

building for the unseen

Building for the unseen.
WAAC Radio Station.

Cecilia de la Vega

Thesis submitted to the faculty of the
**Virginia Polytechnic Institute and
State University** in partial fulfillment of
the requirements for the degree of **Masters of
Architecture.**

Cecilia de la Vega

Approved

Paul Emmons, PhD, R.A. **Chair**

Jaan Holt, WAAC Director. **Committee Member**

Marcia Feuerstein, PhD, AIA. **Committee Member**

June 5th, 2006
College of Architecture and Urban Studies
Blacksburg, Virginia.
Washington-Alexandria Architecture Center
Alexandria, Virginia.

A mis padres.

A Pilar, Florencia y Gonzalo.

Abstract

Through parallelism with characteristics of magical realism, the building is materialized by deciphering the unseen images latent in ordinary life.

WAAC radio station.

Old Town, Alexandria, Virginia.

Building for the unseen.

WAAC Radio Station.

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Chapter I
On the theme

Magical Realism

The quest for a thesis topic was set in motion by a sole image, the notion of **emerging** from underground. Trying to find deeper sense in that early idea, the trail of thought went from what is hidden? to what is implied? What can we see? What can we find? What do we imagine we can find? How much is revealed?

At that point those questions were focusing the interest on the satisfaction of **discovering** and the characteristics of **edges**.

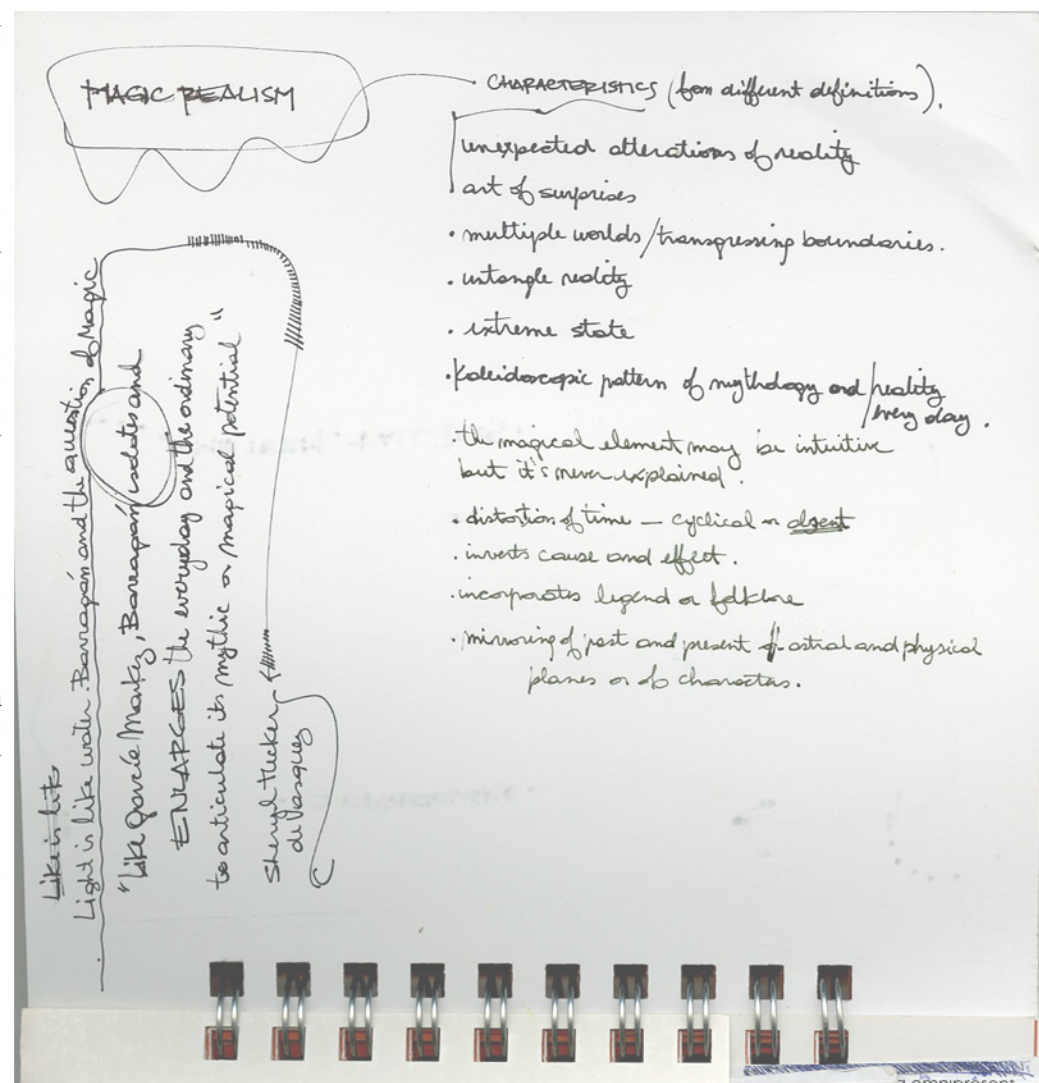
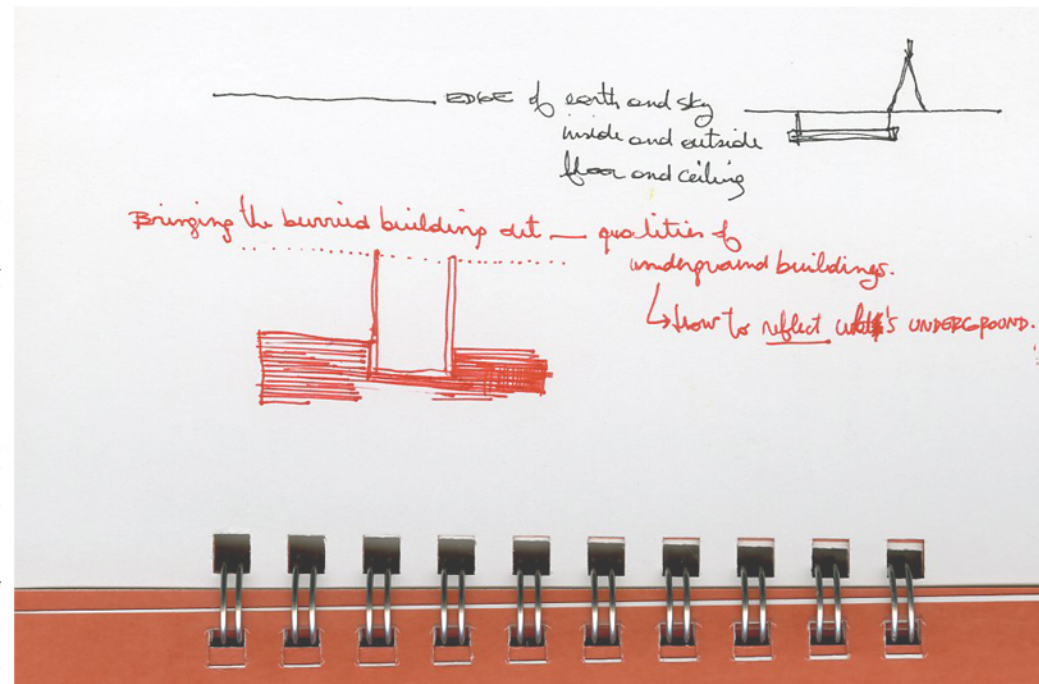
Later, the question was centered in how the **unseen** (if the edges were obstructing the vision, i.e.) affects the **imagination**: when talking about dreams Merleau Ponty states that "the unconsciousness of not having observed can, in the fascinated man, take the place of the consciousness of having observed."¹

what is **fantasy**? what is **reality**?

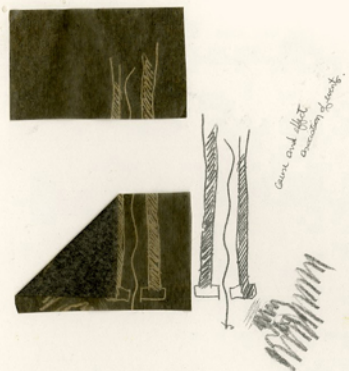
Magical realism in literature deals with elements of **fantastic** origin being accepted as part of **ordinary of life**: "In the magical realist texts ... the supernatural is not a simple or obvious matter, but it is an ordinary matter, an everyday occurrence - admitted, accepted, and integrated into the rationality and materiality of literary realism."²

Then, the question to deal with, in terms of architecture is what part of reality do I consider magical? Would I build **for** it, or **around** it, or **based on** it?

In any case, the world of magical realism allows us to forget about the difference between fantasy and reality, because they **coexist**. In magical realism "**reality is reconstructed through spiritual phenomena**"³, then it doesn't cease to be reality.

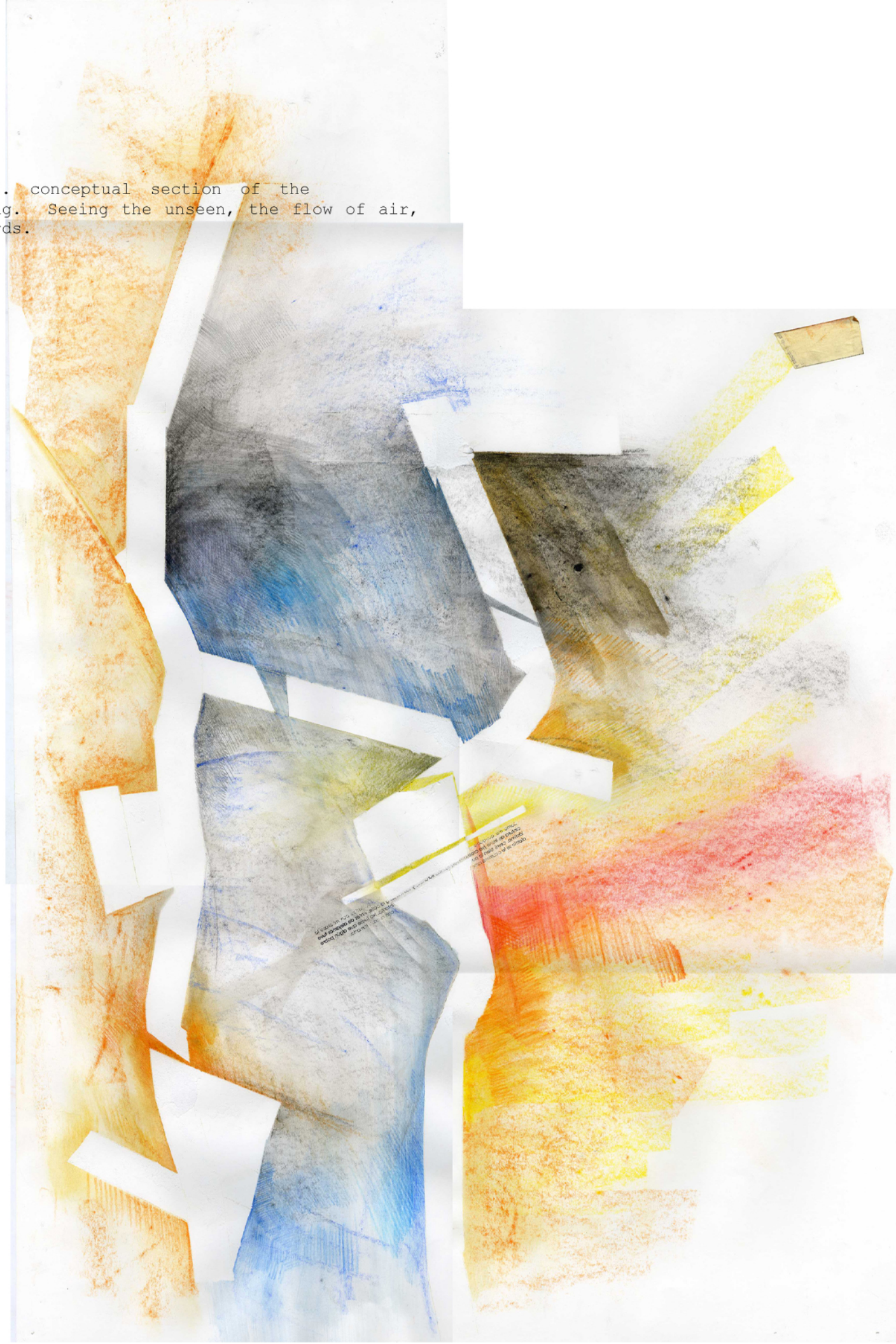


collage. exploration on the perception
of edges.



