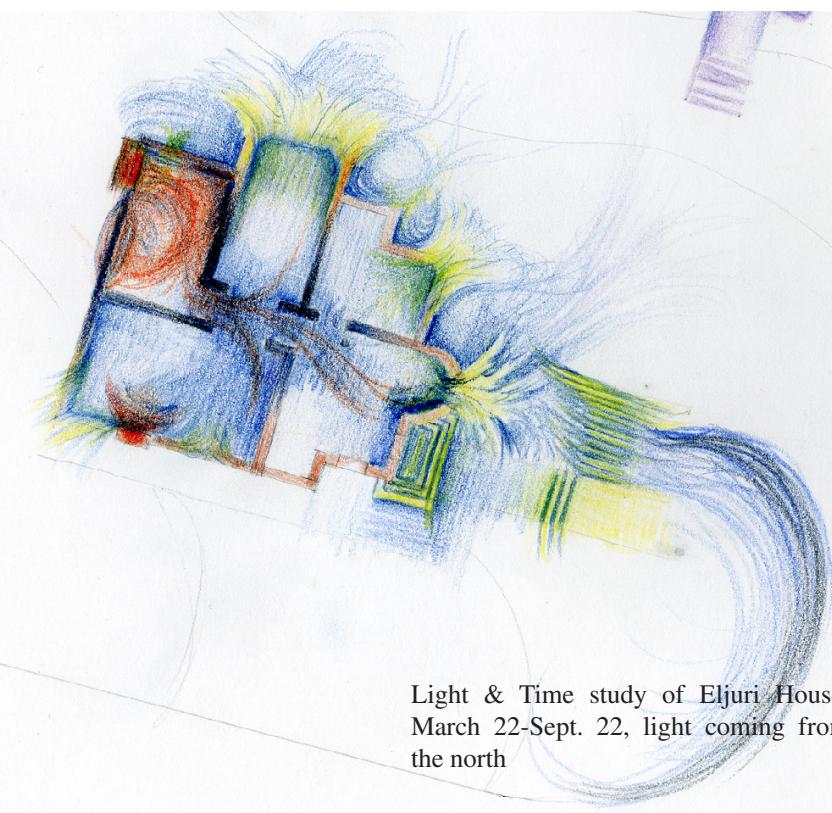
The project started with a combined analysis of time and light, first over the house, thereafter on the rest of the site, in order to identify the spaces where time was denser.

These exercises help me to get more and more involved in the concepts of time, until to be completely seduced by the idea of shaping spaces in terms of time through mass and light.

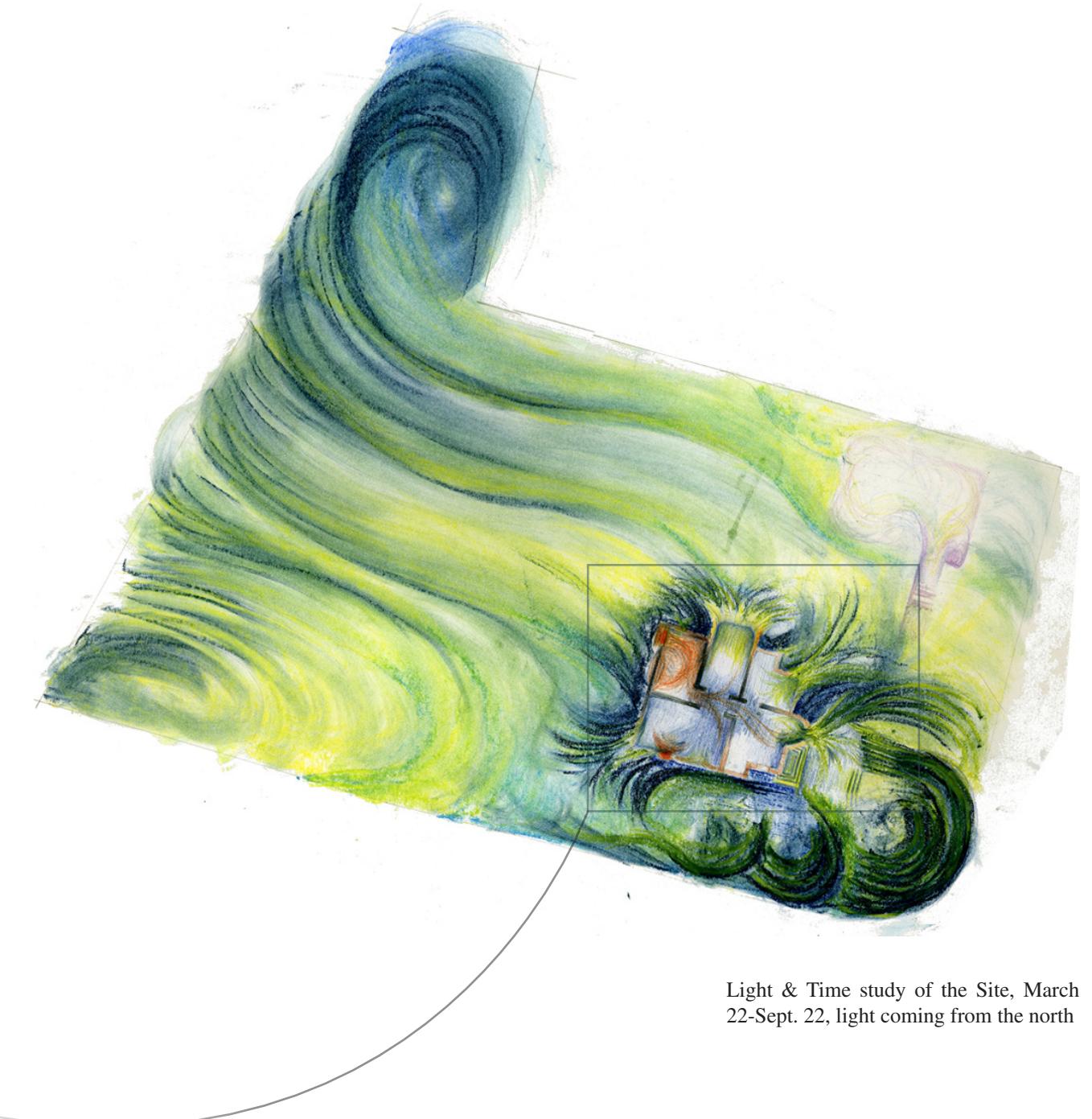
These analytical drawings are crucial on the initial stages of design. They highlight relations and situations among the components; relations that otherwise would go unnoticed.



Light study of Eljuri House



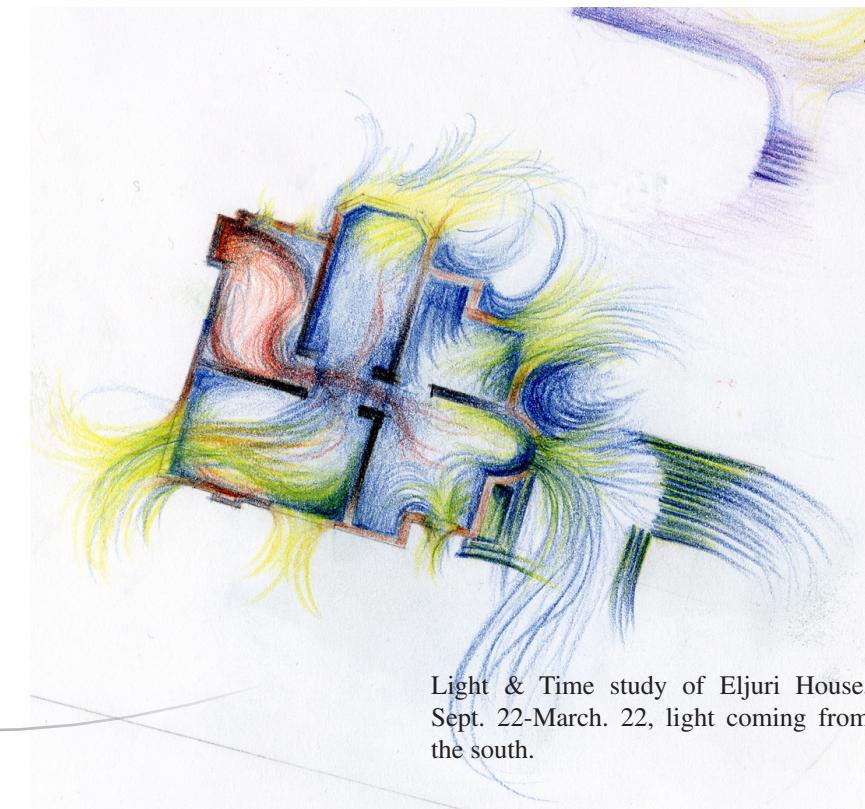
Light & Time study of Eljuri House,
March 22-Sept. 22, light coming from
the north



Light & Time study of the Site, March
22-Sept. 22, light coming from the north



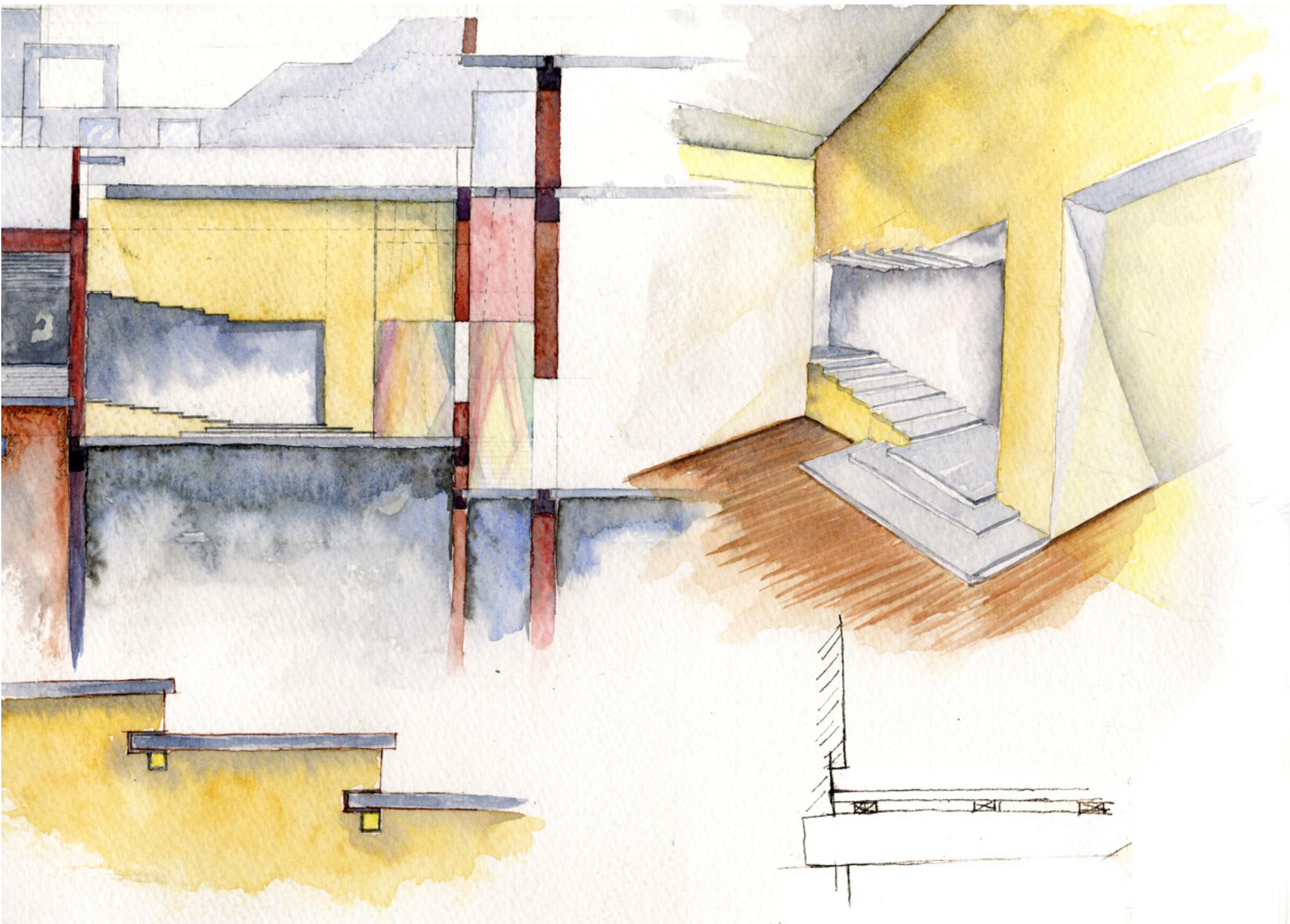
Light & Time study of the Site, Sept 22-March 22, light coming from the south.



Light & Time study of Eljuri House, Sept. 22-March. 22, light coming from the south.

I'll say about the project, and this is true for the whole process, that every space has been designed as if shaped by hand, modeling, feeling, foreseeing, re-adjusting, and enjoying.

Thick walls, shallow steps, playful use of light were the chosen elements to shape the desired spaces, those that would tell us a story, from beginning to end.



Lobby Section, View and Detail of Stairs

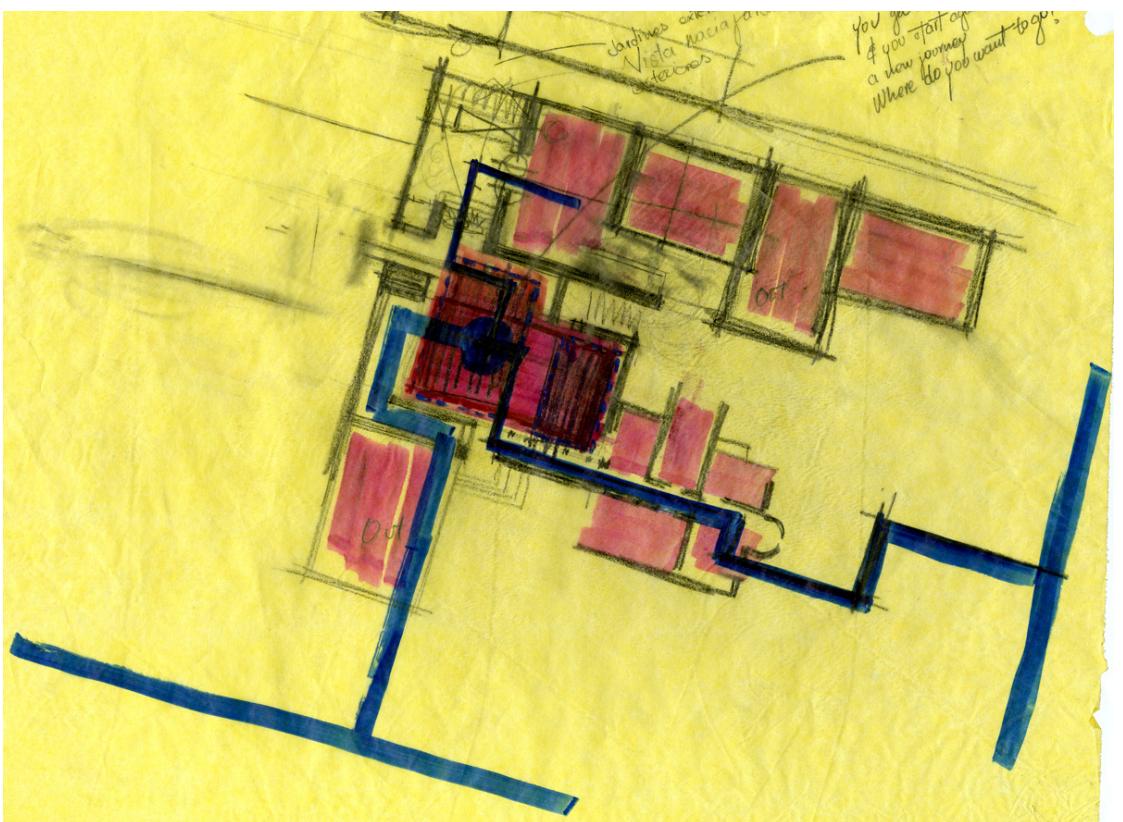
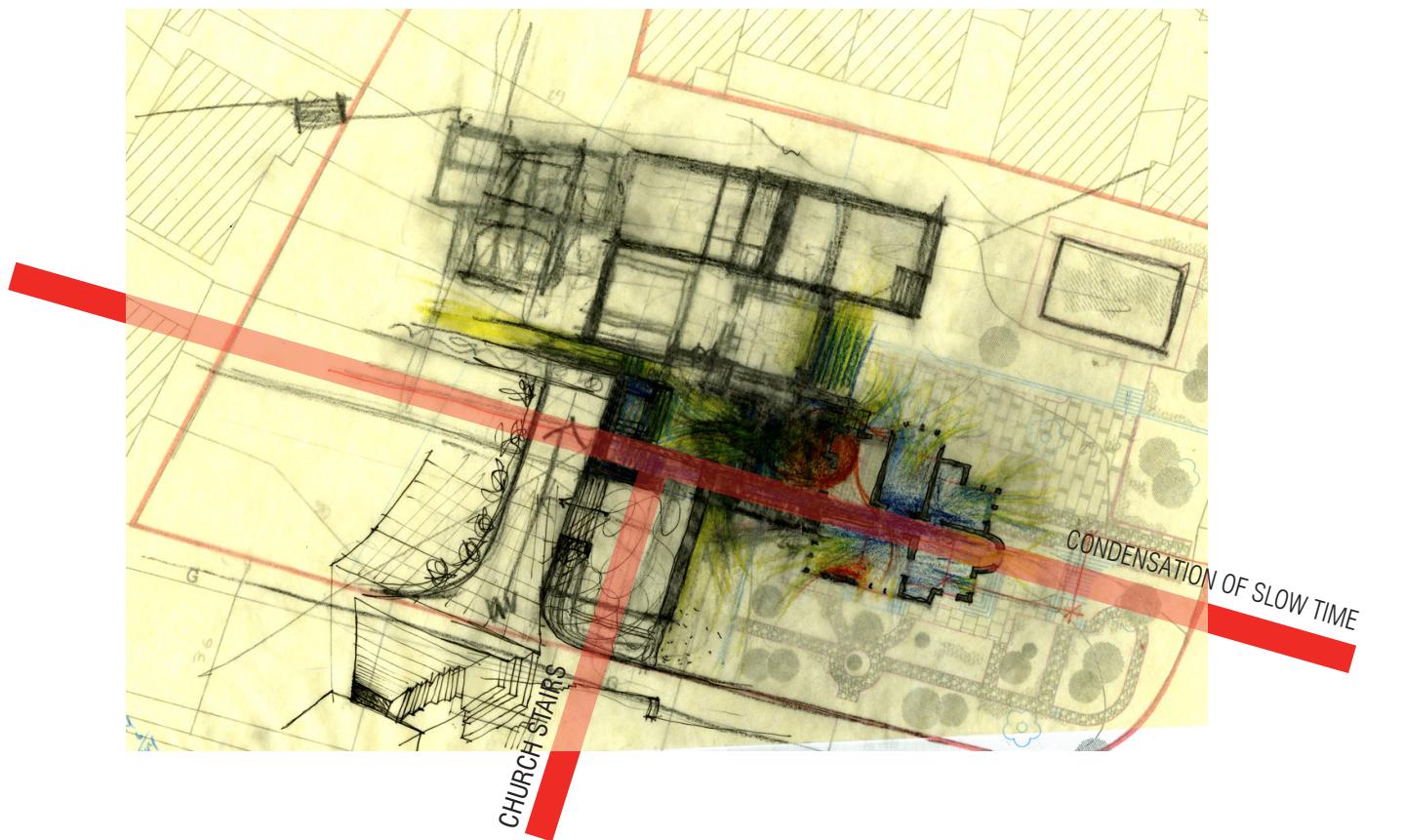