Edge
irregular line - geometry
shape of surface
horizontal - vertical - resting
horizontal

collage. conceptual section of the building. Seeing the unseen, the flow of air, the words.



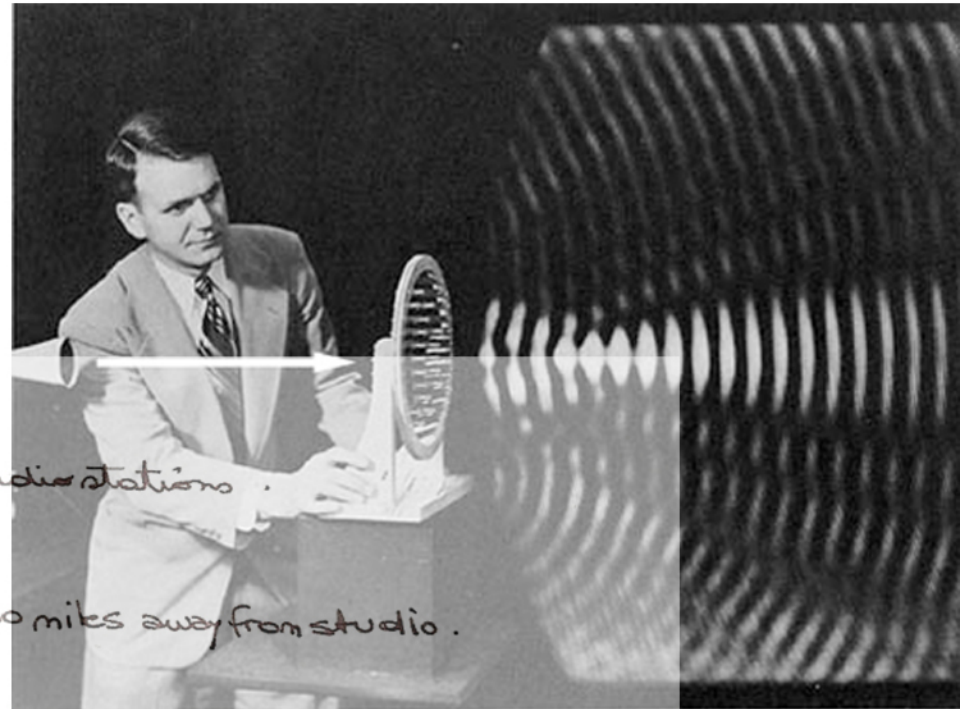
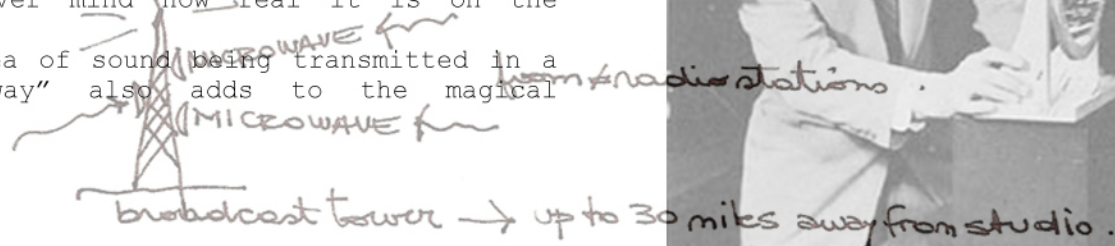
The fantastic program: **WAAC radio station**

Magical realism is about the surprise of finding what was not being seen before, finding the physical presence of imagination.

At this exact moment in time, electromagnetic waves (among other things, certainly) are moving around the world, and even outside of it, traveling incessantly, **unnoticed**. Sounds, voices, are transformed into nothing, until captured by technology that **magically** brings them back to **reality**.

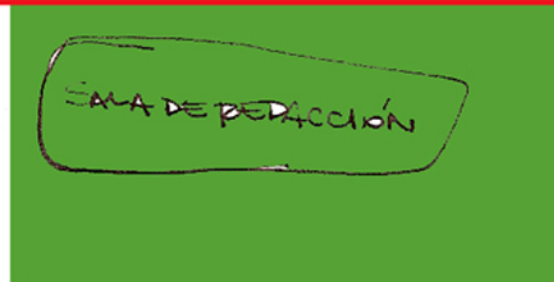
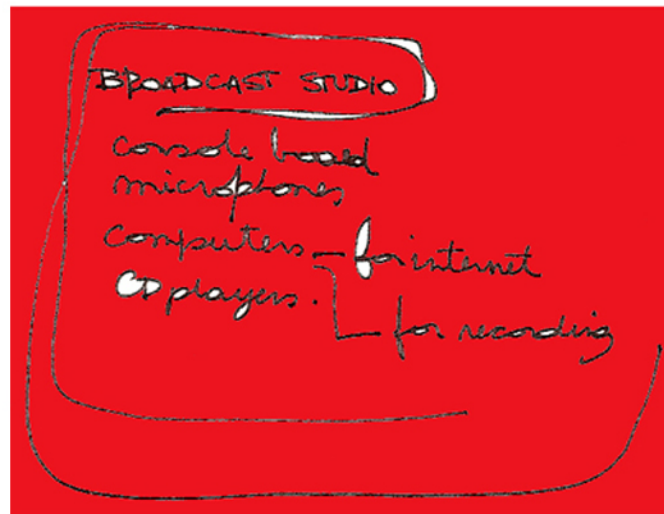
There are other magical moments in the radio station theme. For instance, the fact that if something is soundless, then it is invisible -in reality, it's not invisible, but imperceptible and, therefore, inexistent to the listener, never mind how real it is on the other end).

The idea of sound being transmitted in a "soundless way" also adds to the magical atmosphere.



Bell Telephone Laboratories

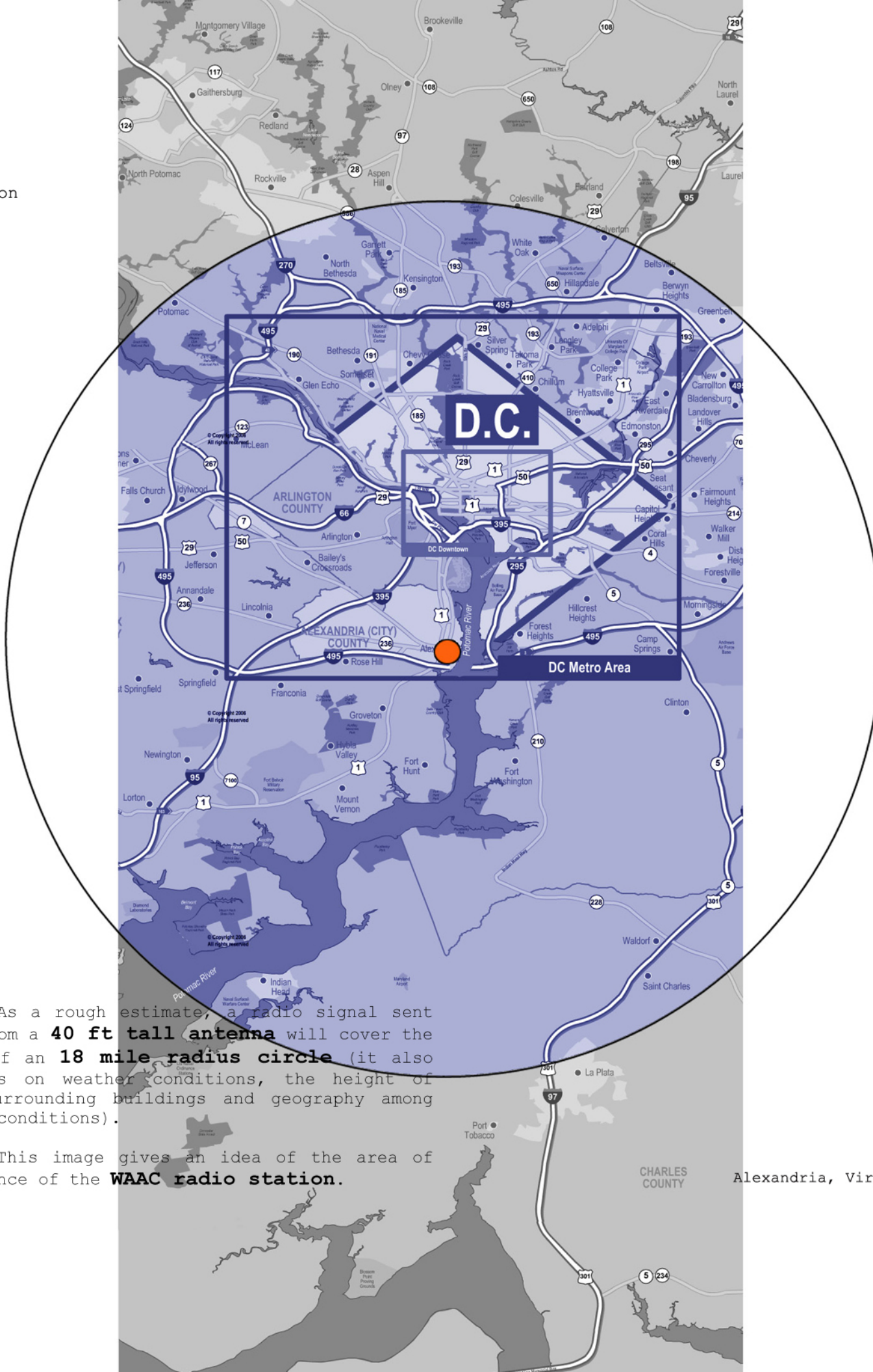
"a visible pattern of soundwaves..."³



First radio public broadcast 1920 —

Chapter II
On the site

Location



As a rough estimate, a radio signal sent out from a **40 ft tall antenna** will cover the area of an **18 mile radius circle** (it also depends on weather conditions, the height of the surrounding buildings and geography among other conditions).

This image gives an idea of the area of influence of the **WAAC radio station**.

Alexandria, Virginia.



Image © 2005 S

© 2005 Google

Pointer 38°48'17.64" N 77°03'03.11" W elev 33 ft

Streaming ||||| 100%

Eye alt 641 ft



elevation on Prince St /between Henry st. and South Patrick st./



elevation on South Patrick St /between Prince st. and King st./

The location and general shape of the site adds the challenge of creating a sort of new façade for the WAAC, tying back to the previously mentioned basic question of **the edge**.

Conceptual interpretation

This abstract model of interpretation of the site determined the main rules of the building: the **leg** signifying the concept of **balance** between fantasy and reality, new and existing; the transparency being the non-existing/non-visible **site within the site**.

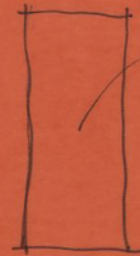
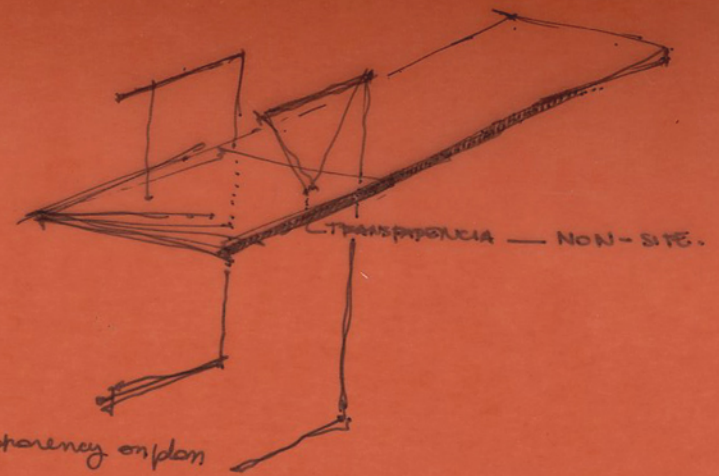
The act of going to the site could not become a special event, it had to be part of a daily routine, in order to have an opportunity to see it enough times, and in as many different situations as possible and maybe, by chance, some day see **something that had not been revealed before**.

It also had to be small and **constrained**, because the smaller the site, the more there is to be found in each square inch.

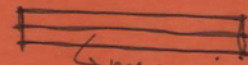
The small piece of land on the corner of South Patrick St. and Prince St, to the east of the Washington Alexandria Architecture Center, combines all those characteristics.

Site analysis.

MAQUETA
SERVOPIAL



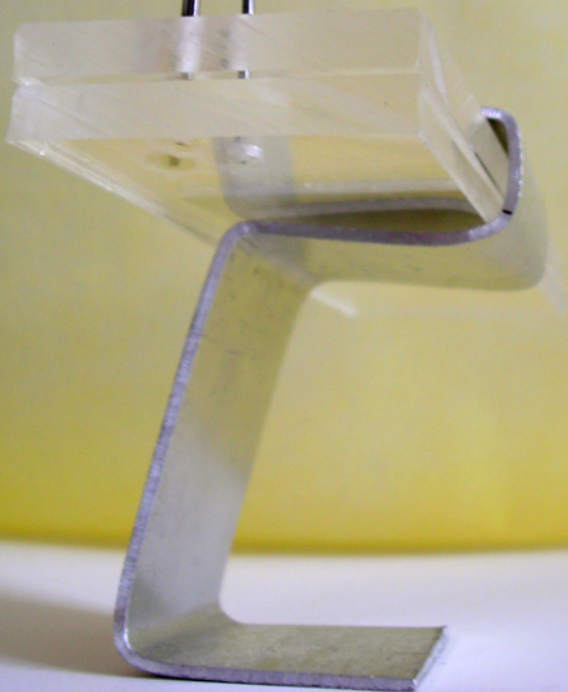
transparency on plan



presence in section.

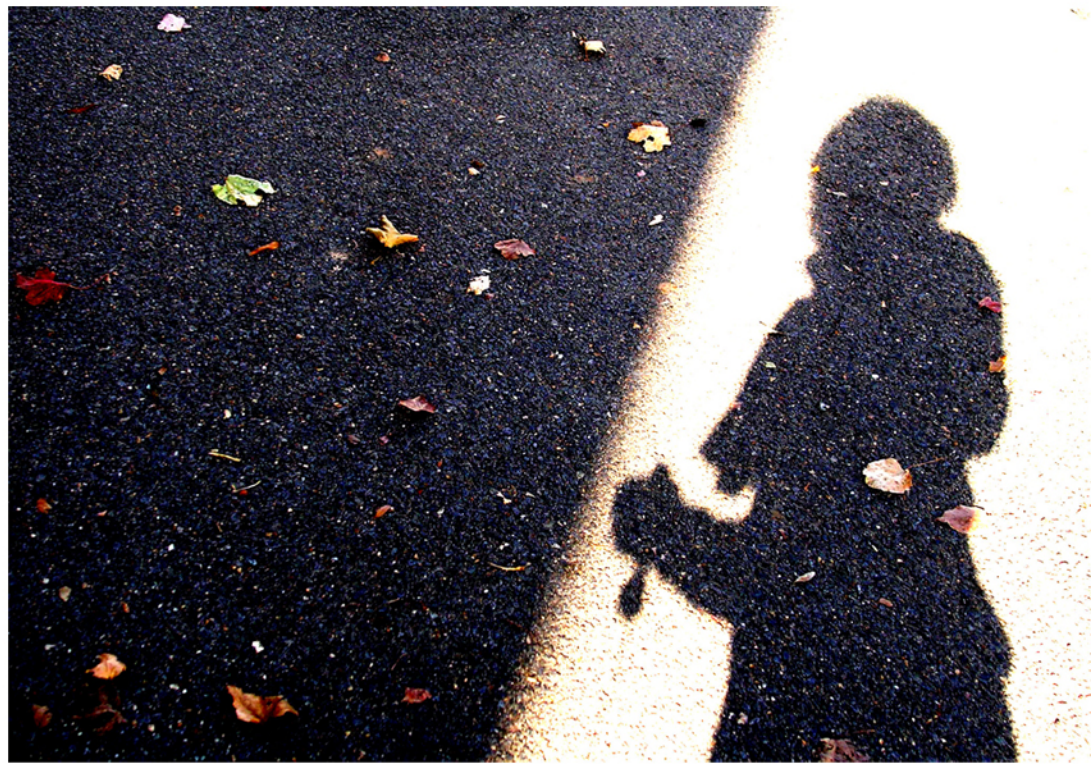


balance (between
reality and
fantasy)
- in the site - between
existing and new



This series of images constitute a search for magic in the site, an attempt to capture what is hardly noticeable or relevant.

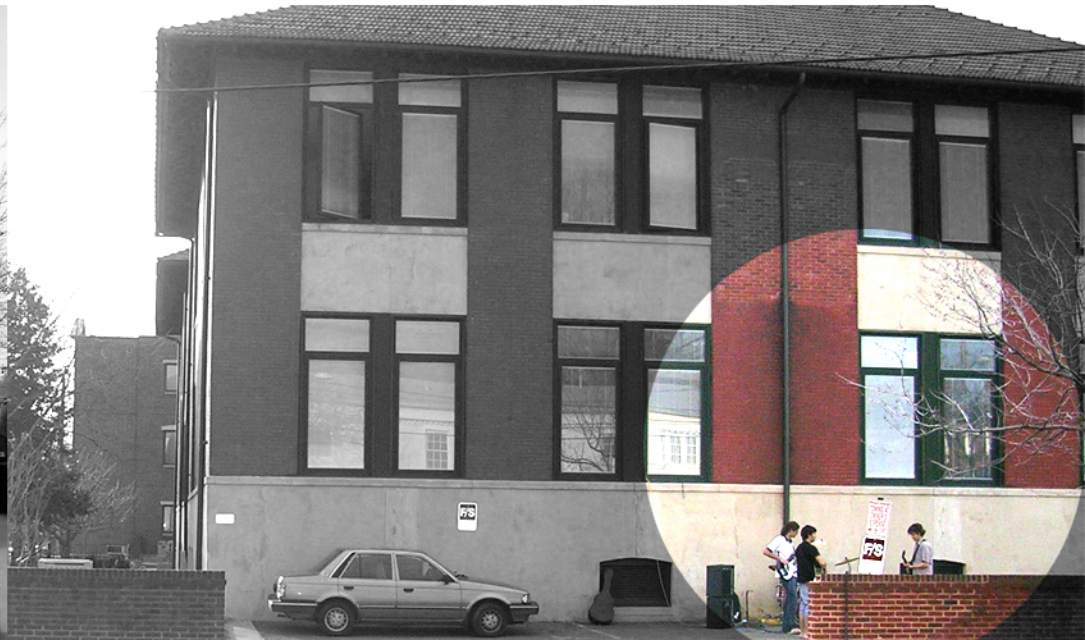
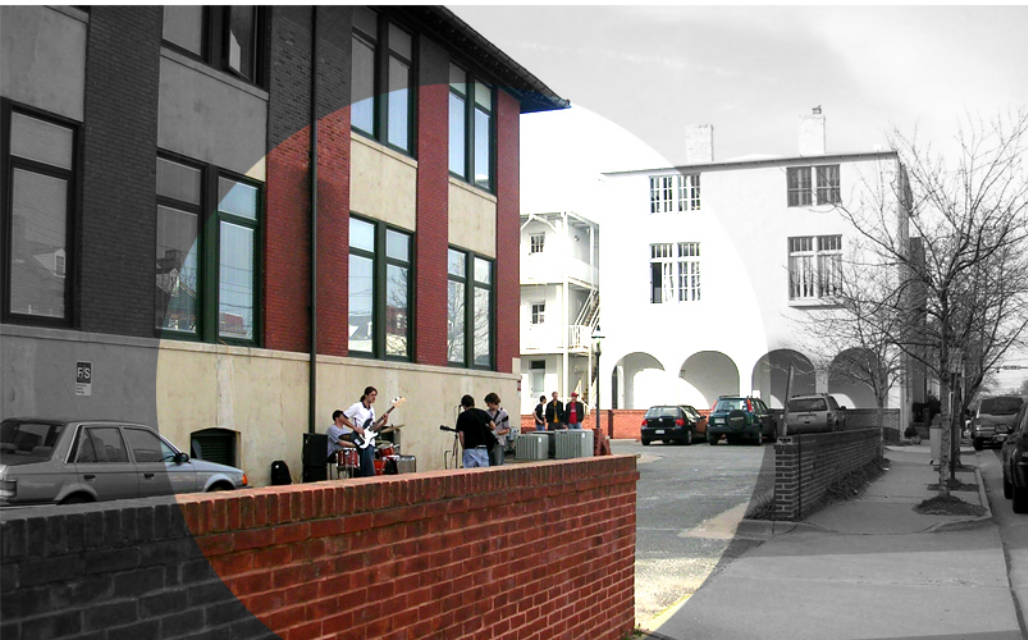






Happenstance. These images show WAAC students playing **music** at the site. From it, it can be read that there's interest in transforming the area in a **participative space** of school activities. Also, evidences a need for **outdoor** "rooms" that could accommodate different kinds of performances.

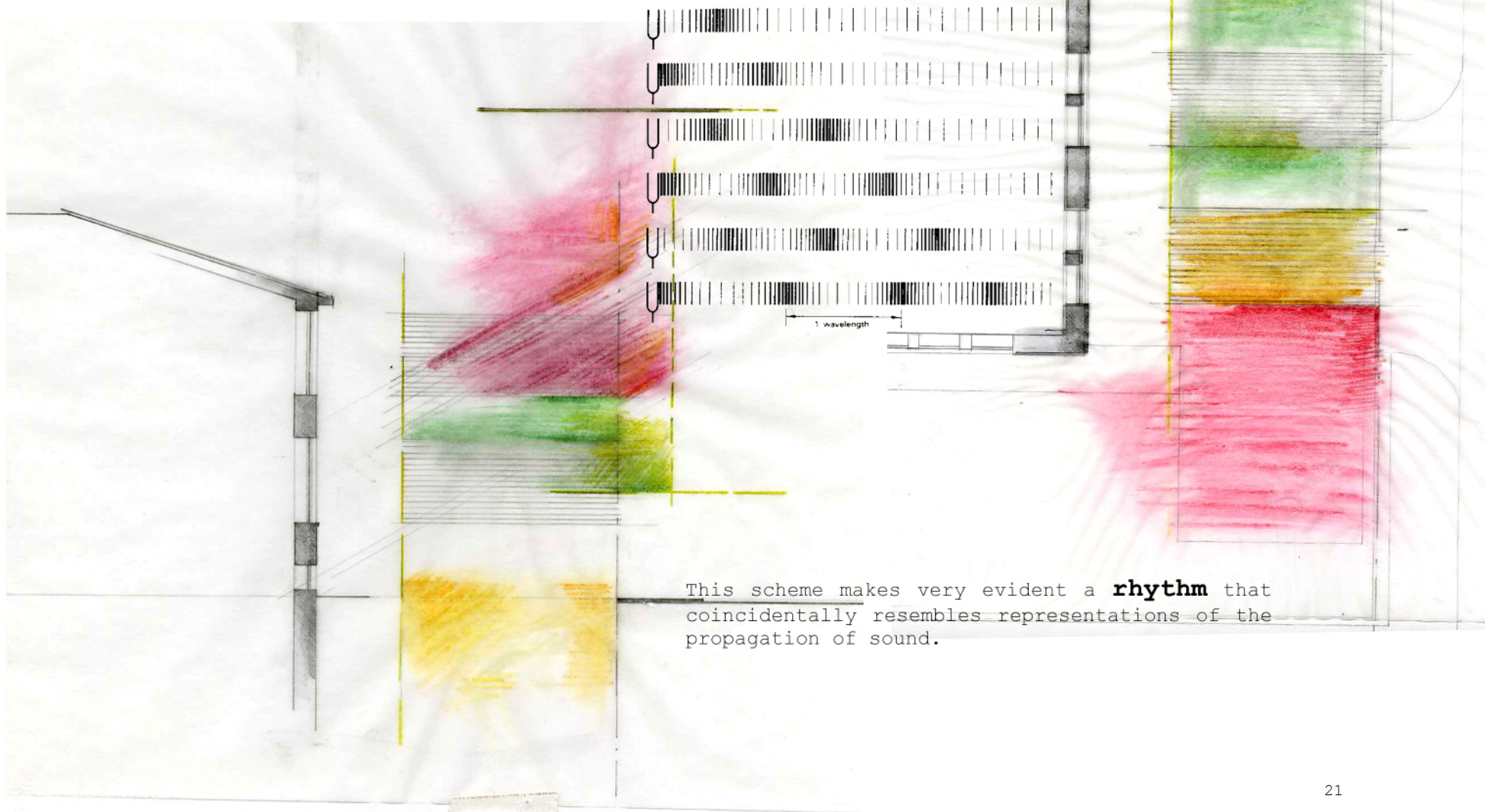
It also demonstrates why it was so important for me that the **site** was on the way from my home to school. I didn't want to miss anything.