Reflecting Pool View

The existent house plays the role of a prophecy; it is the presence of the past into the present, as if ensuring its permanence into the future. It constituted the departing and arrival point in the process of design.



Early concept sketch about the relation the new and the old building should have.



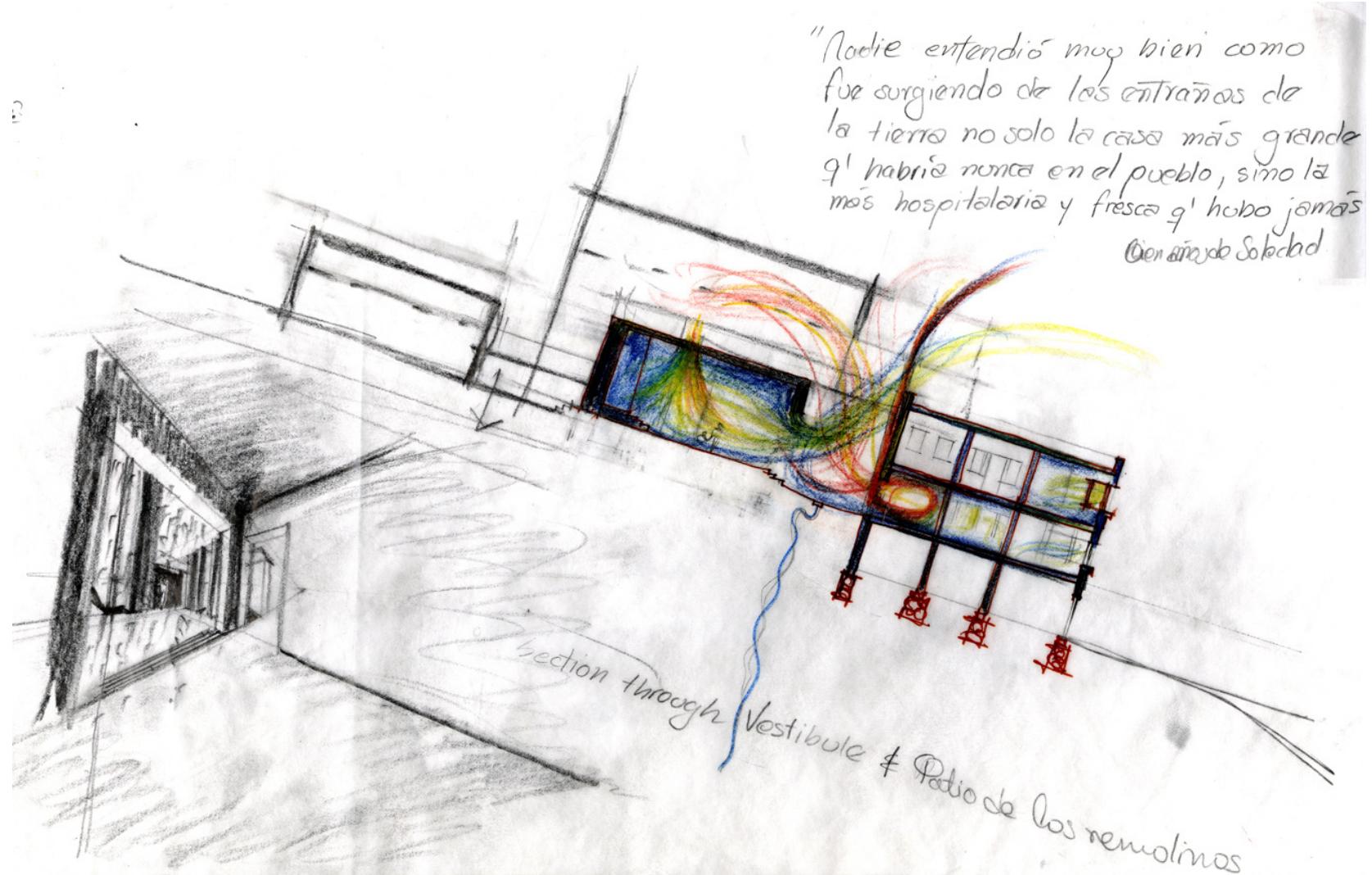
The movement of entrance was dictated by the movement of access to the old house.

A main bar of slow time was identified in the old house, whose prolongation determined the line over which the new access would be placed. The relationship with the Church stairs, determined in which point of this bar, the entrance was placed. This true bar of time links both edifications, as an act of sharing qualities with it.

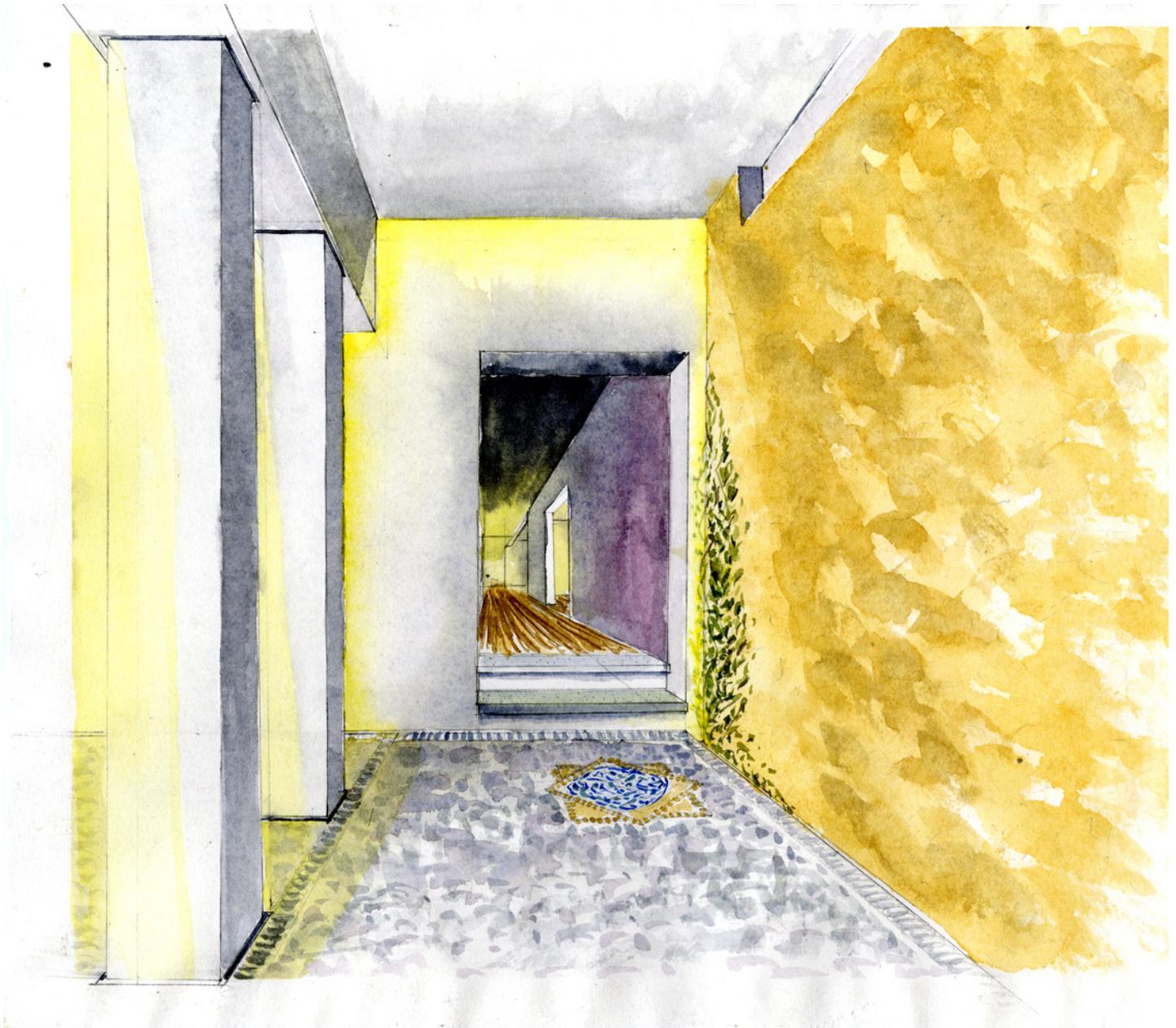
The hotel was conceived of as a Big House. The social area, which is open to the public (restaurant, ball room, pool) is separated from the private area (bedrooms). It was intended in this way, in order to provide privacy for resting, but on the other hand to allow spaces of interaction with the normal happenings in a city.

The narrative in *One Hundred Years of Solitude* determines the relationship among the different rooms. They are not sequential, they are not gradual, and they are not hierarchical. All of them are in some point protagonist, and also secondary characters in the story. But all of them fulfill one requisite, the slow experience of time. Every space is a room, even if it is circulation.





A gallery and a patio constitute the nexus among the old and the new part of the building; however, the gallery, placed over the time bar, is the transition area that allows a spatial continuity from one to the other side of the building, and holds it together.



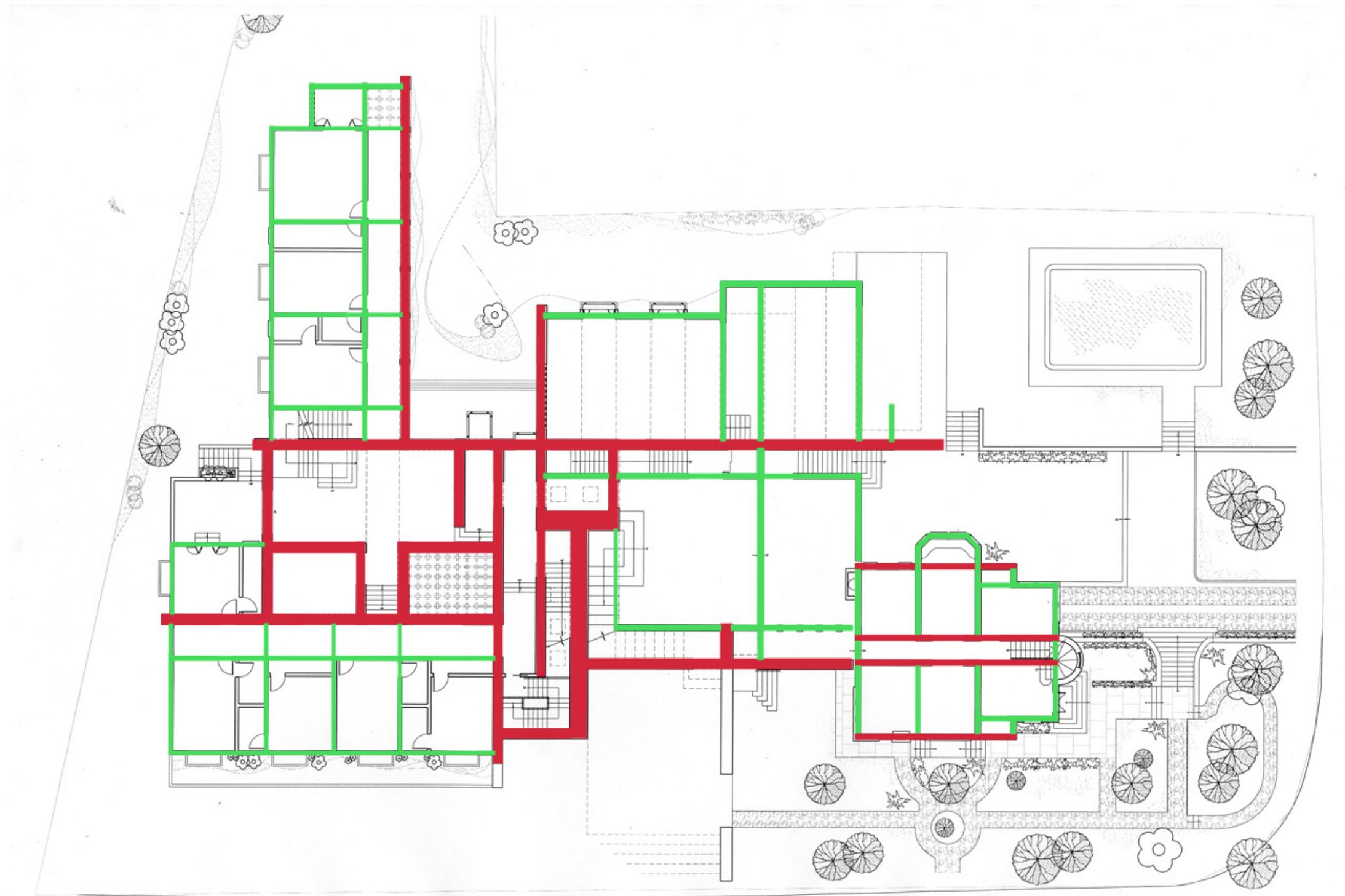
Gallery View



Gallery View

The structure has two components. A primary section, shown in red on the diagram, formed by thick brick walls, to which a secondary (green) concrete structure is attached.