Spatial organization

Given the reduced amount of space chosen for the development of the building, the first step was to organize a scheme with the maximum space that could be used, and to articulate an option for the **use of spaces**, responses to the WAAC building and the possible movement generated by the use of the parking space.

The colors of the scheme determine functions. They were defined by a picture of the site (see next page) that shows the quality of the **artificial light** around it. **Red:** relationship with the street, since it's coming from the cars (corner = broadcast); **yellow:** living-services, because it belongs to a residential building; **green:** it belongs to WAAC, therefore it is associated with study-research.



This scheme makes very evident a **rhythm** that coincidentally resembles representations of the propagation of sound.



Chapter III
On the building concept

Bubbles

Still clueless about the materialization of the building, this collage was an attempt to bring out of my head what my mind's eye was seeing: bubbles. At this point the building was about electromagnetic waves floating through the air. But then again, in reality, it was only **air**. The bubbles give the air its deserved presence. Furthermore, they added a sense of instability, or better said, **unpredictability** (about how they will move, how long will they last, how the light will reflect on them).

In a way, the bubble becomes an analogy to the **enclosure** provided by walls. Every horizontal and vertical plane I would construct, would be "encapsulating" more than just air.

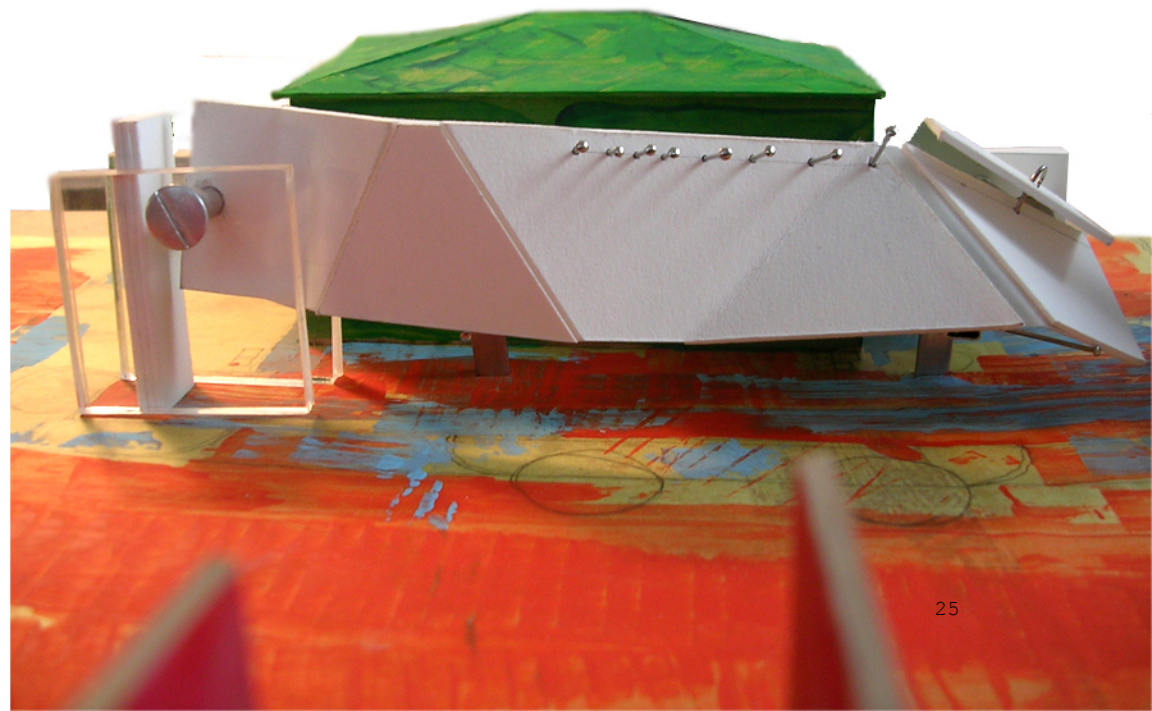
The perfect structure of the bubble takes its form from the particular conditions of the air pressure inside of it. This became a concept that modeled the design of the building. I first thought of how much space I needed for a determined activity to take place, then, the quality of that space, and finally, how to enclose it -if at all needed-.



CRUCIAL TO
-SUPPORT THE BUILDING
STRUCTURE
-IN A WAY, THE BUBBLE
IS NECESSARY TO PLACE
IT IN A SURFACE.

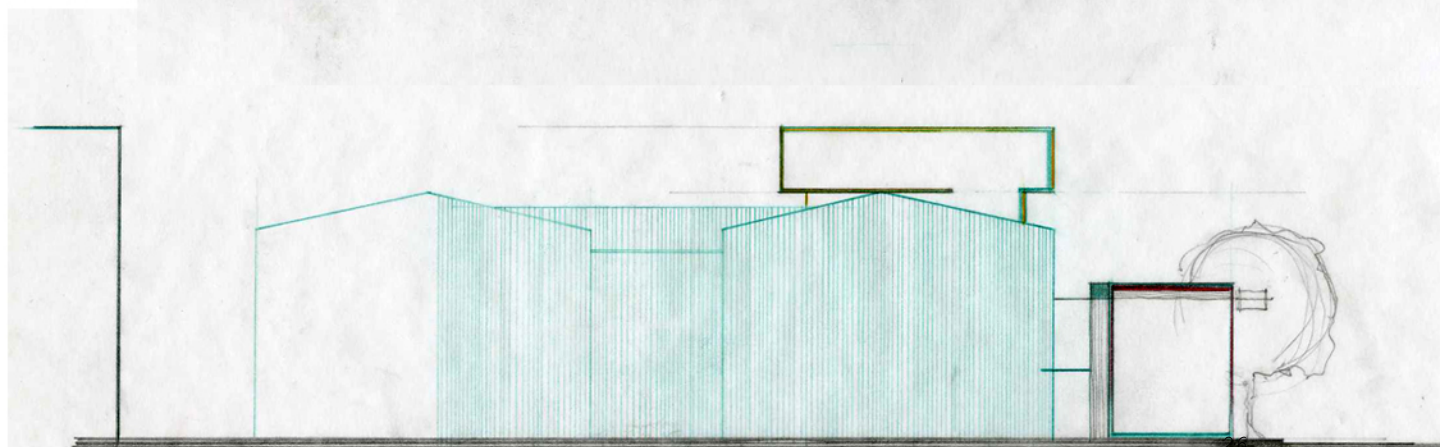
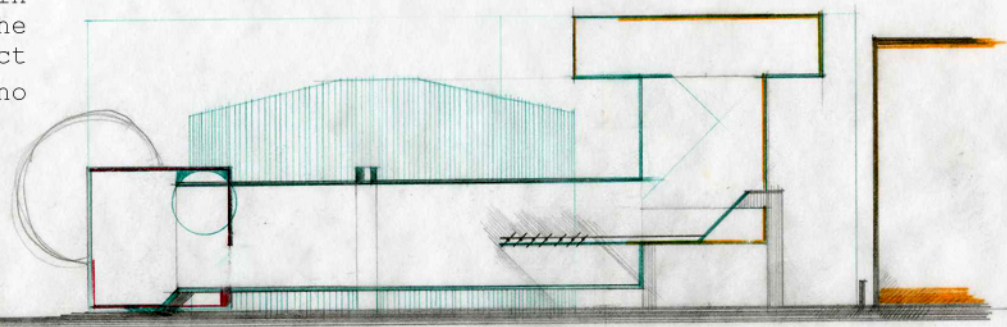
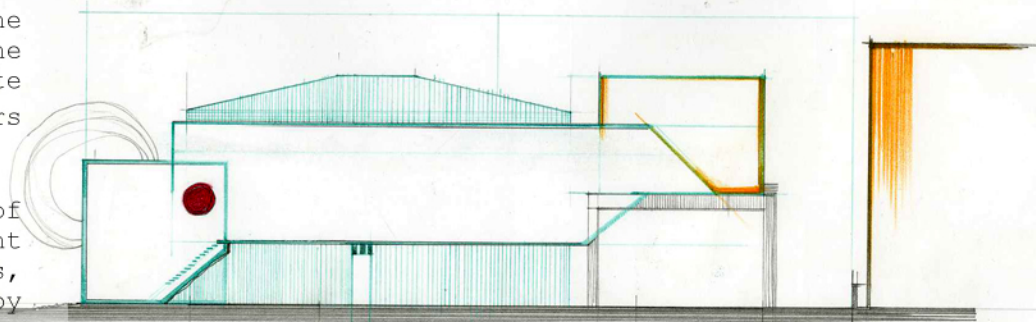
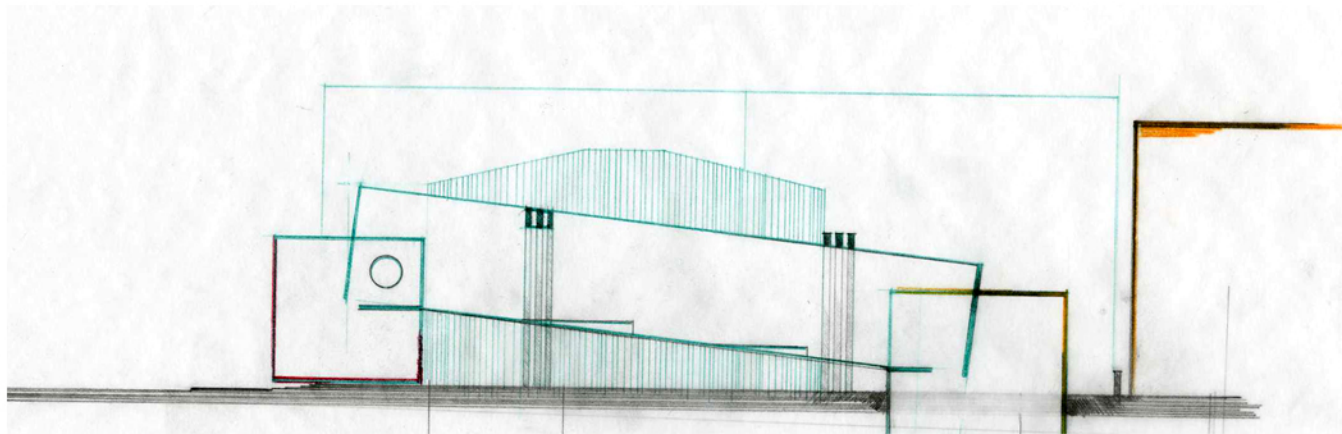
The "puppet"

This exercise was an attempt to bring chance into the design process - controlled chance, maybe?-. Each piece of the "puppet" is a space of the building. The articulations of the puppet become the linking spaces, the motors of **change**. The organization of the **sum of portions** is related to the scheme of distribution shown in the previous chapter.



The variation on schemes comes from the interpretation of the different positions the puppet took when it was placed in the site model. **Gravity** and **chance** were the factors that determined each position.

...“Each movement [...] had its center of gravity; it sufficed to control this point within the interior of the figure; the limbs, which were nothing but pendula, followed by themselves in a mechanical way without any further assistance”⁴. Let's consider the marionette is the building. Each limb or part of the body is a room, a space in this project. Then the ideal would be to find the center of gravity located in one of those spaces, in other words, the rooms that “control” the building. After that, the rest of the project just **falls into place**, as if there was no other way it could be done.



Metamorphoses

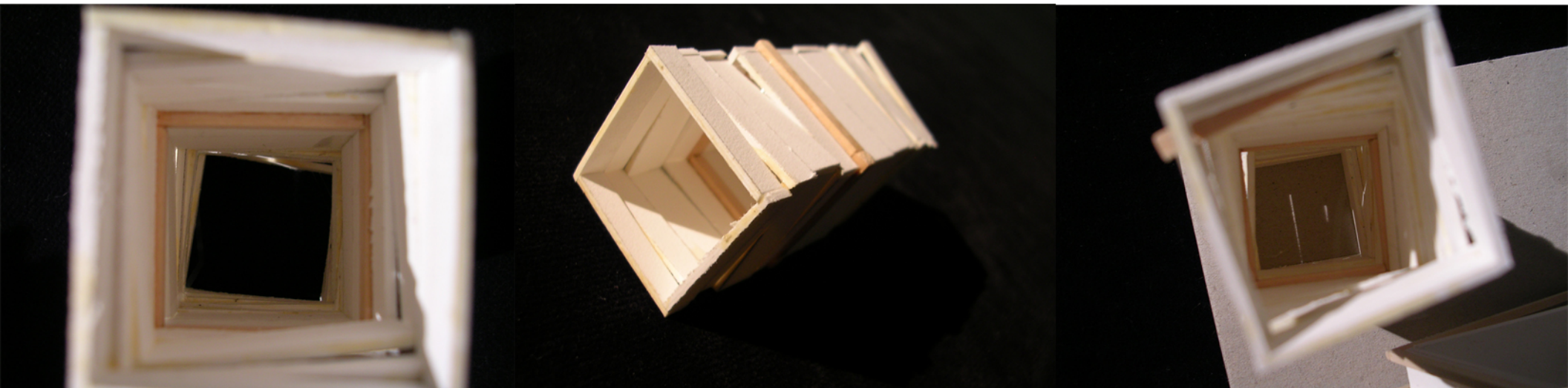
"In literature, one space can contain other spaces..."