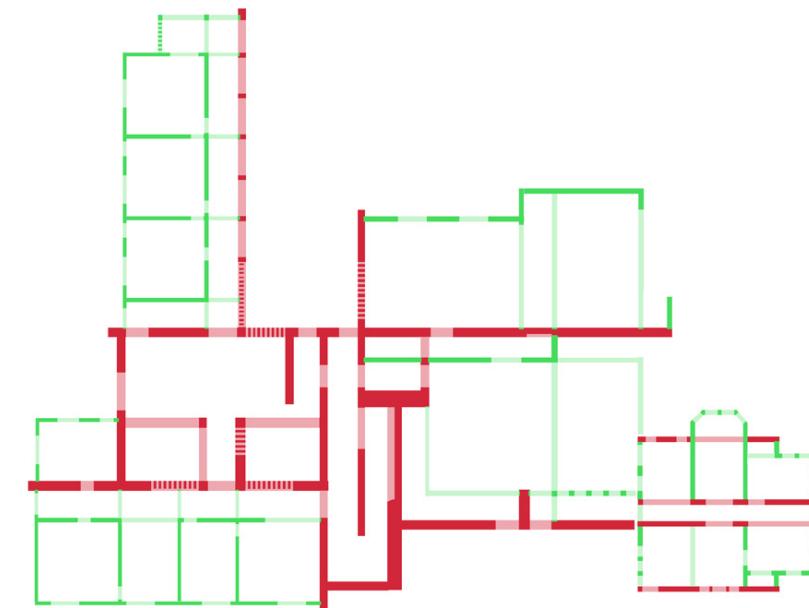
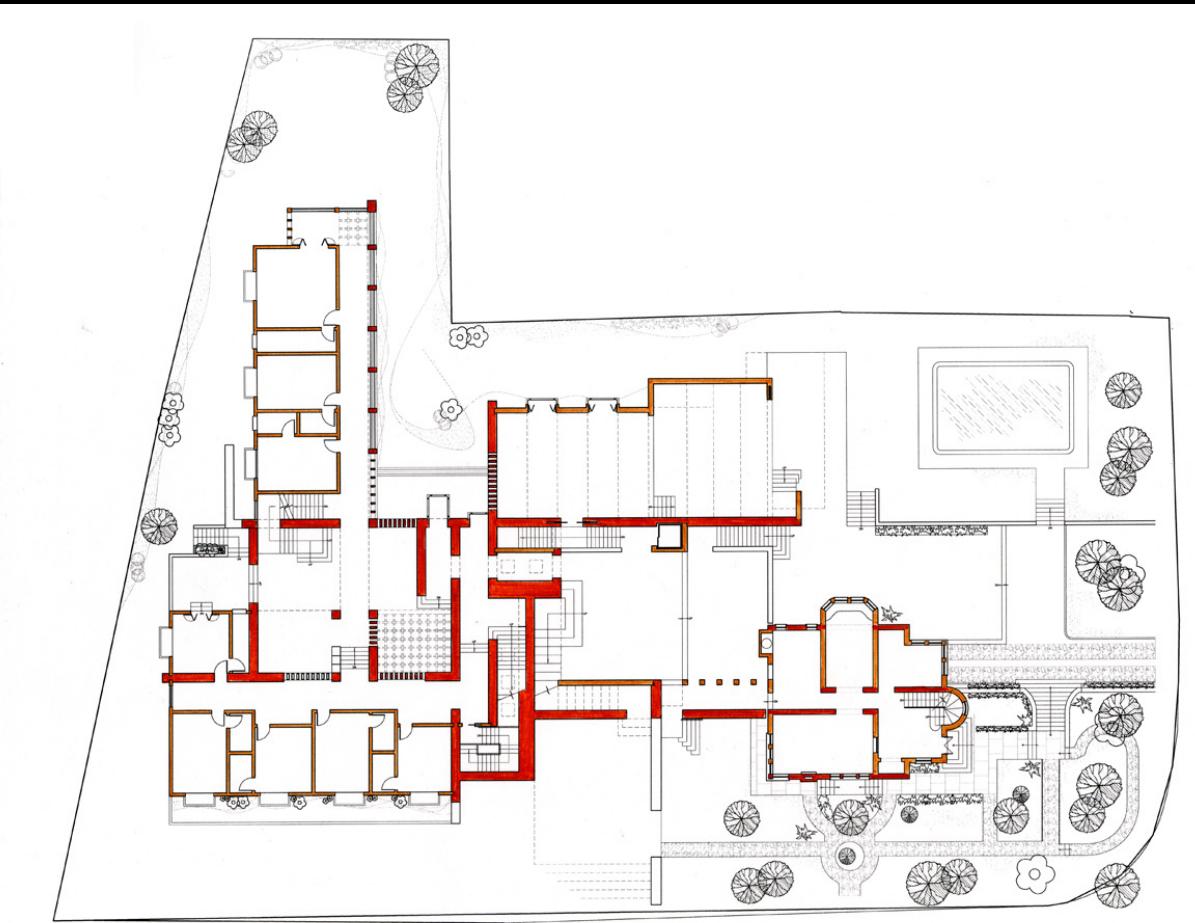
The primary structure gives form to the shared spaces. Especially important is its role in the character of the patio in the dwelling area, where the structure appears as walls, columns, or porticos that shape the different rooms in the patio.



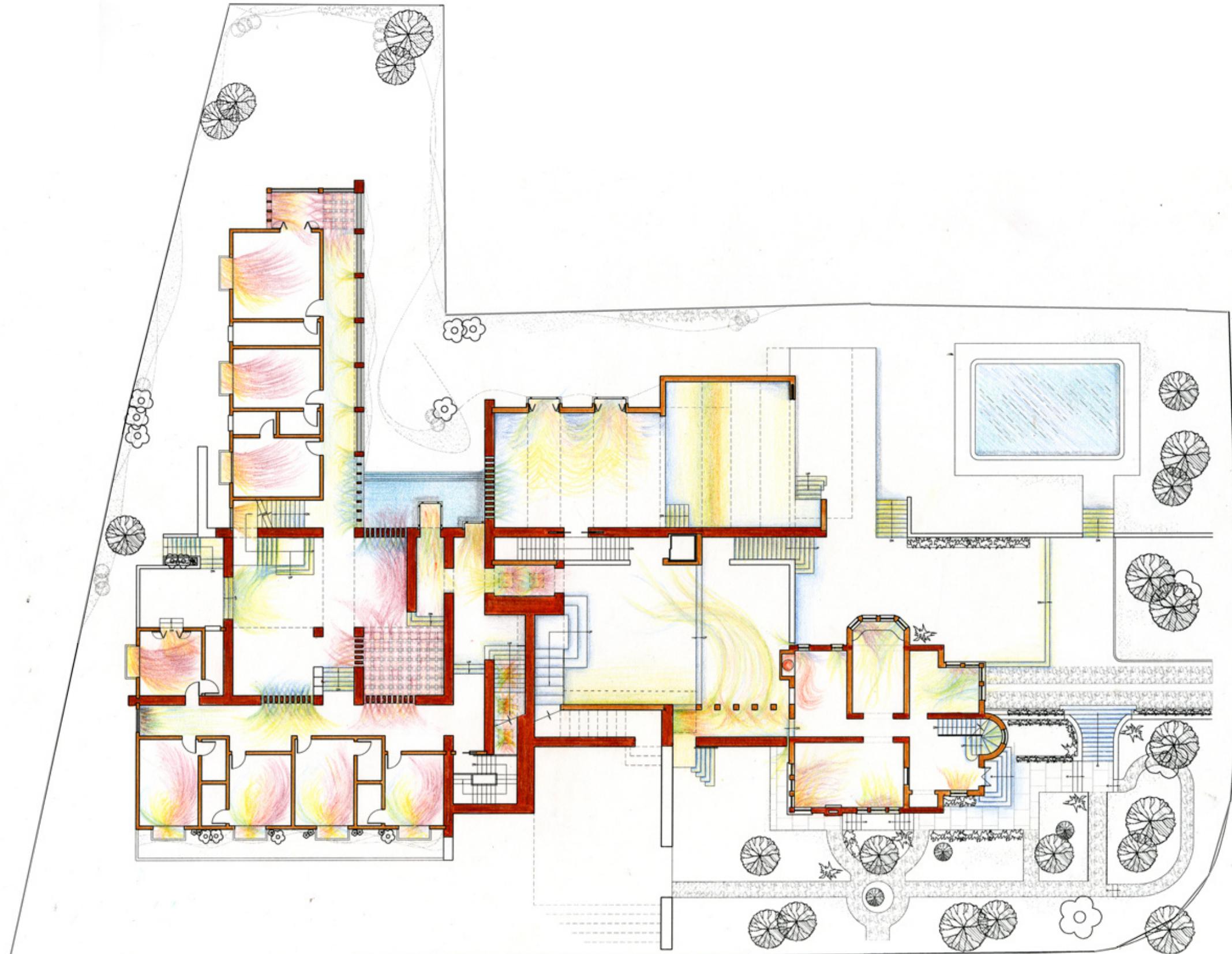
Structure diagram



Site Plan

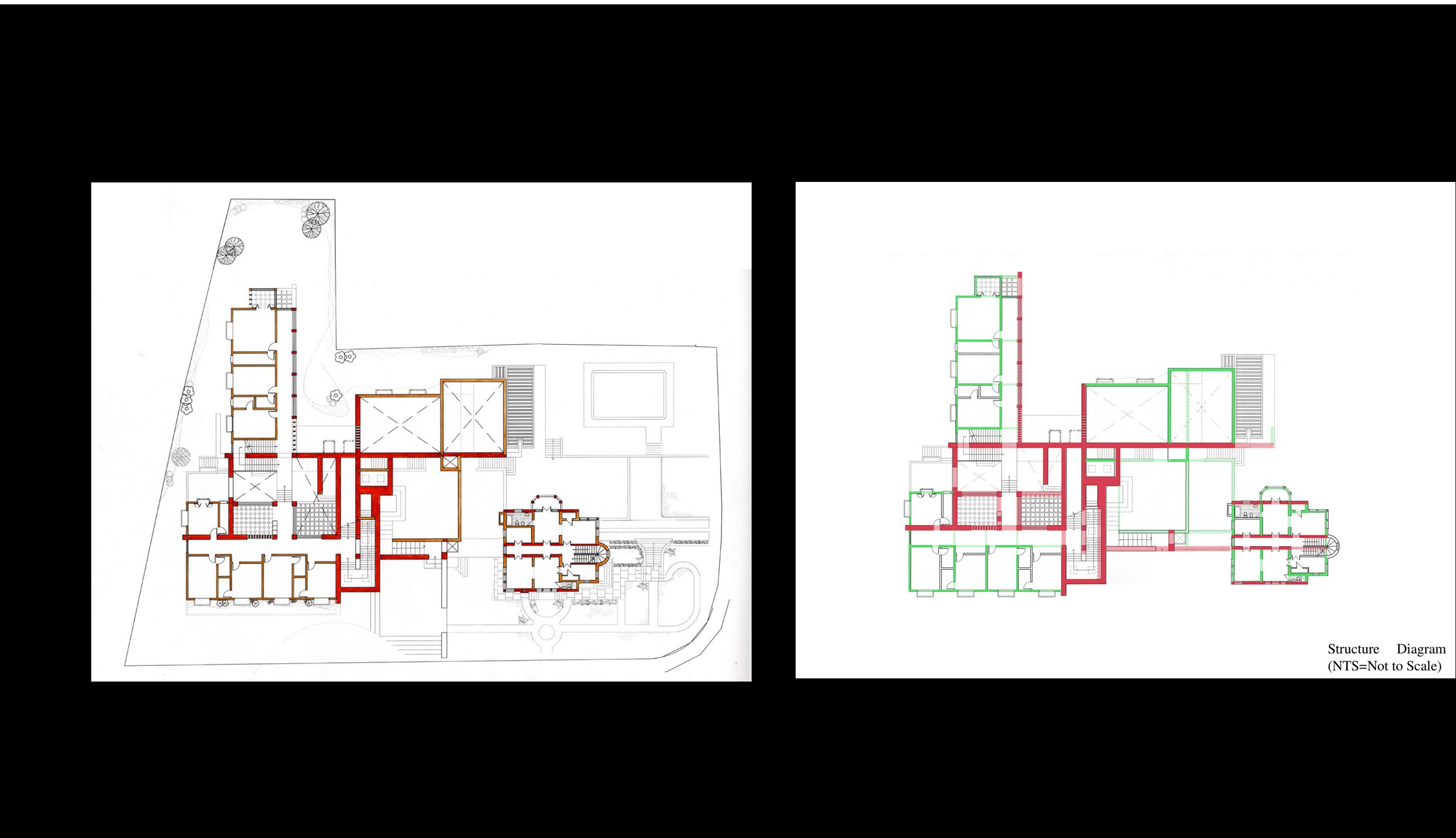


Structure Diagram
(NTS=Not to Scale)