Random Wilson

Metamorphoses is the notion that allowed reconciling the previous diverging roads the project was taking: one of them being a **unique space** inside a bubble and the other, the **addition of spaces** articulated in the puppet.

In the article "Metamorphoses of fictional space", Random Wilson explains how the worlds of reality and magic come together to create a **hybrid space**: "this hybridism occurs within the folding of worlds when one, bearing its own distinct laws, erupts into the other".

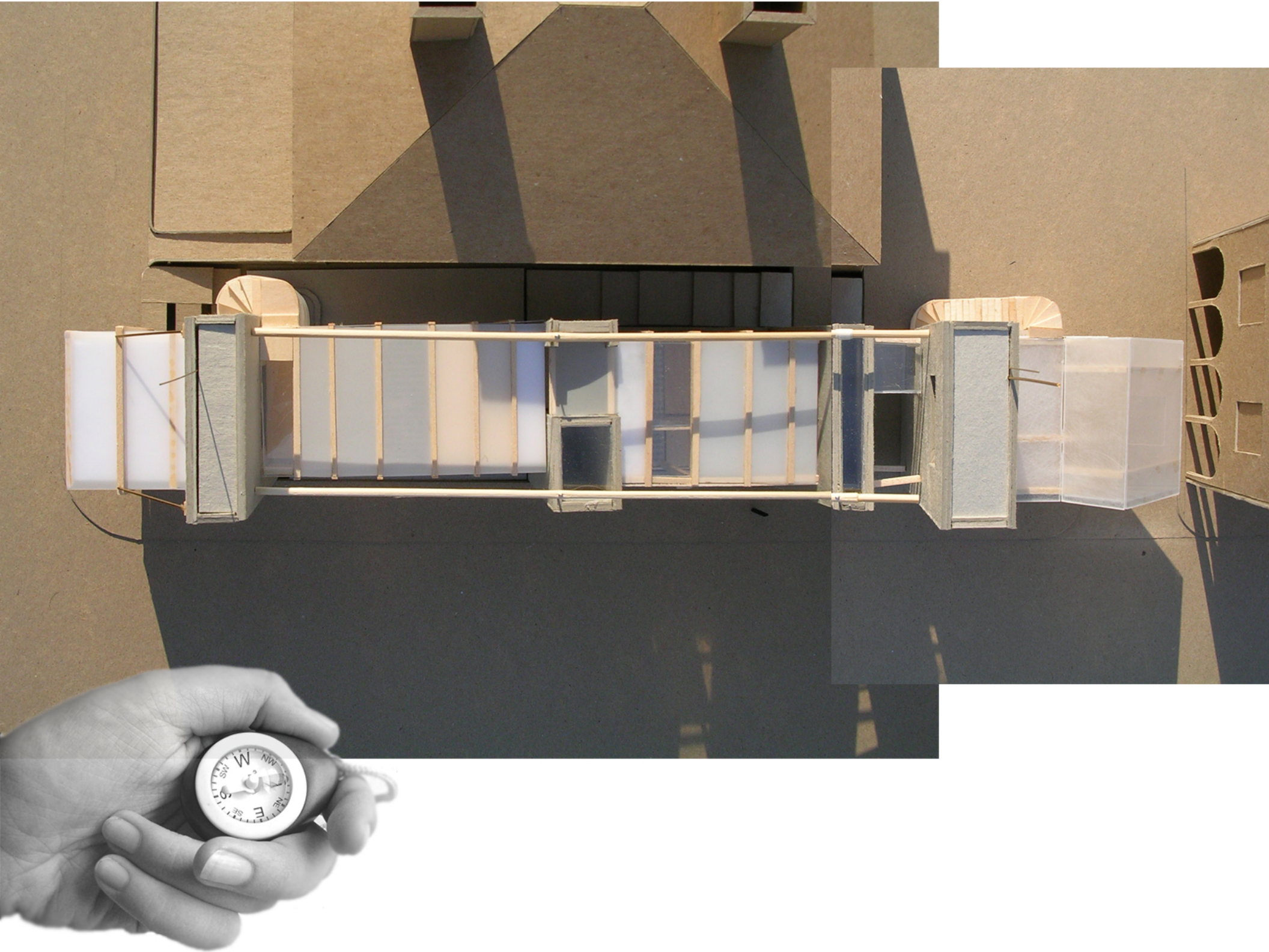
The exercise shown here (IMAGE>5) is a result of bringing together the two previous notions and the concepts of Wilson's article. The construction represents a single **morphing space**, created by an addition of repetitive forms. Variations in that repetition are the events that create the **space within the space**.



Chapter IV
on the materialization of the radio
station



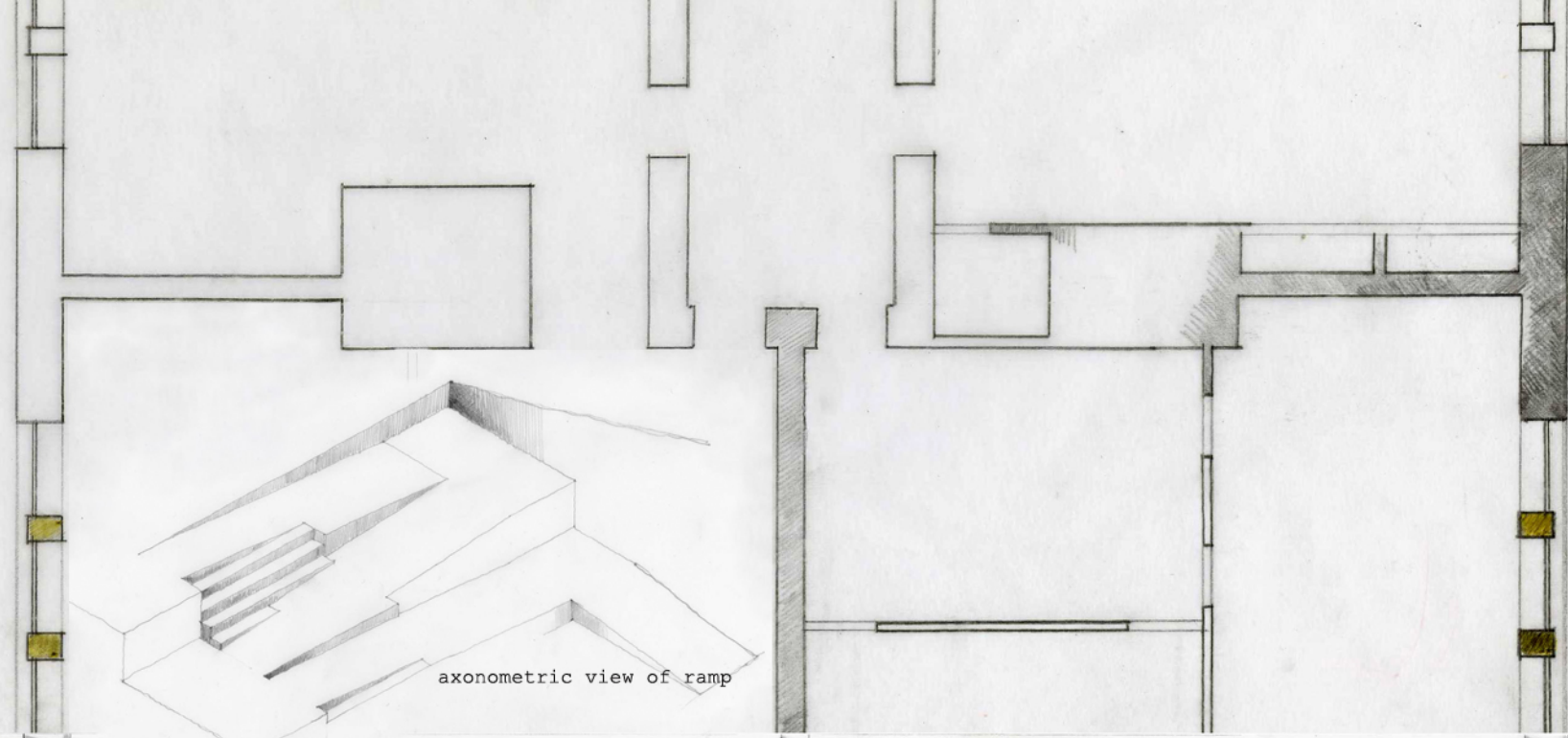
site plan





WAAC radio station

...mento después se deposita de nuev
... recordare siempre con claridad para
... ocho de la noche y de repente se
... tomada puerta de roble, y dado la vu
... blioteca. El sonido venia incesante y
... nversación. También lo al el mismo ten
... ista la puerta. Así se contó la qued
... lizmente la nave estaba p
... a la cocina, calentó la p

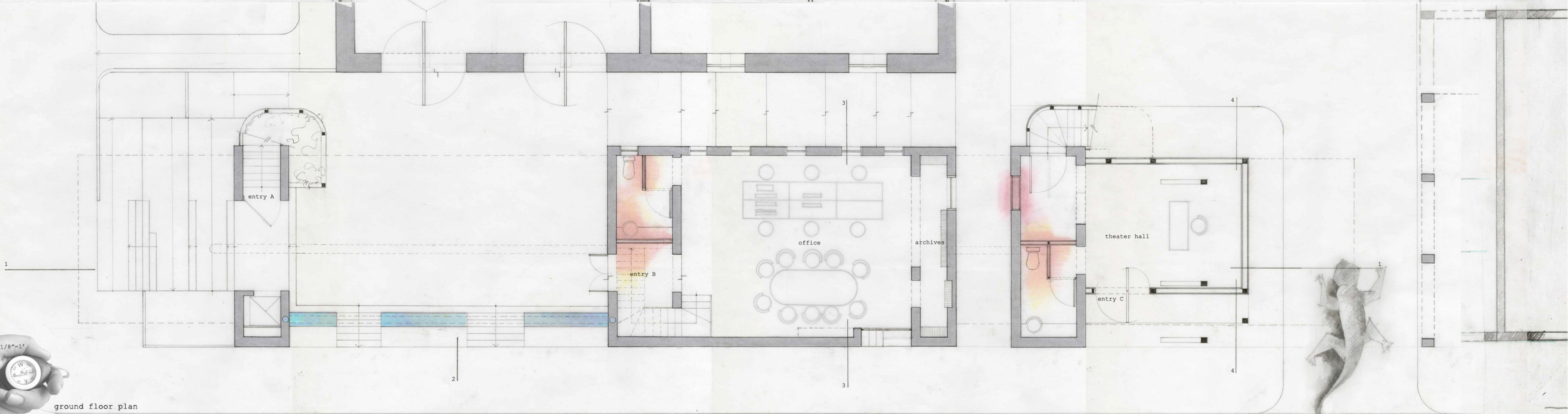


axonometric view of ramp

The **entrance plaza** becomes the **link** between the WAAC building and the radio station. It is a **gathering space** for the community of both buildings (although essentially one community is part of the other).

The **recording/auditorium room** has its own access, which allows its functioning **independently** from the rest of the radio station when needed.

The **ground plan** corresponds to **reality**: research, administration and entering the space.

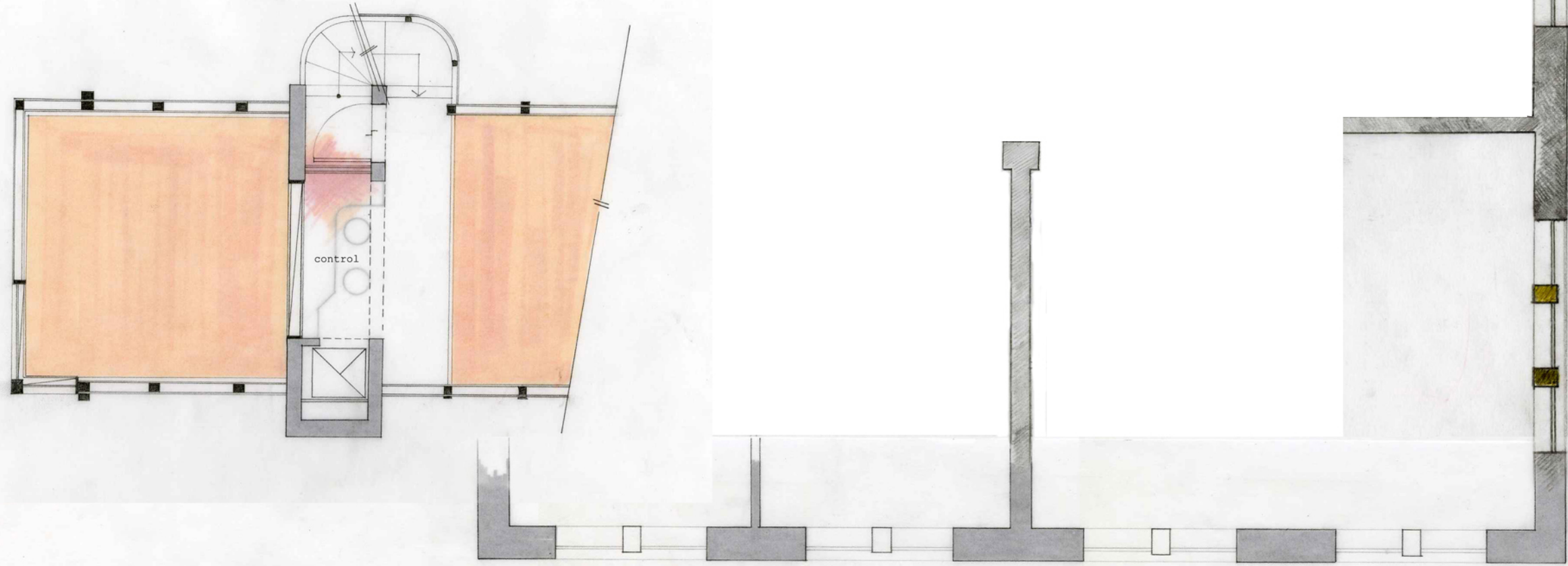


ground floor plan



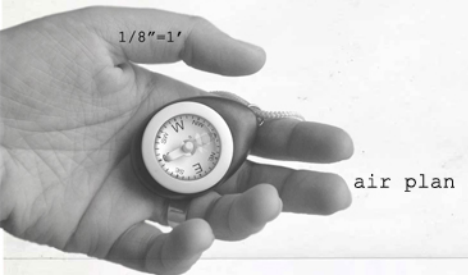
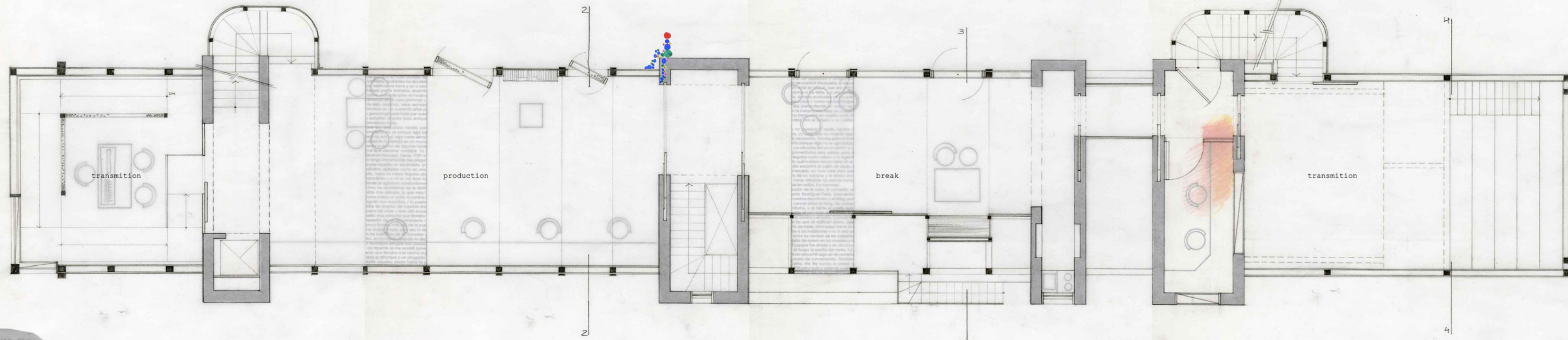


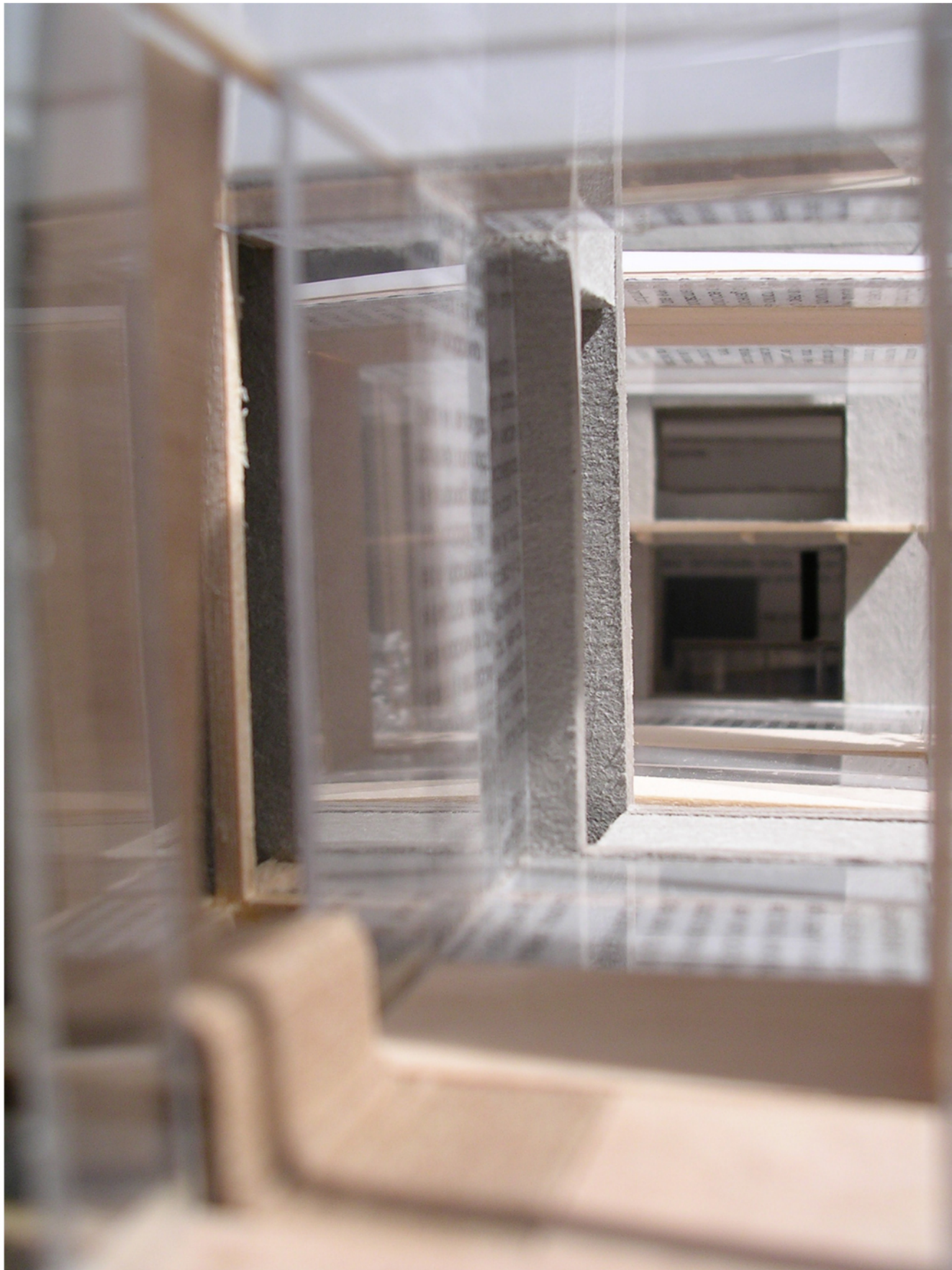
The ramp in the live broadcast room mirrors the ramp leading to the entrance plaza.



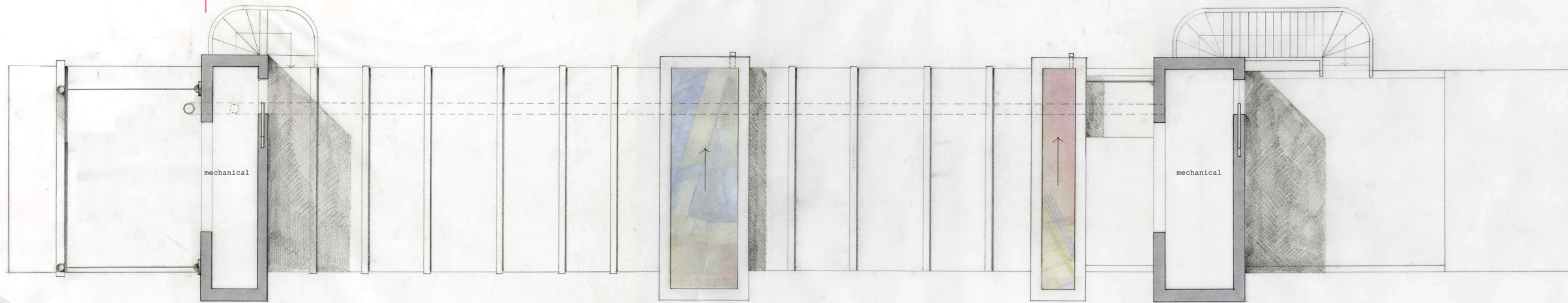
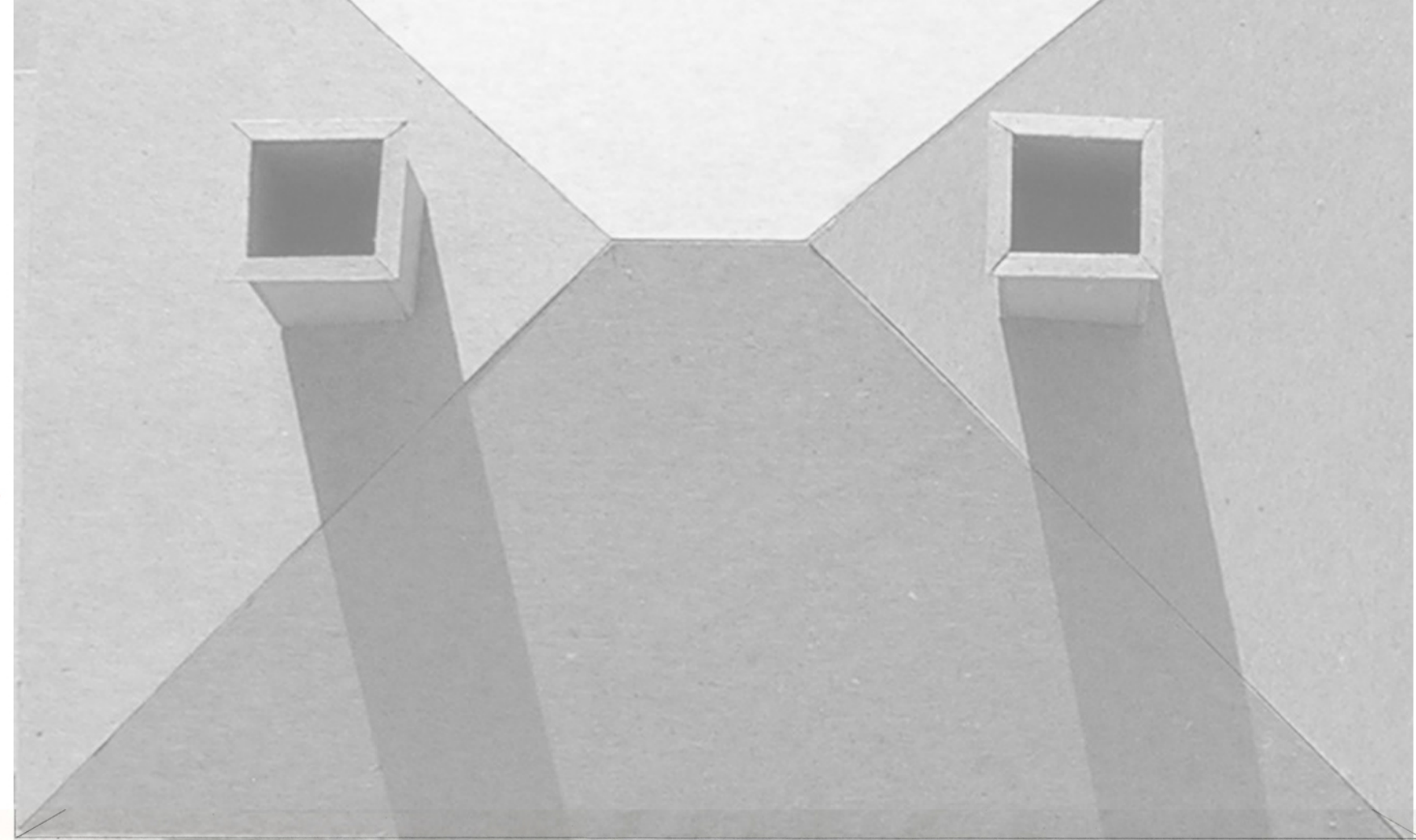
The **air plan** is the **magical world**: social interaction, setting the words loose in the air.