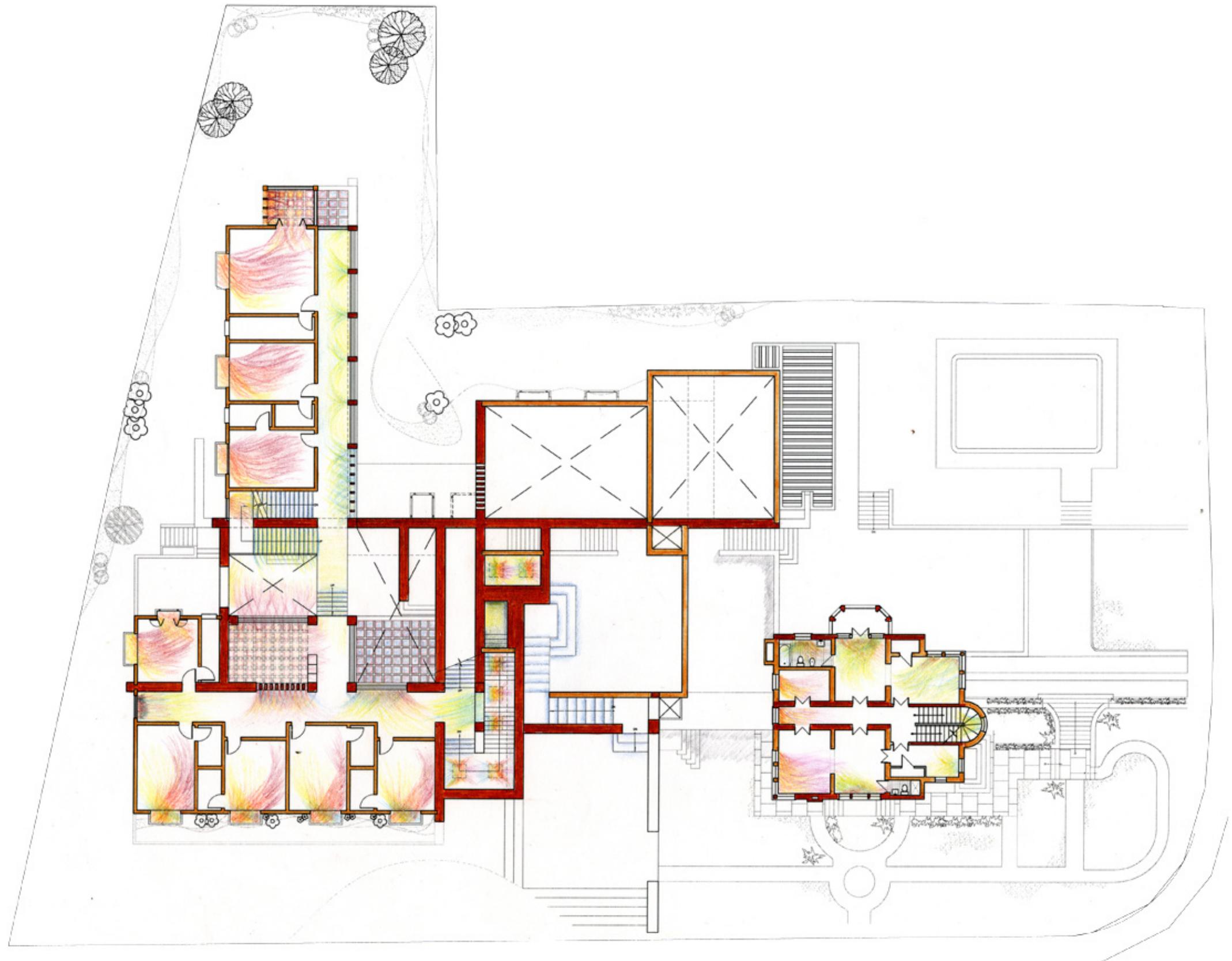


Scale 1:250

First floor plan light

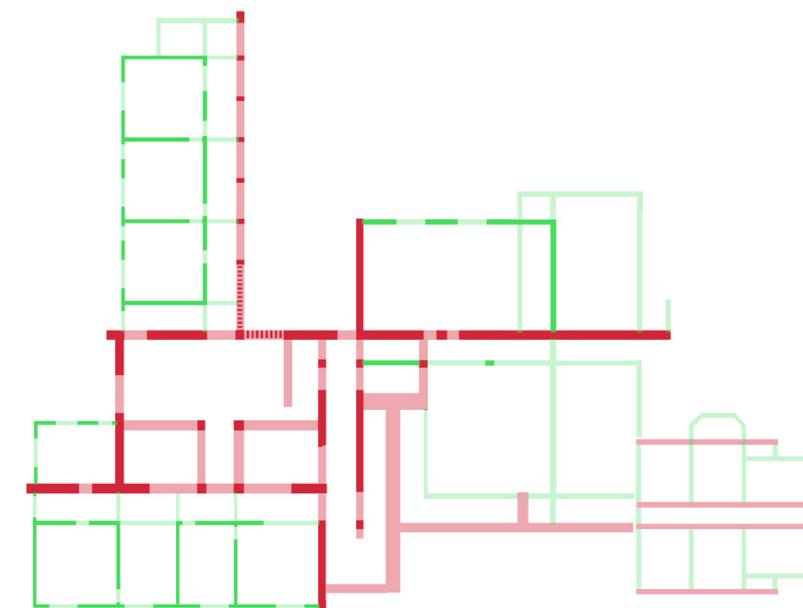
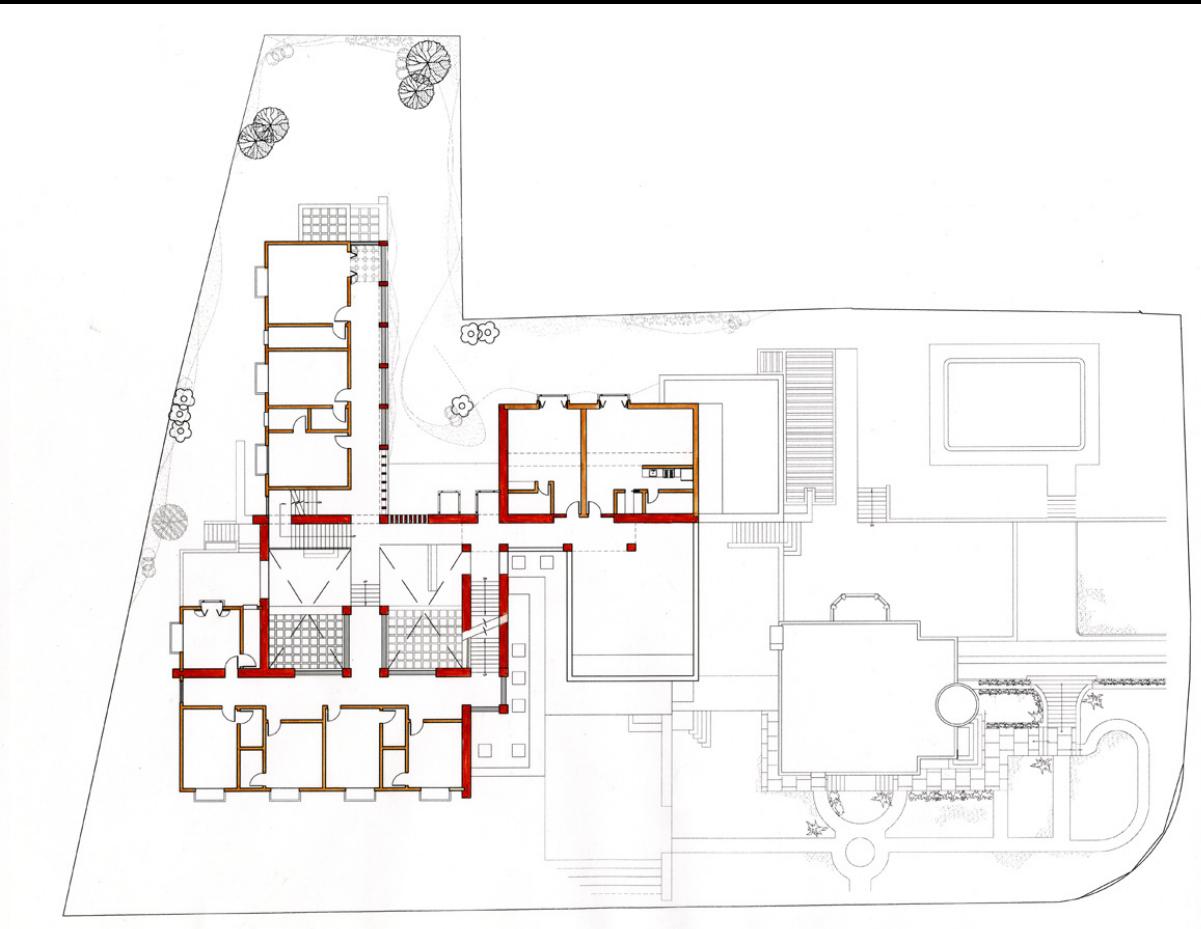


Structure Diagram
(NTS=Not to Scale)



Scale 1:250

Second floor plan light

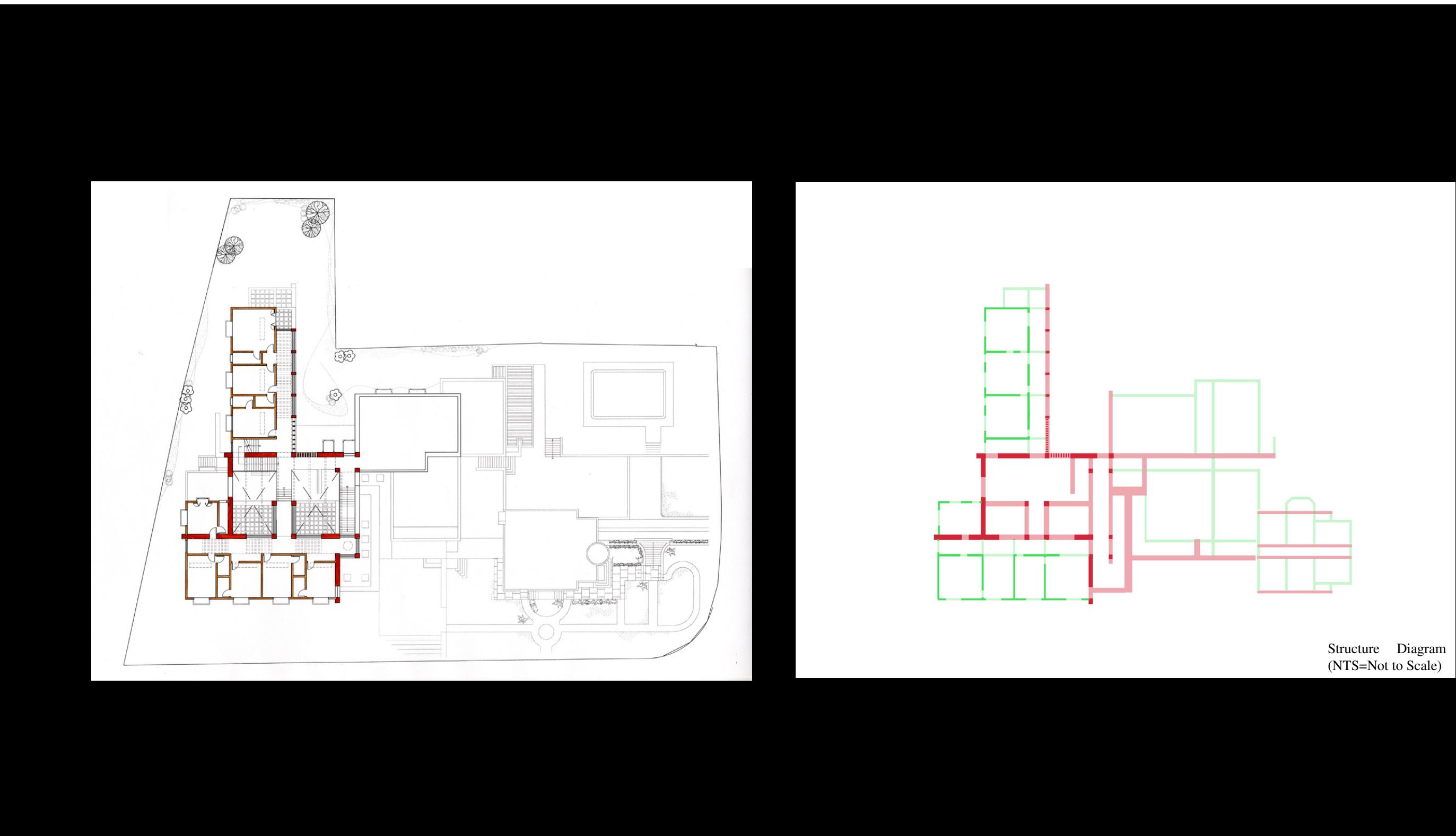


Structure Diagram
(NTS=Not to Scale)



Scale 1:250

Third floor plan light



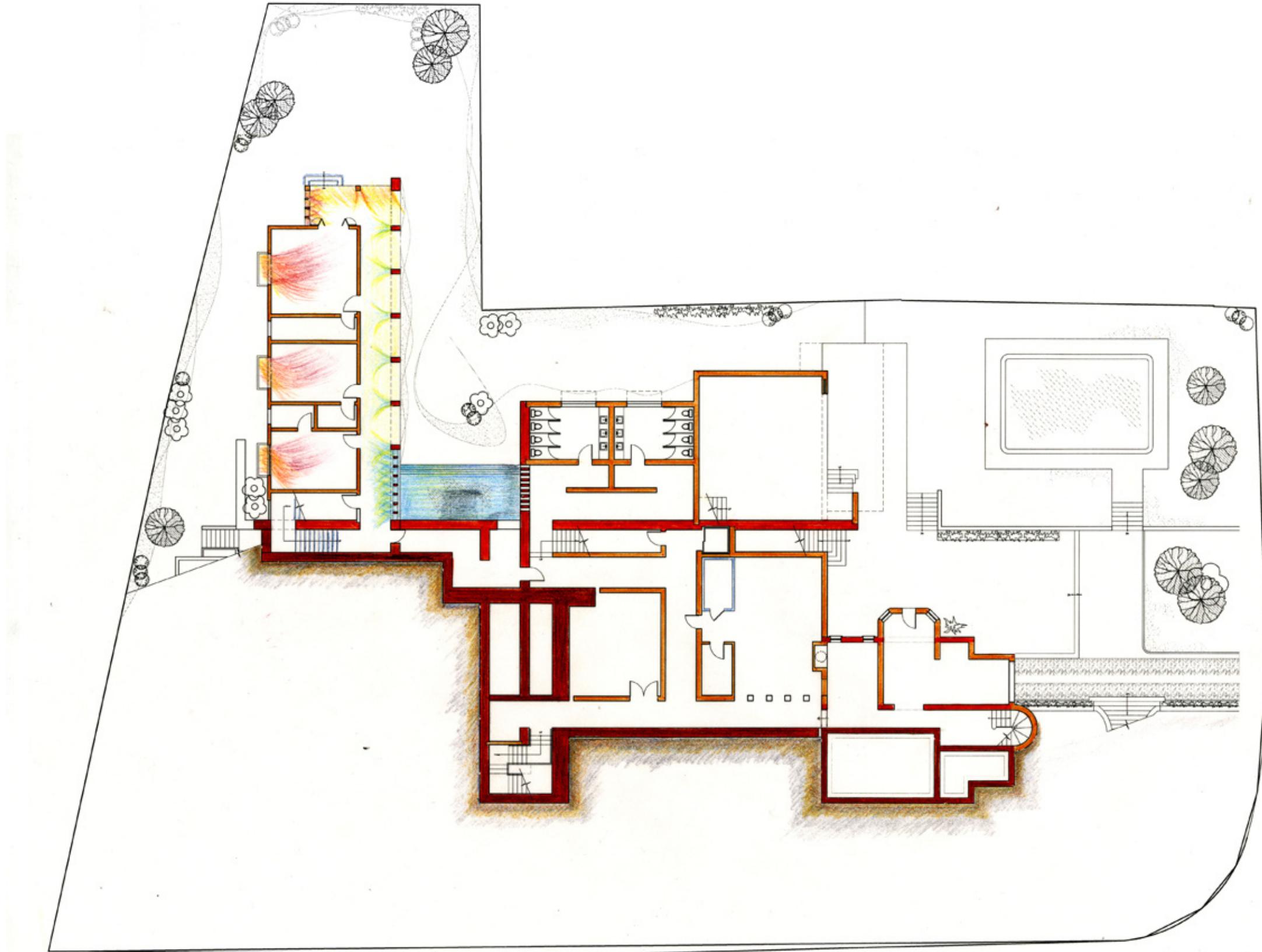
46

Fourth floor plan

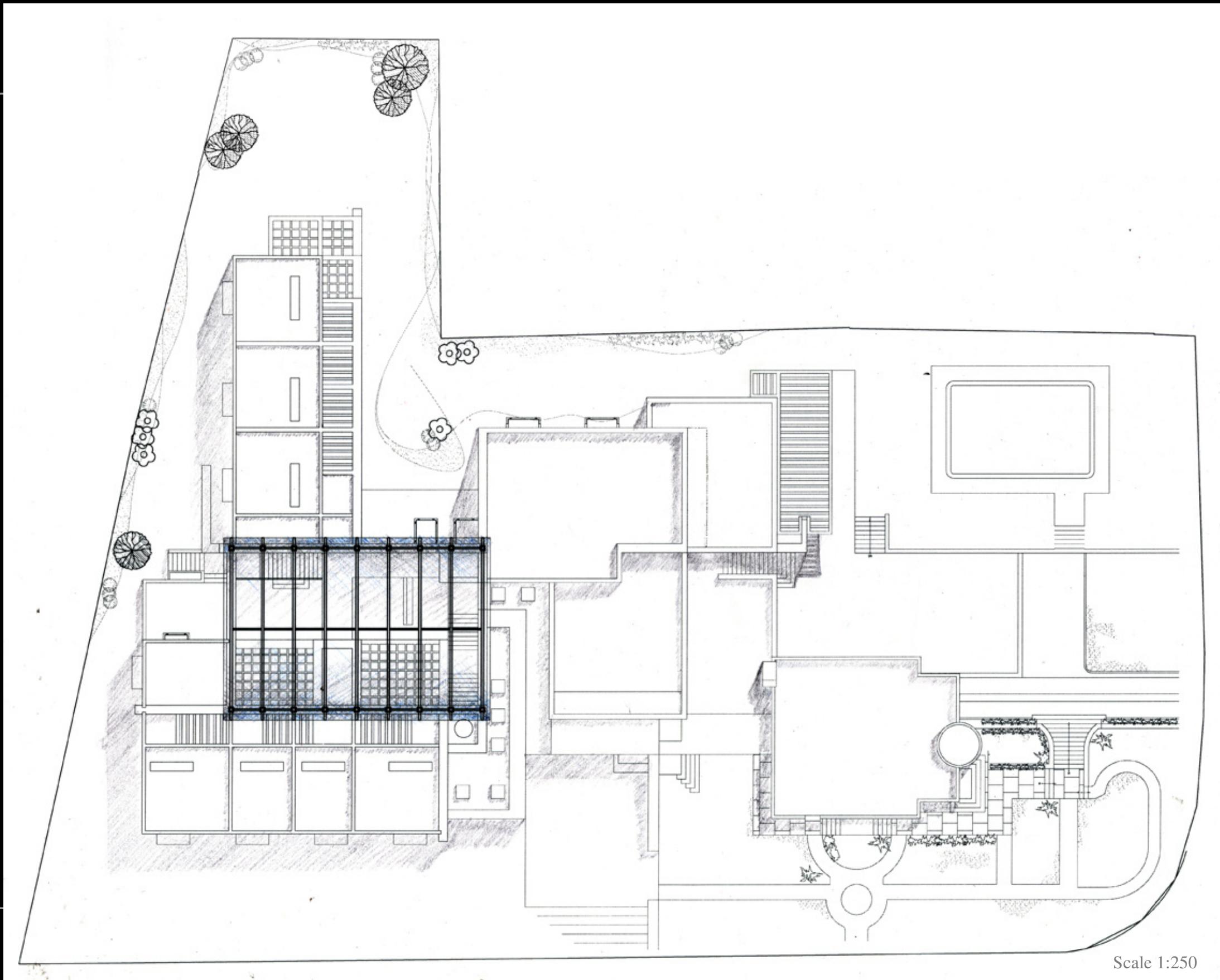
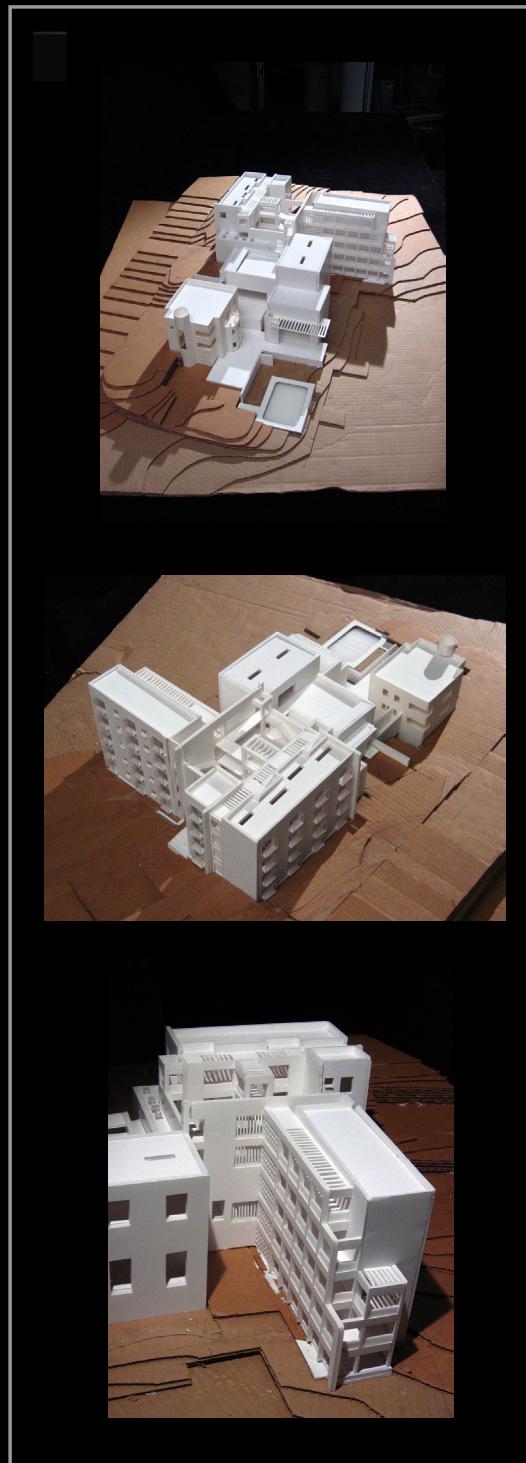