All spaces **connect as one**. Standing in one end, one could see all the way to the other extreme.





partial section:
the tension is transmitted to
the concrete module by the
slab



1/8"=1'

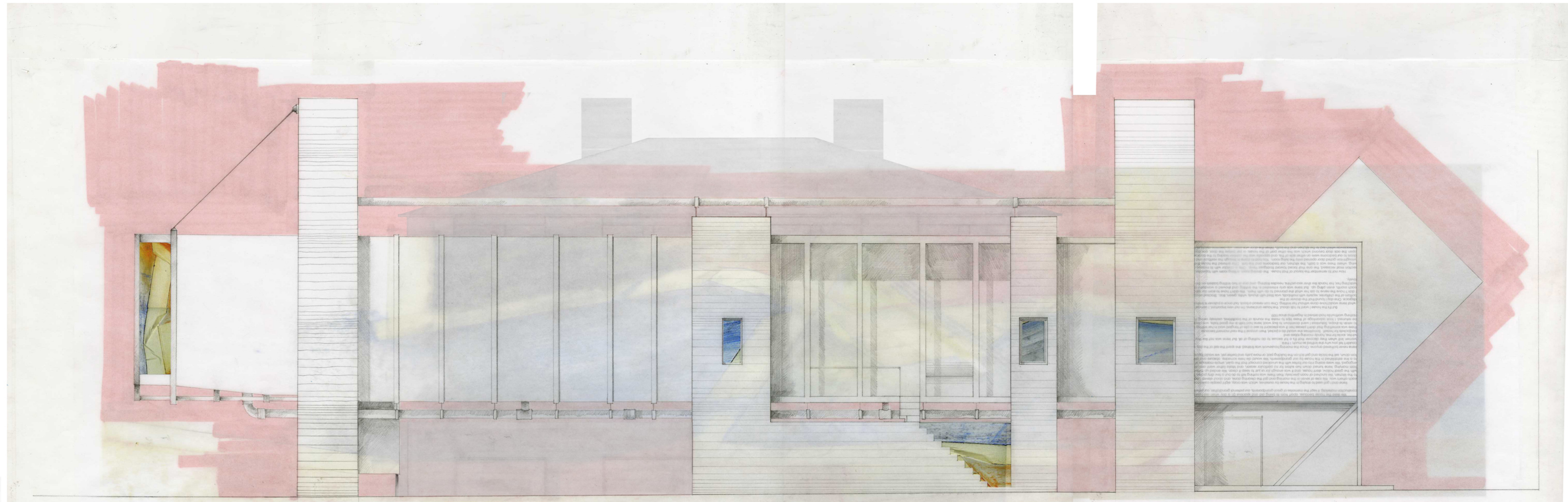


sky plan



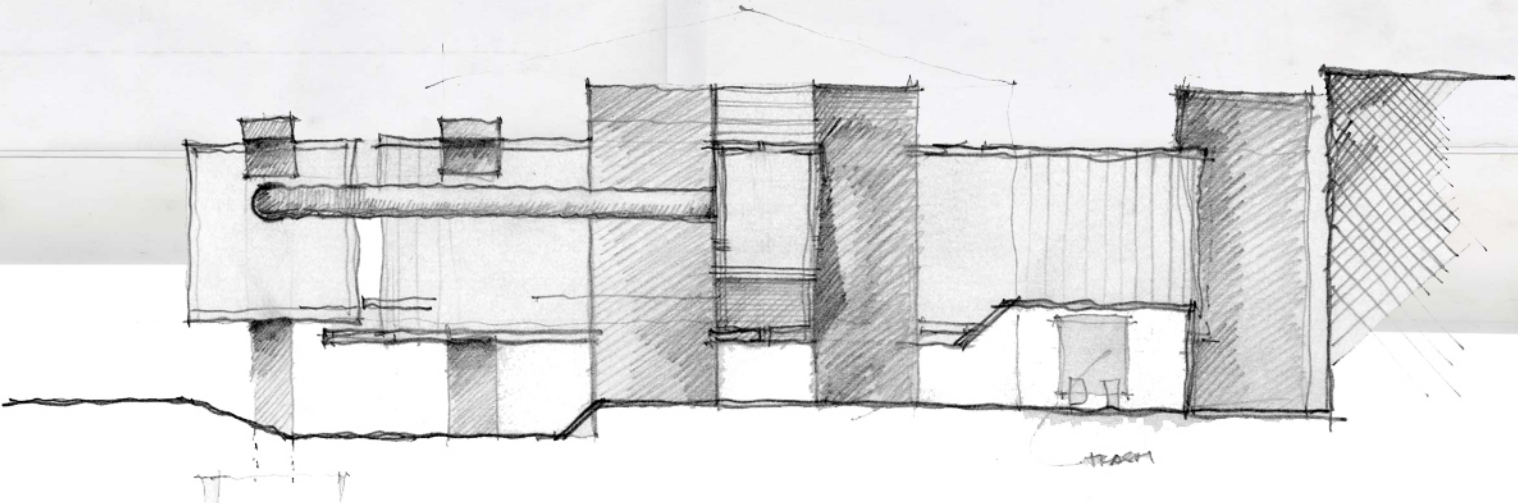
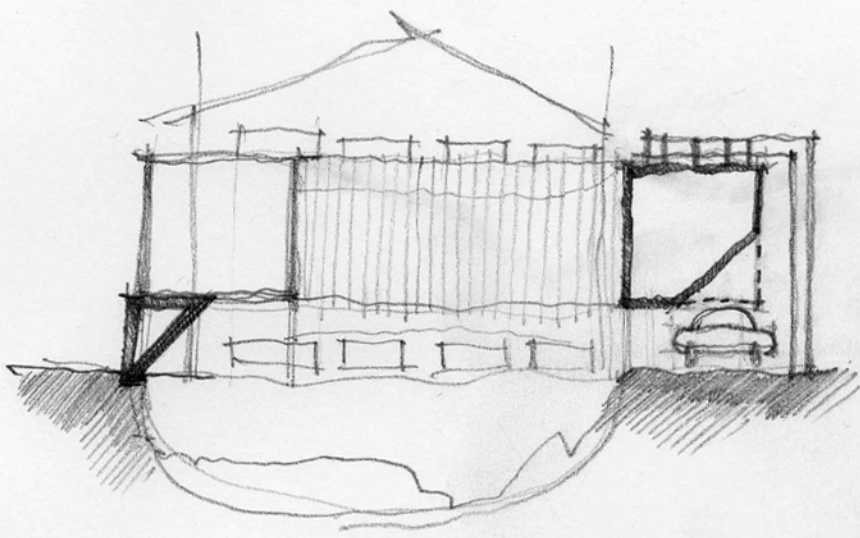


View from the corner of South Patrick St and Prince St.



Architectural section drawing showing a building with a red exterior wall and a large glass facade. The drawing includes a staircase and a small window. The drawing is a technical drawing showing the internal structure of the building.

east elevation

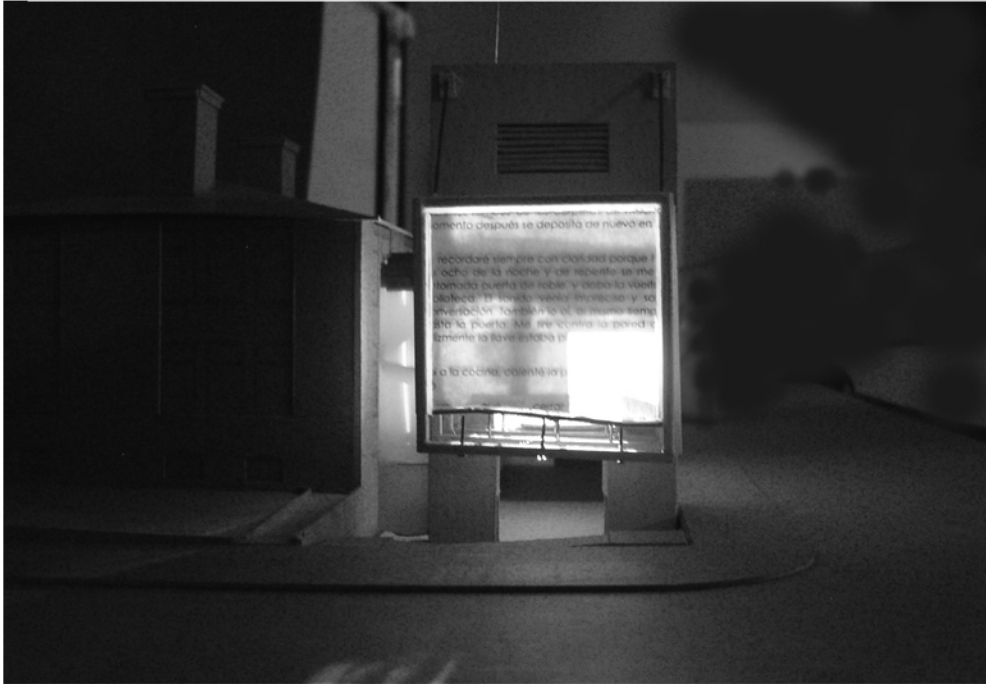




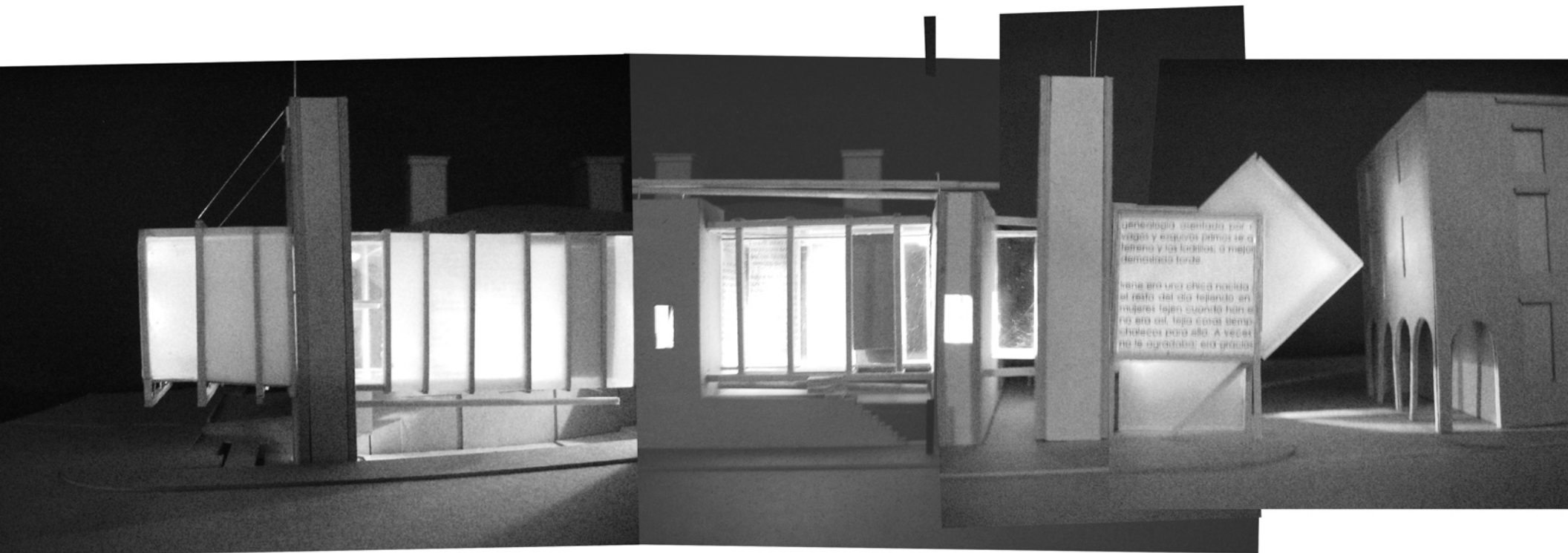
elevation on Prince St /between Henry st. and South Patrick st./



elevation on South Patrick St /between Prince st. and King st./



nocturnal view from Prince St.