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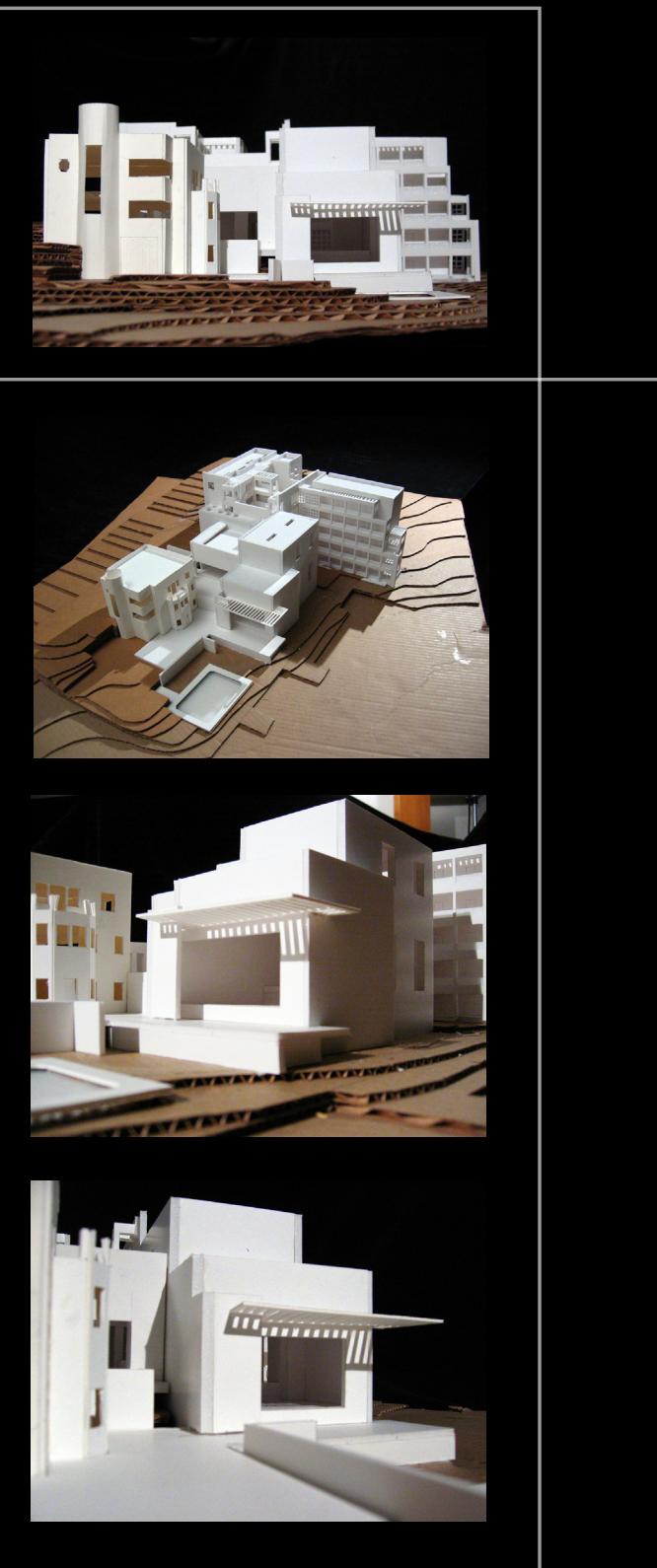
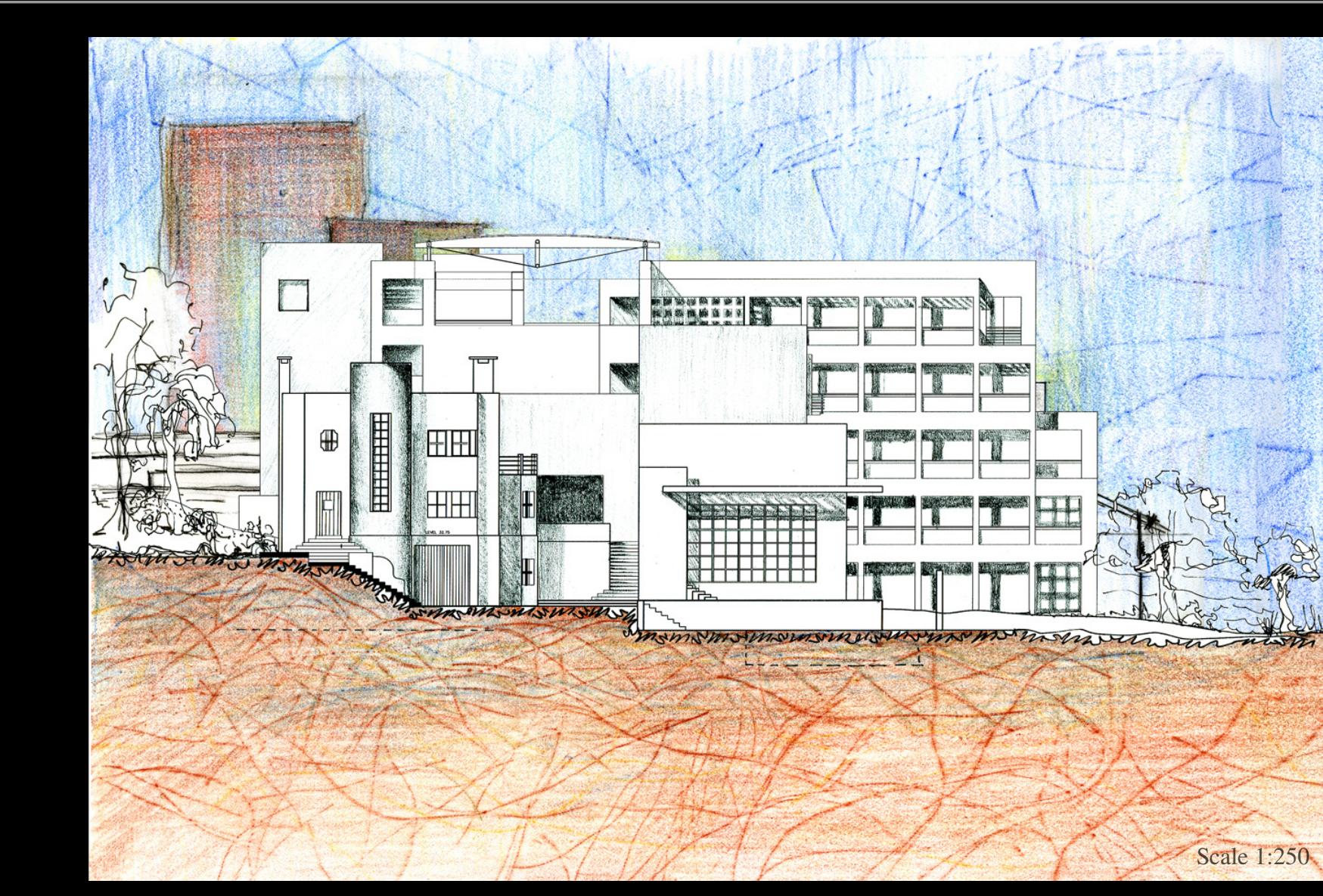
Fourth floor plan light



Scale 1:250

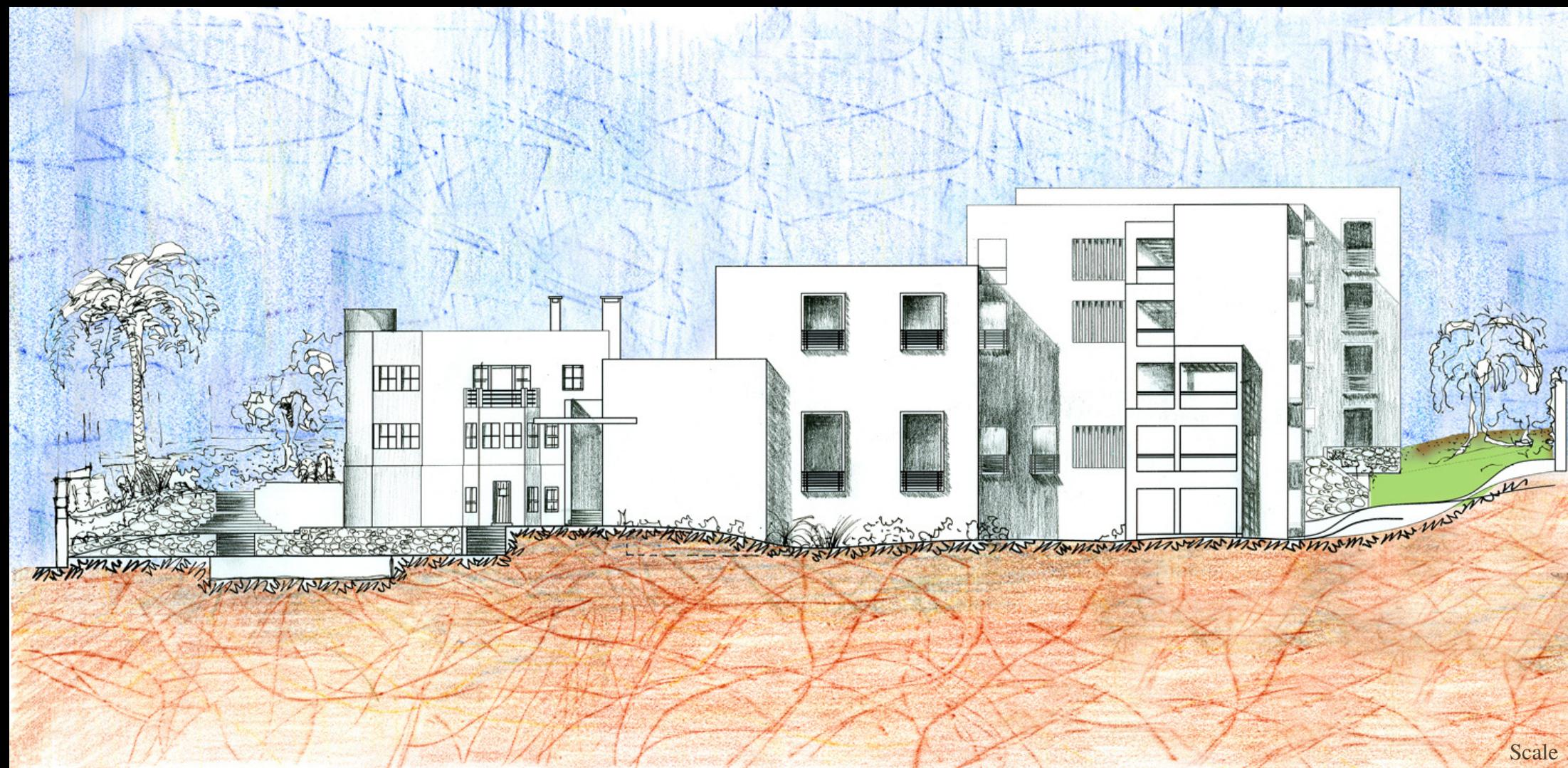


Roof plan



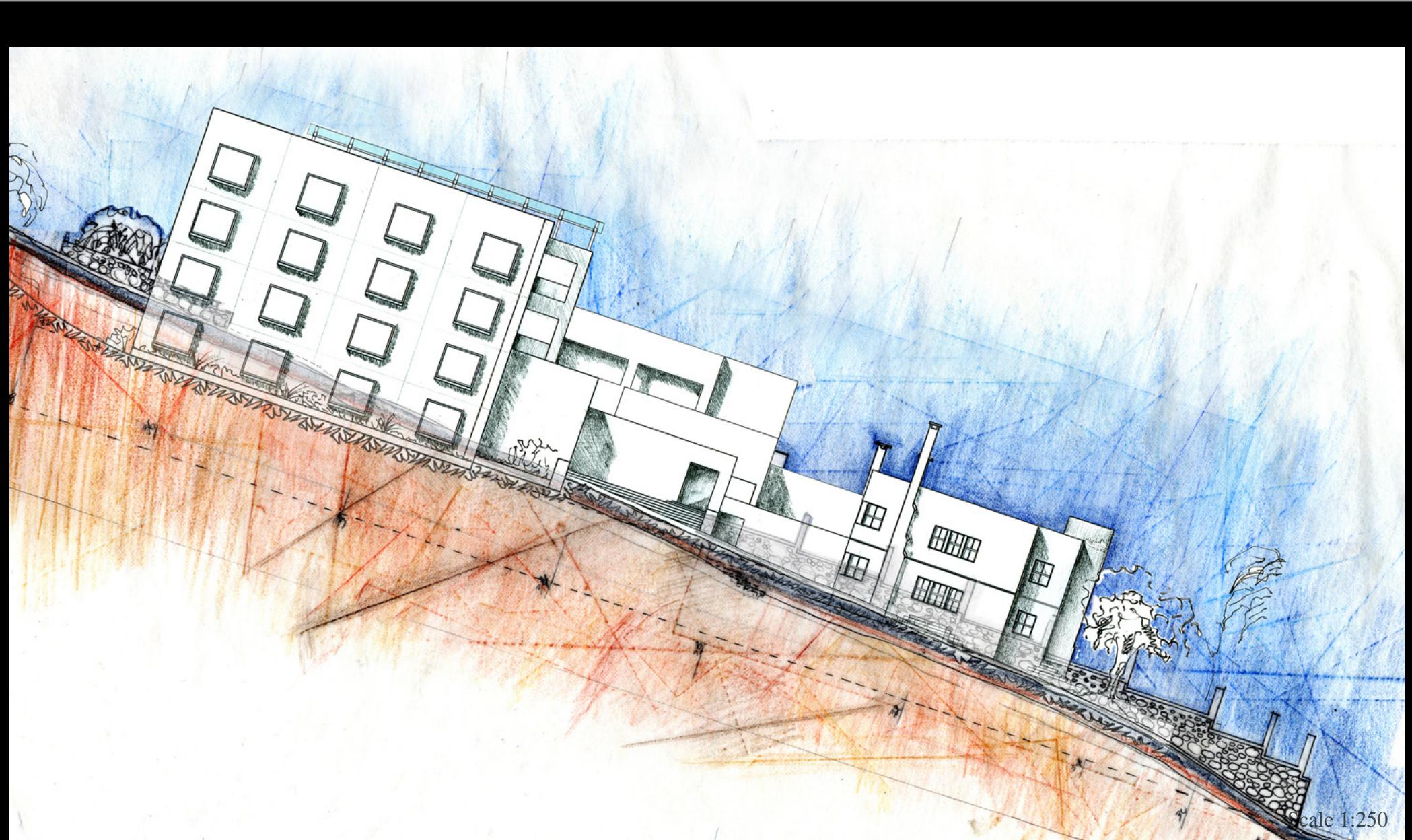
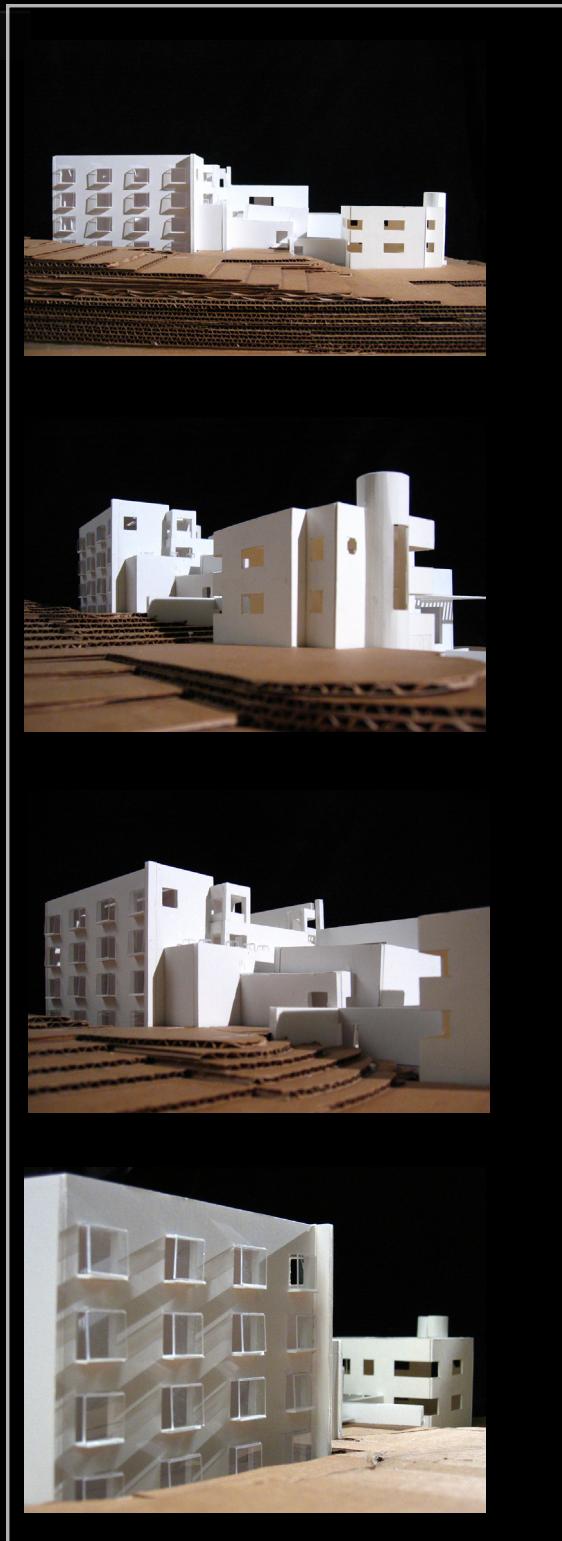


West elevation

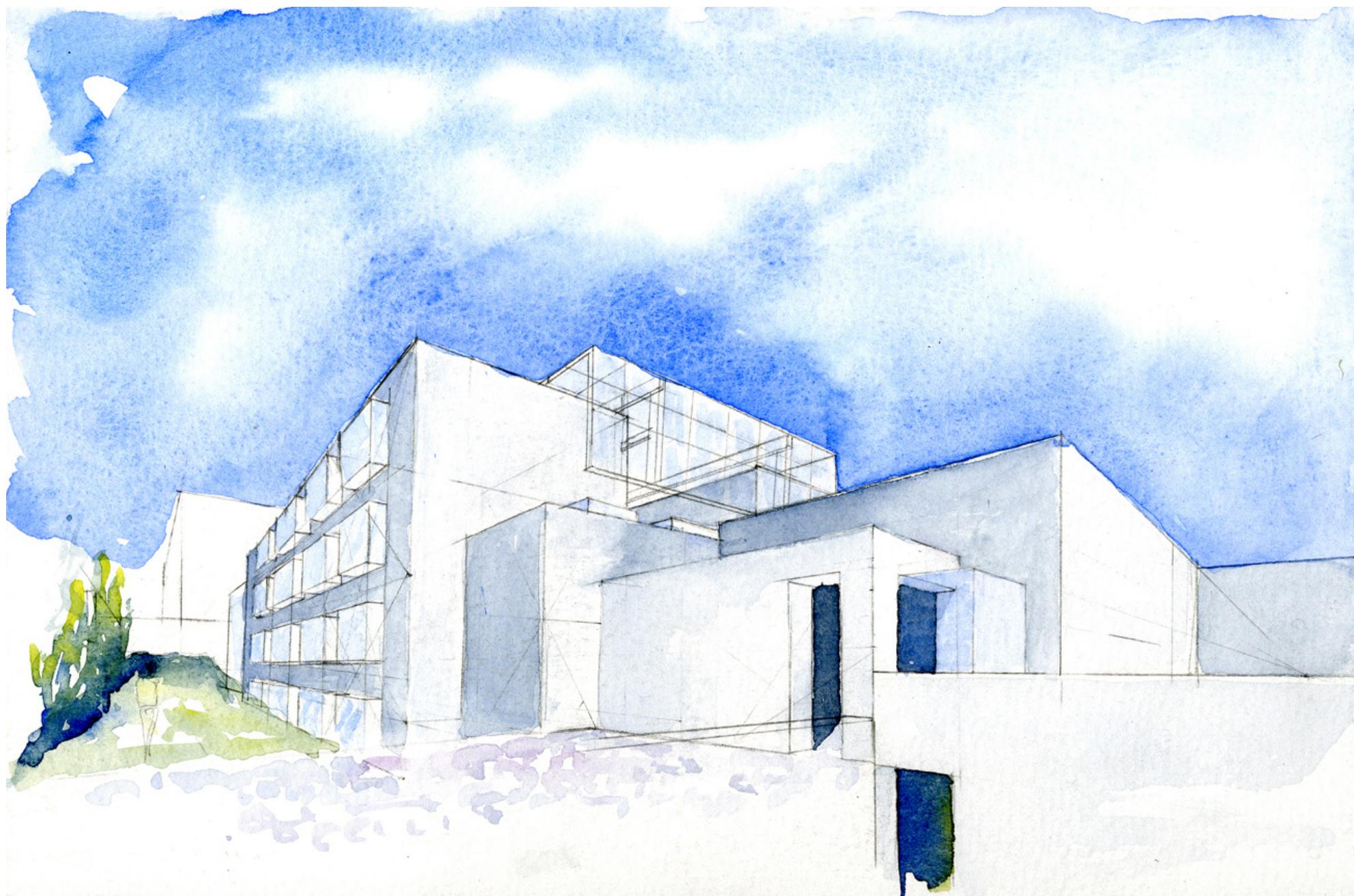


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North elevation

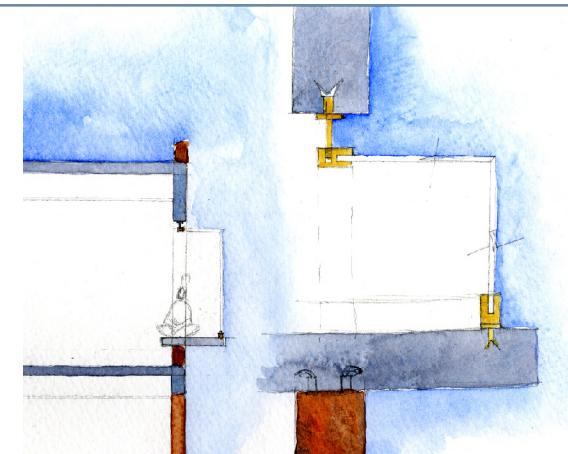
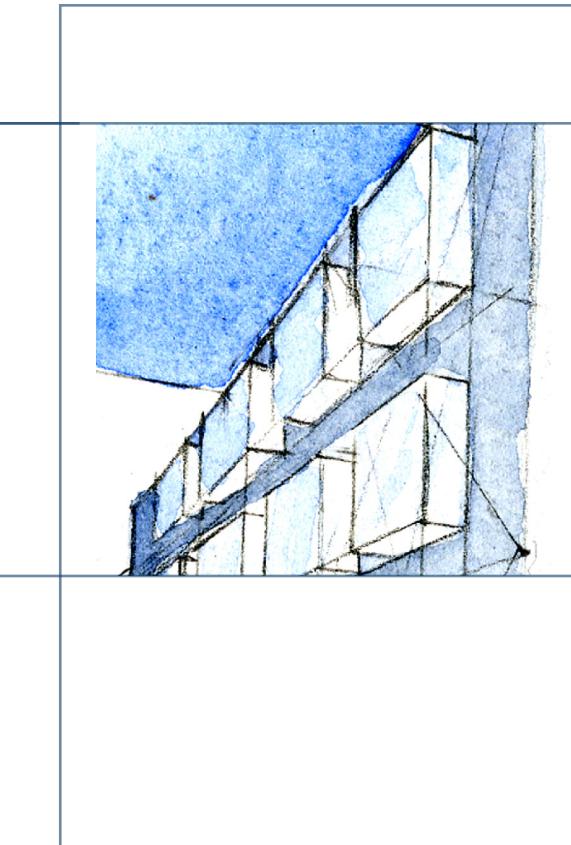


South elevation



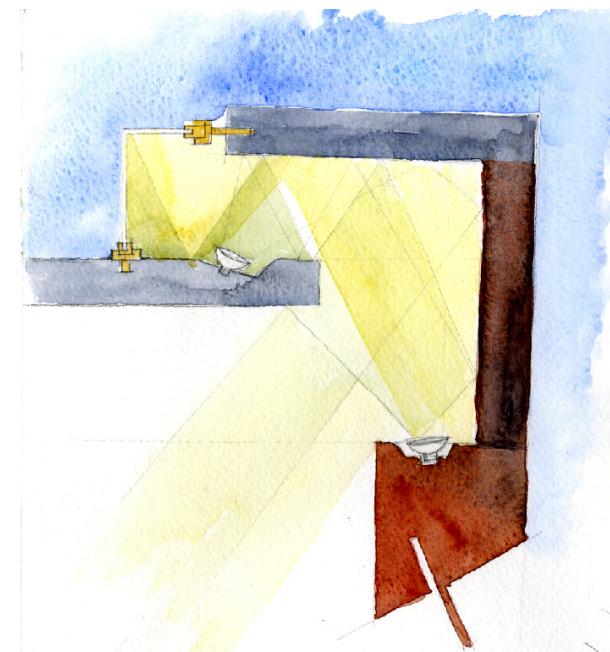
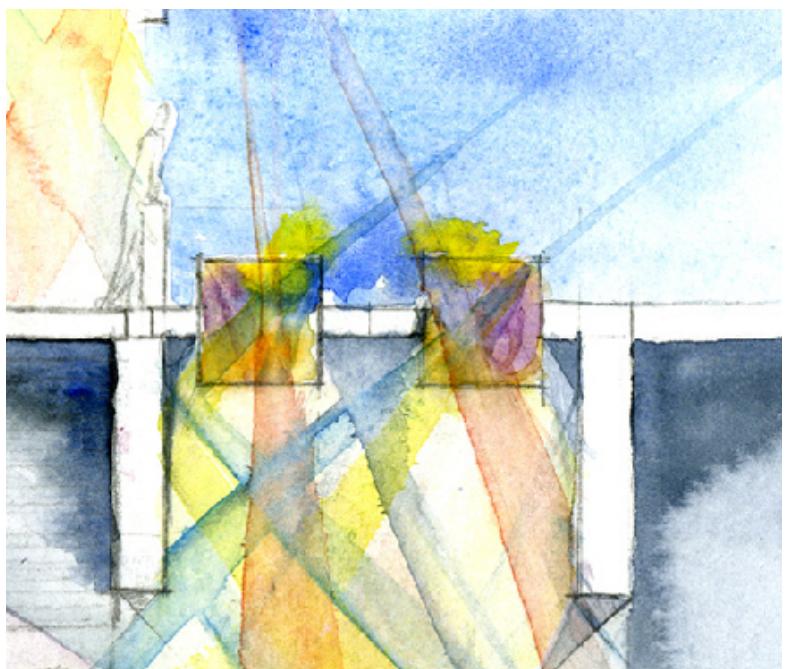
54

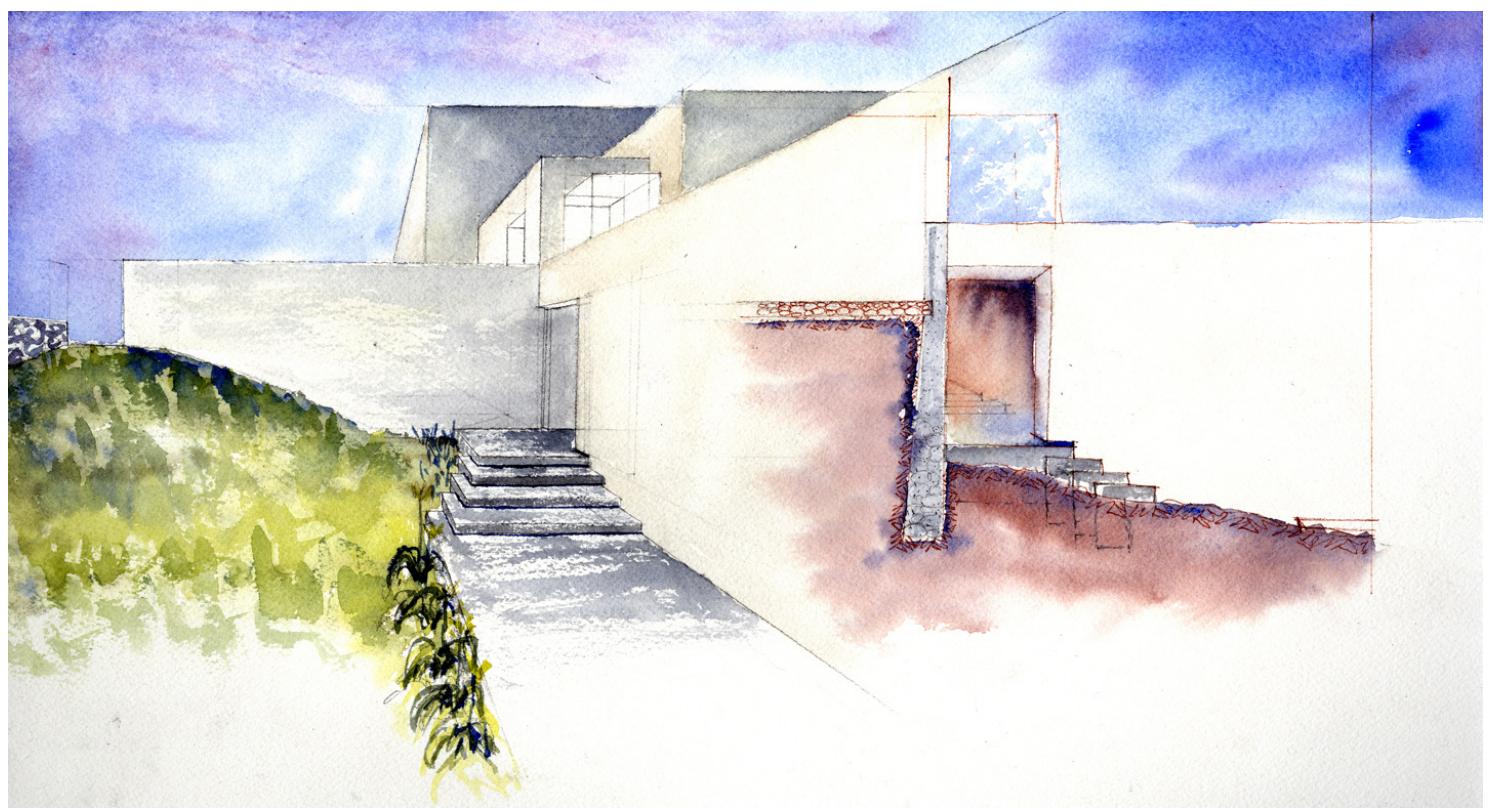
South view



Orientation of the Site

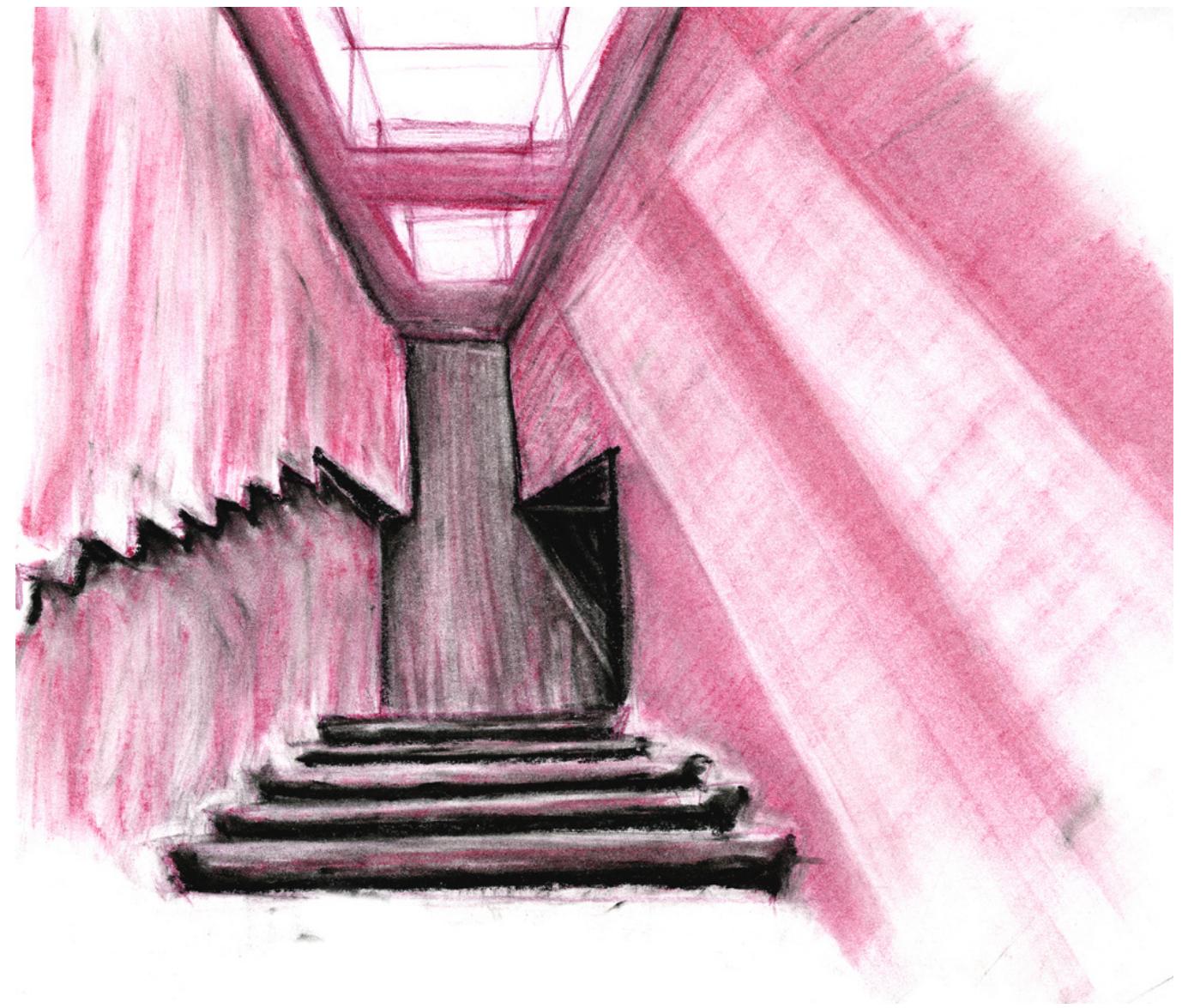
The sun path diagram for Cuenca show us how because of the tilt of the earth, half of the year the sun light come slightly from the south, and the other half of the year it does from the north, nevertheless the sun always appears high in the sky.



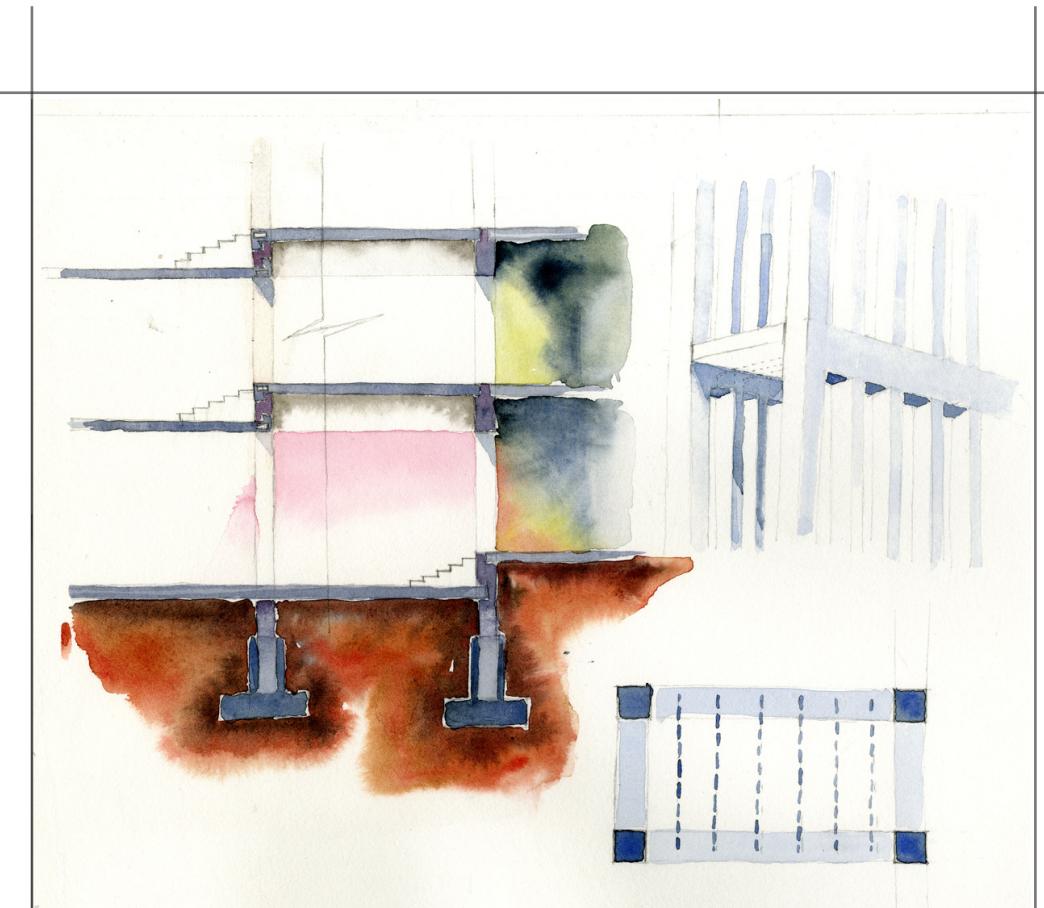
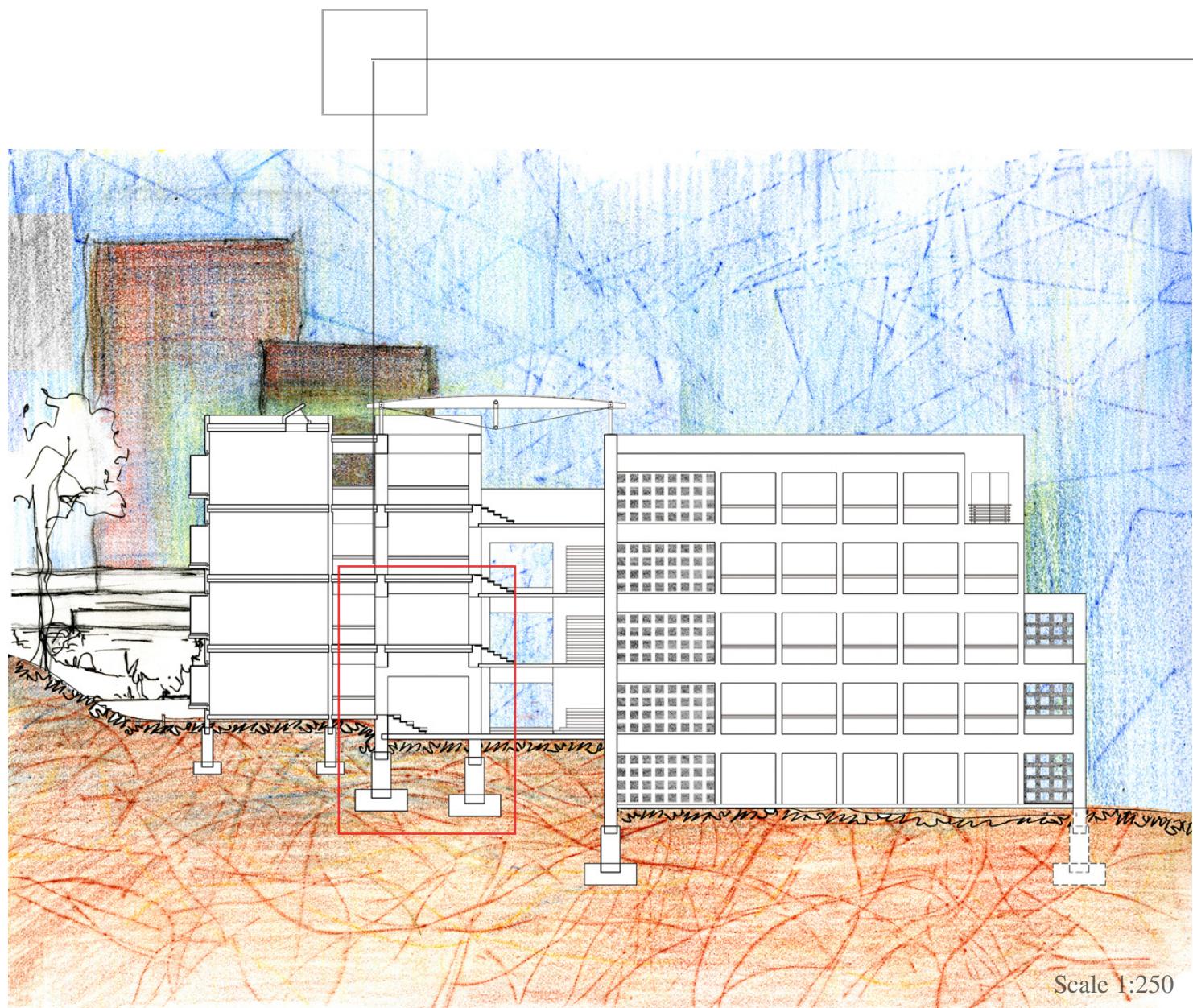


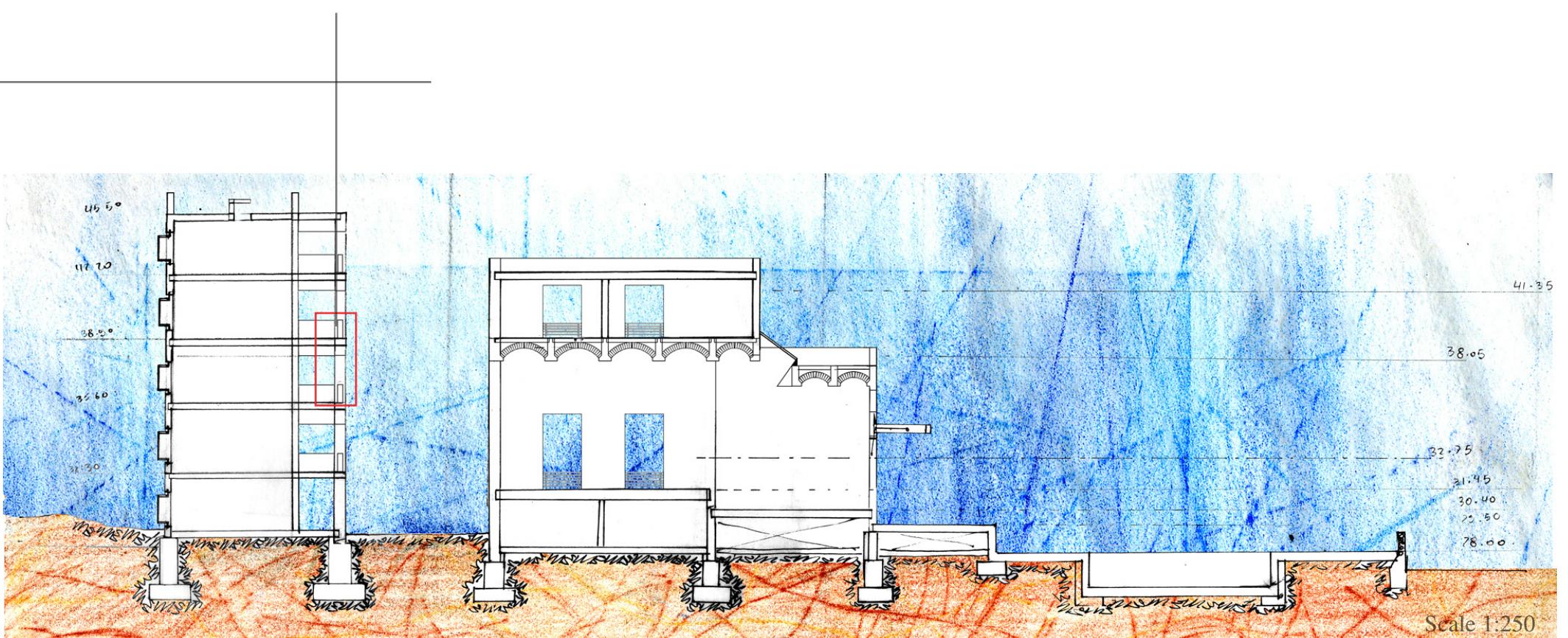
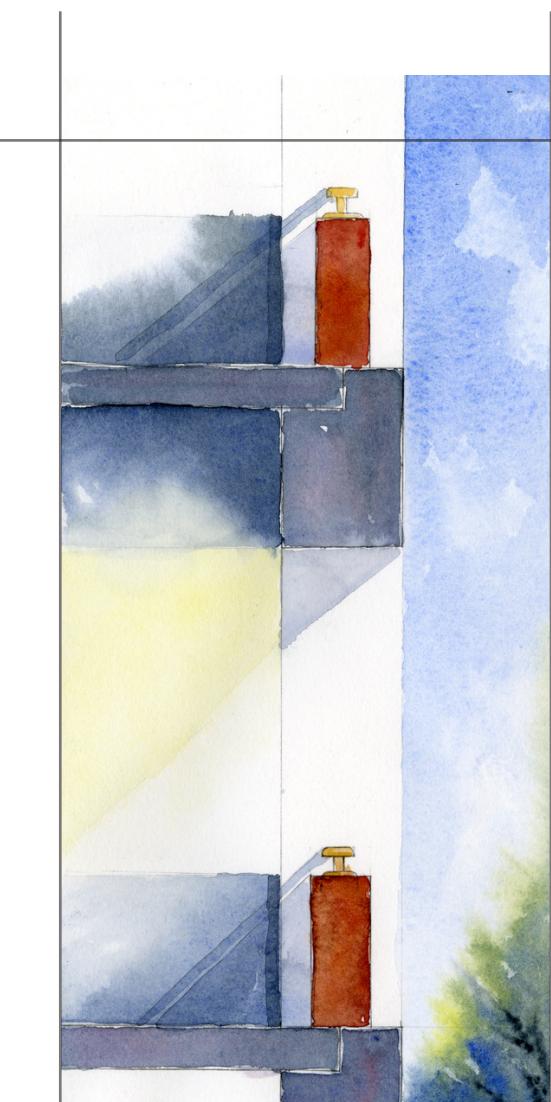
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Entrance view & Outdoor stairs view

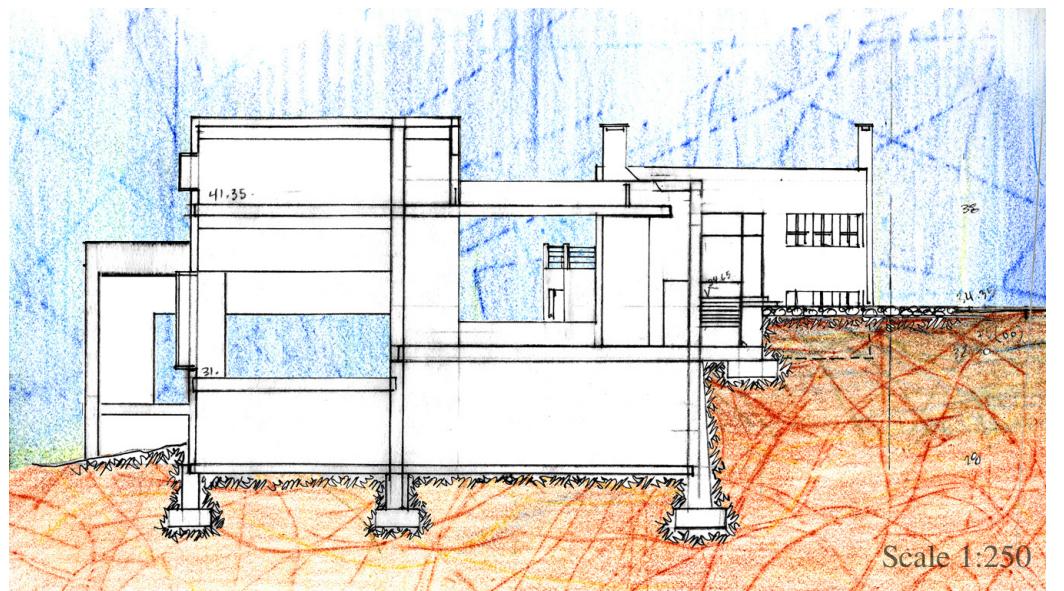


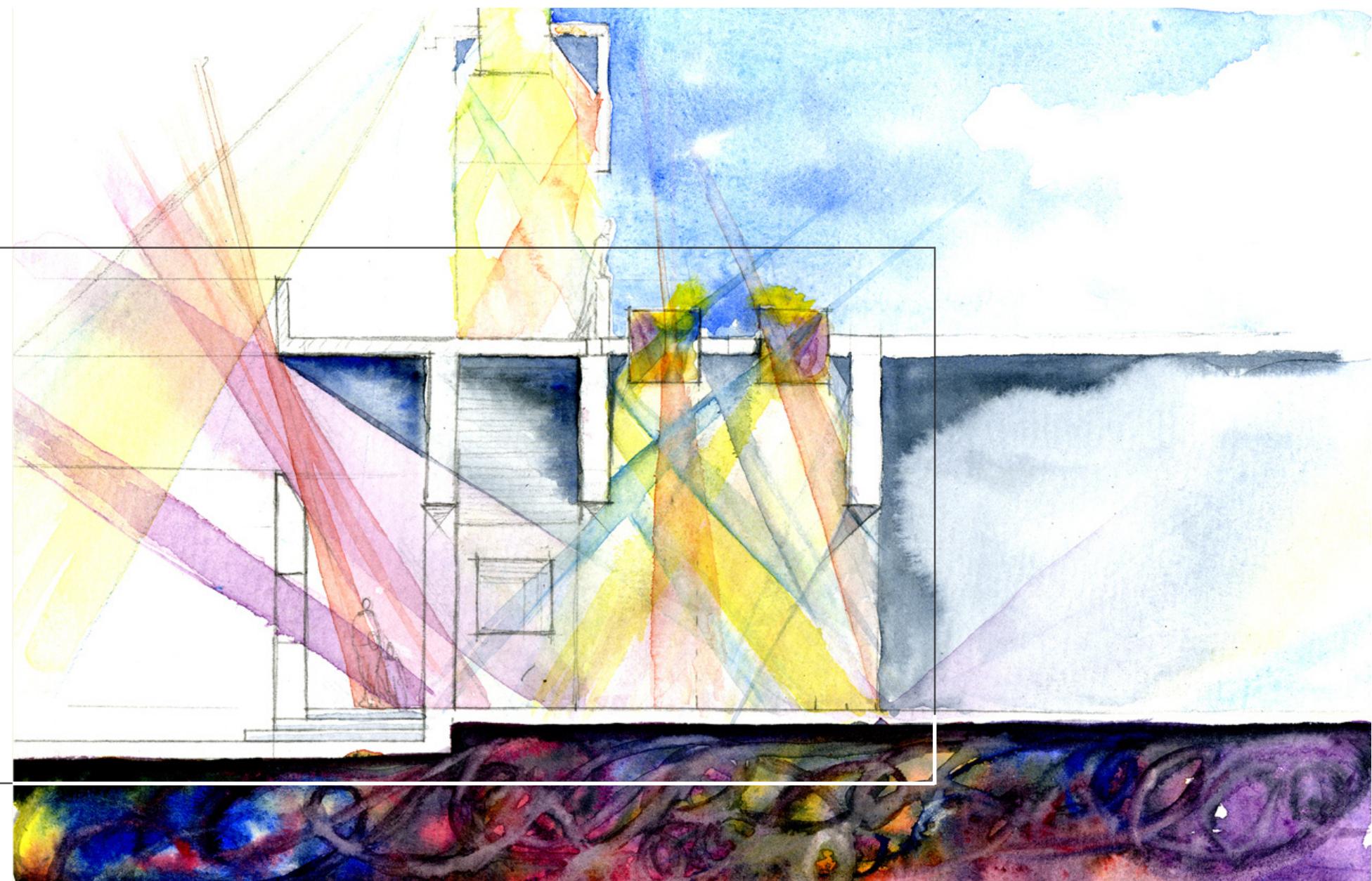
Stairs section & view





East-West section



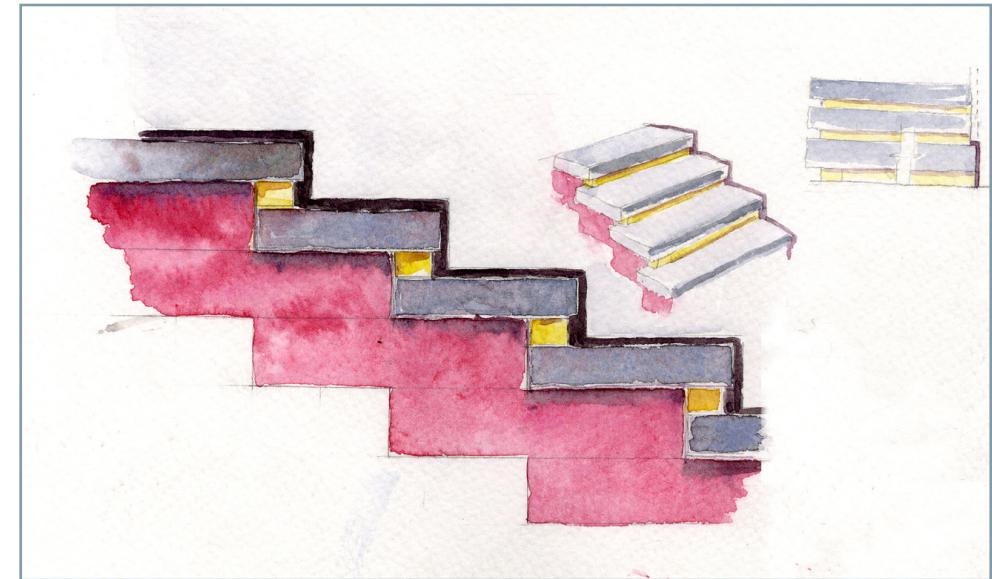


Circulation section



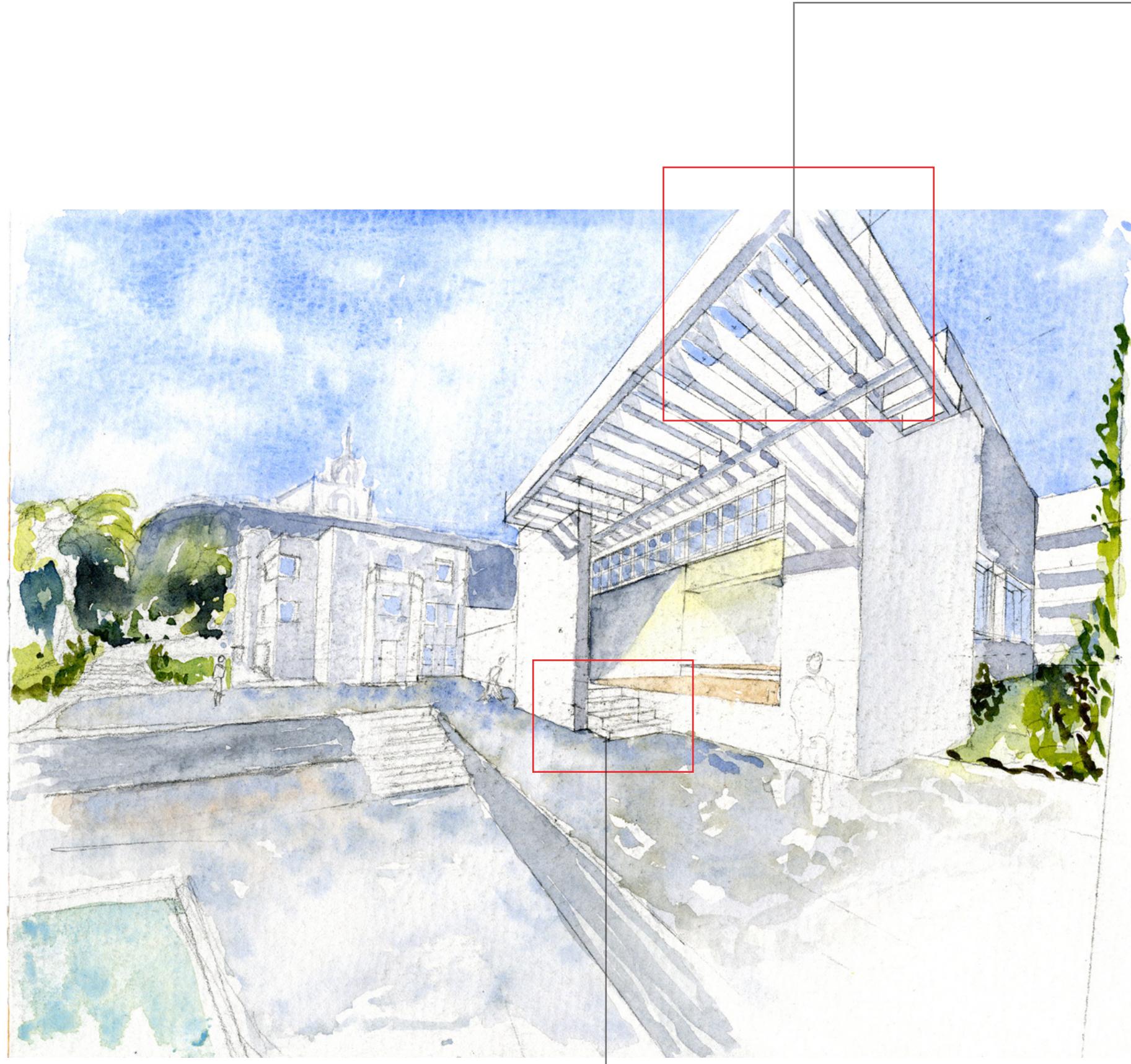
62

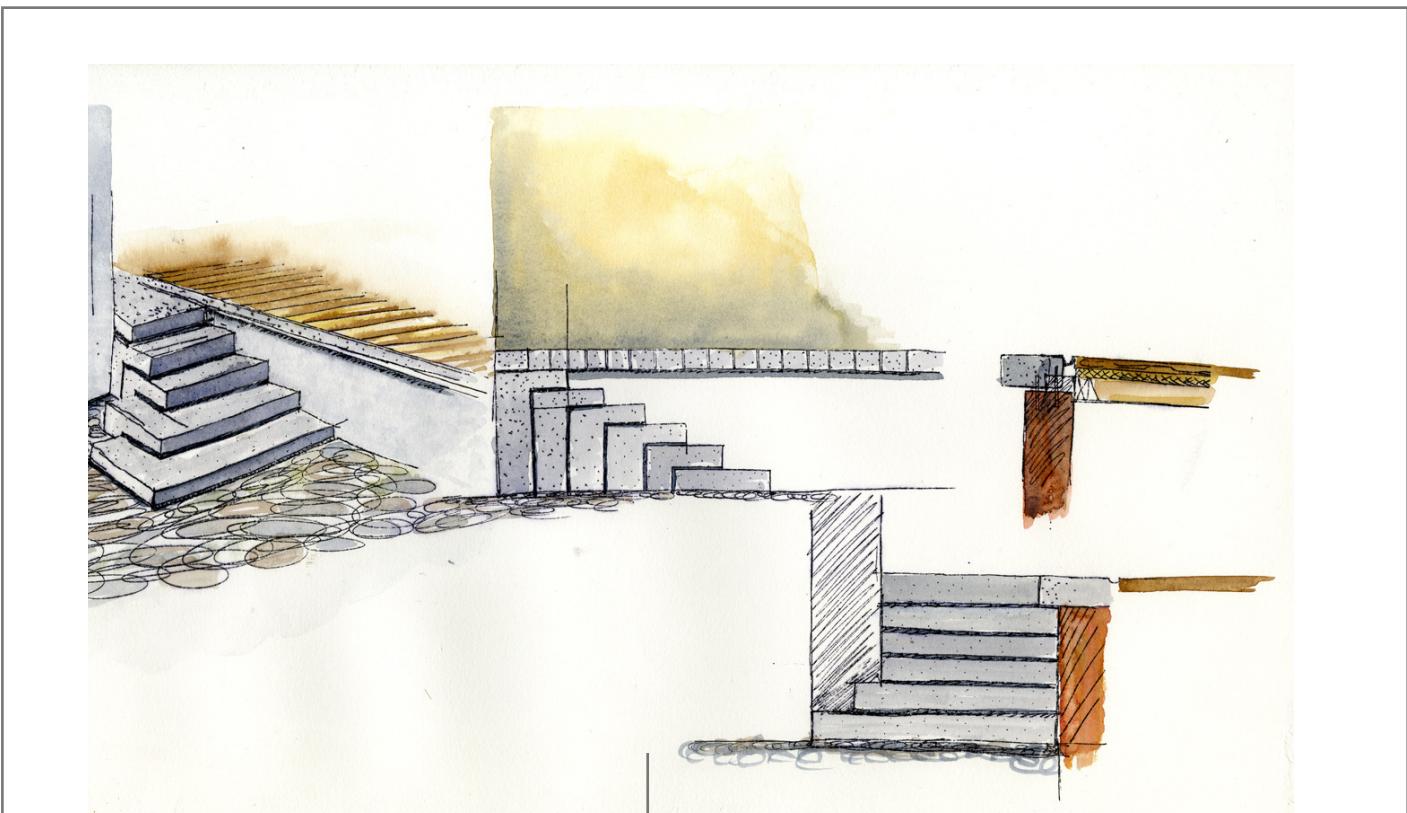
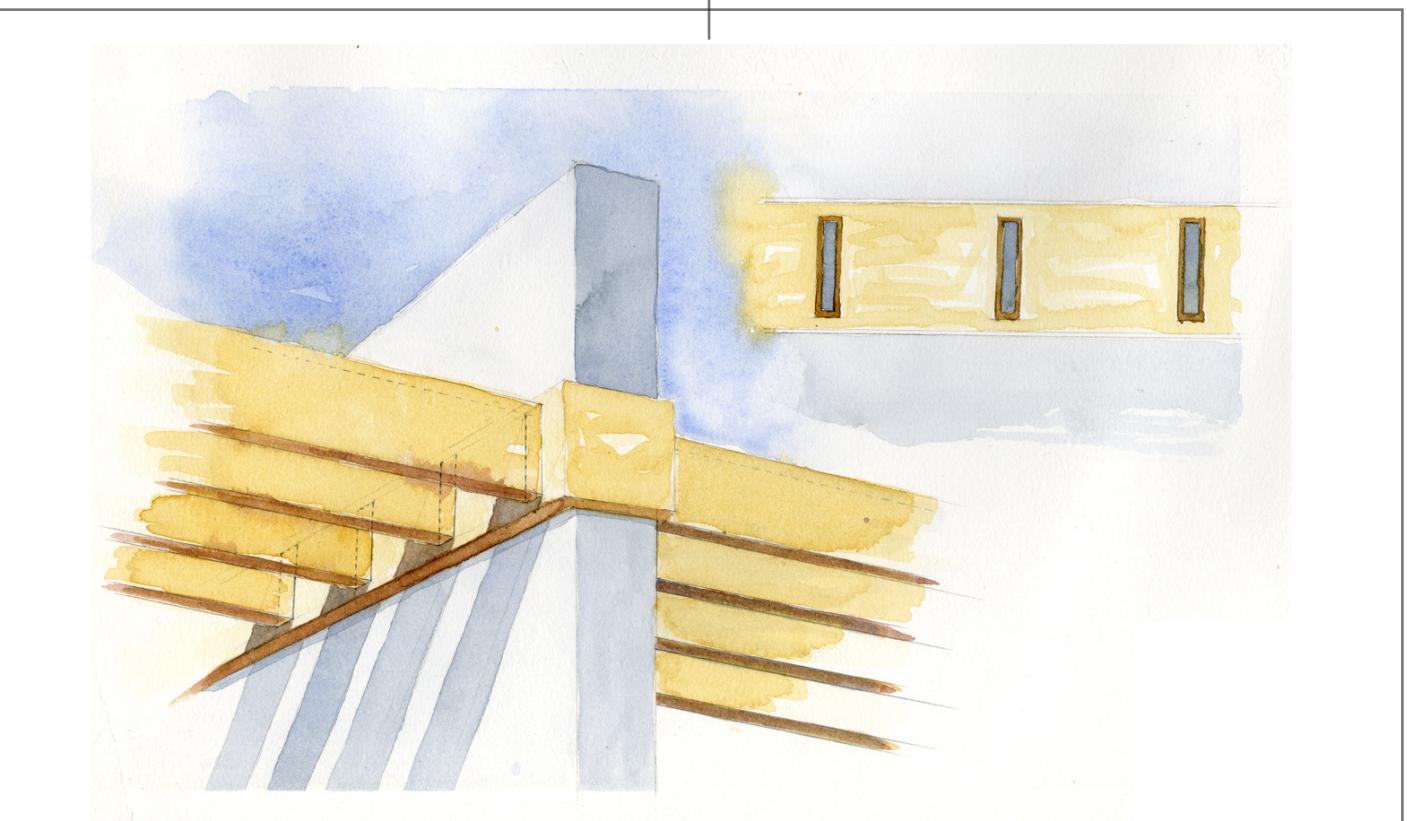
Patio section





Entrance view





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