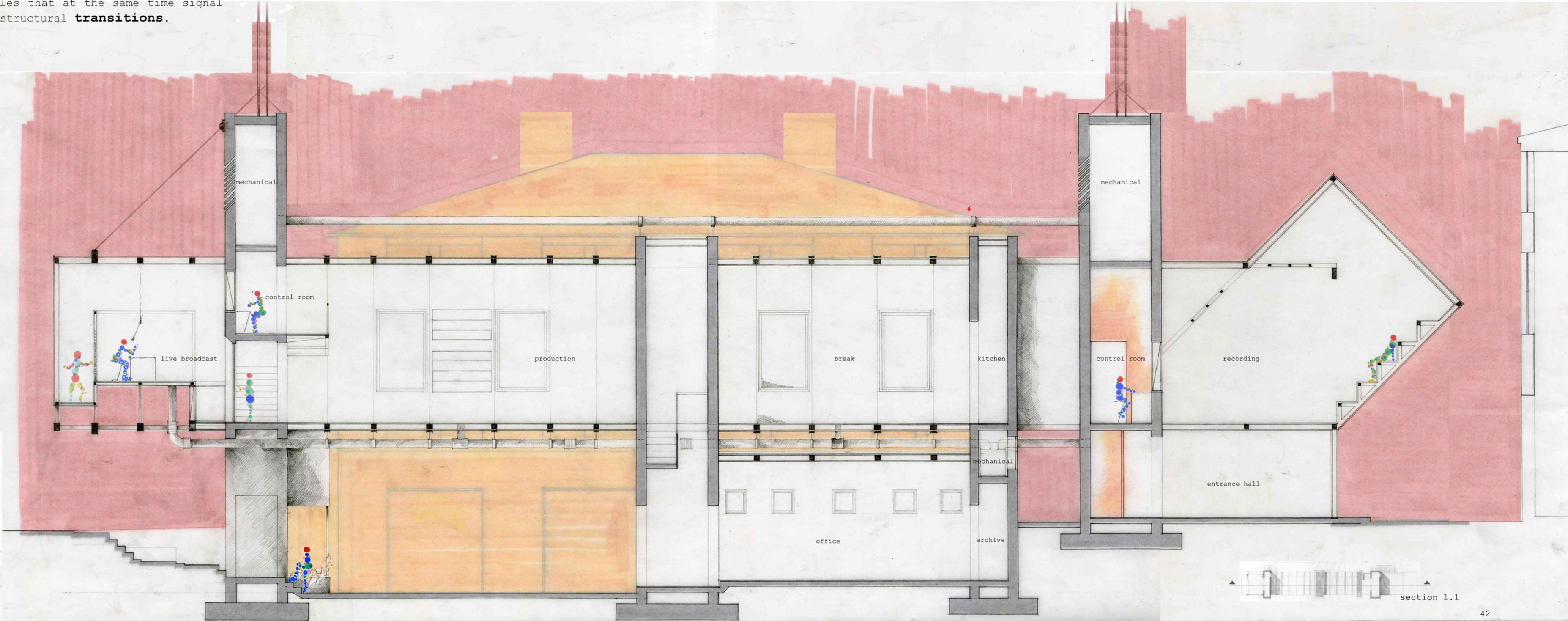
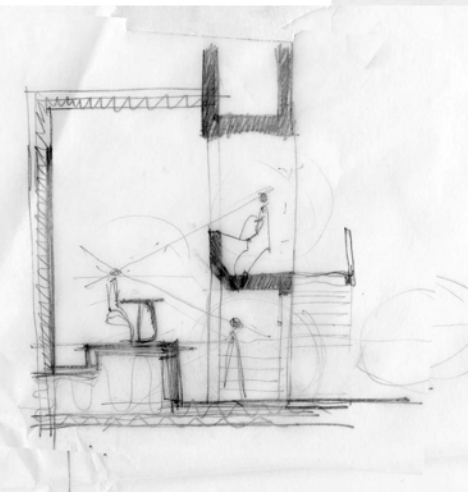
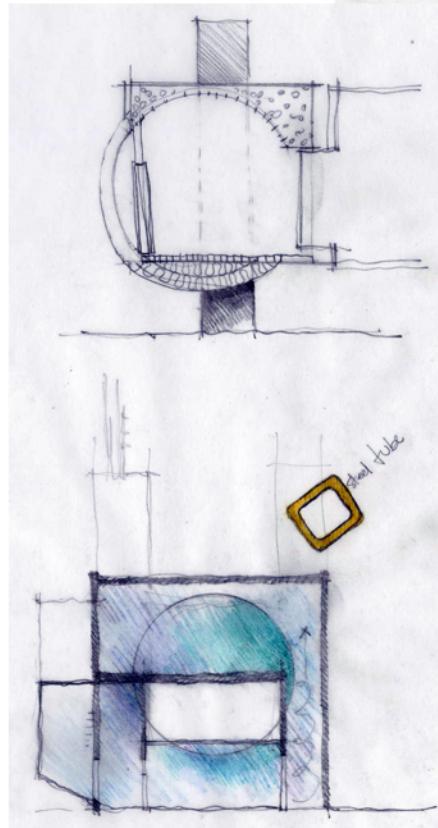
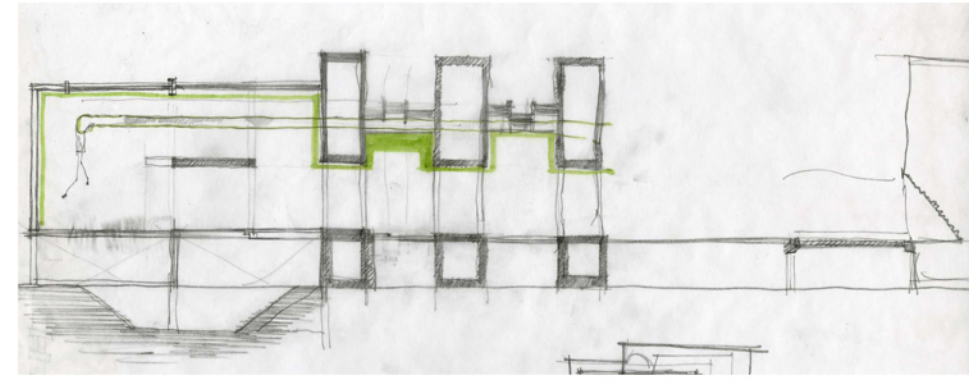


nocturnal view from South Patrick St.

The air plan is supported by **metallic Vierendeel trusses**, in two independent sections. Such division is meant to avoid harmonic resonance, due to the **vibration** produced by heavy traffic.

To absorb vibration, the beams rest in **neoprene pads**.

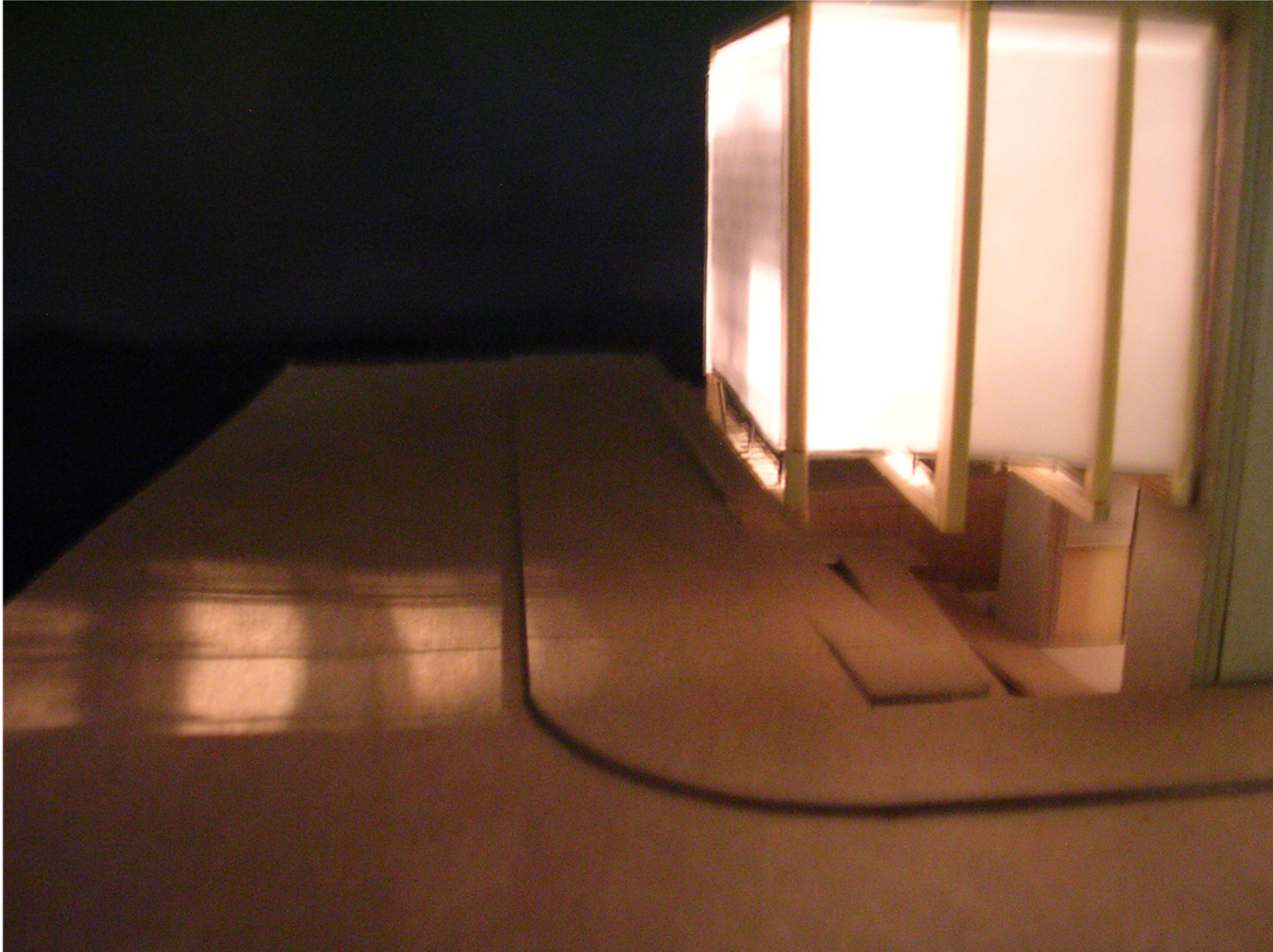
The trusses rest on load bearing **concrete** modules that at the same time signal functional and structural **transitions**.



section 1.1

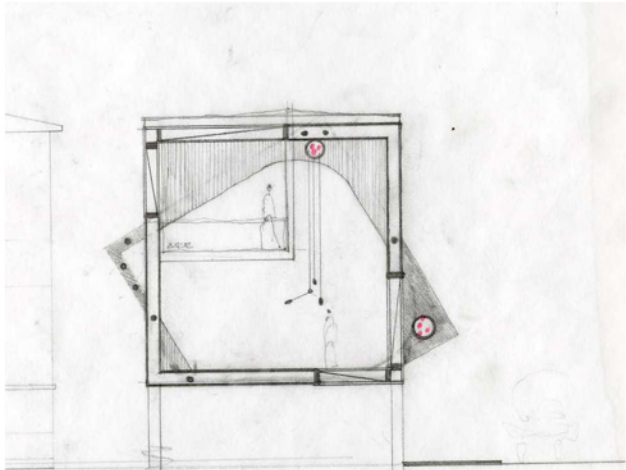


Live broadcast



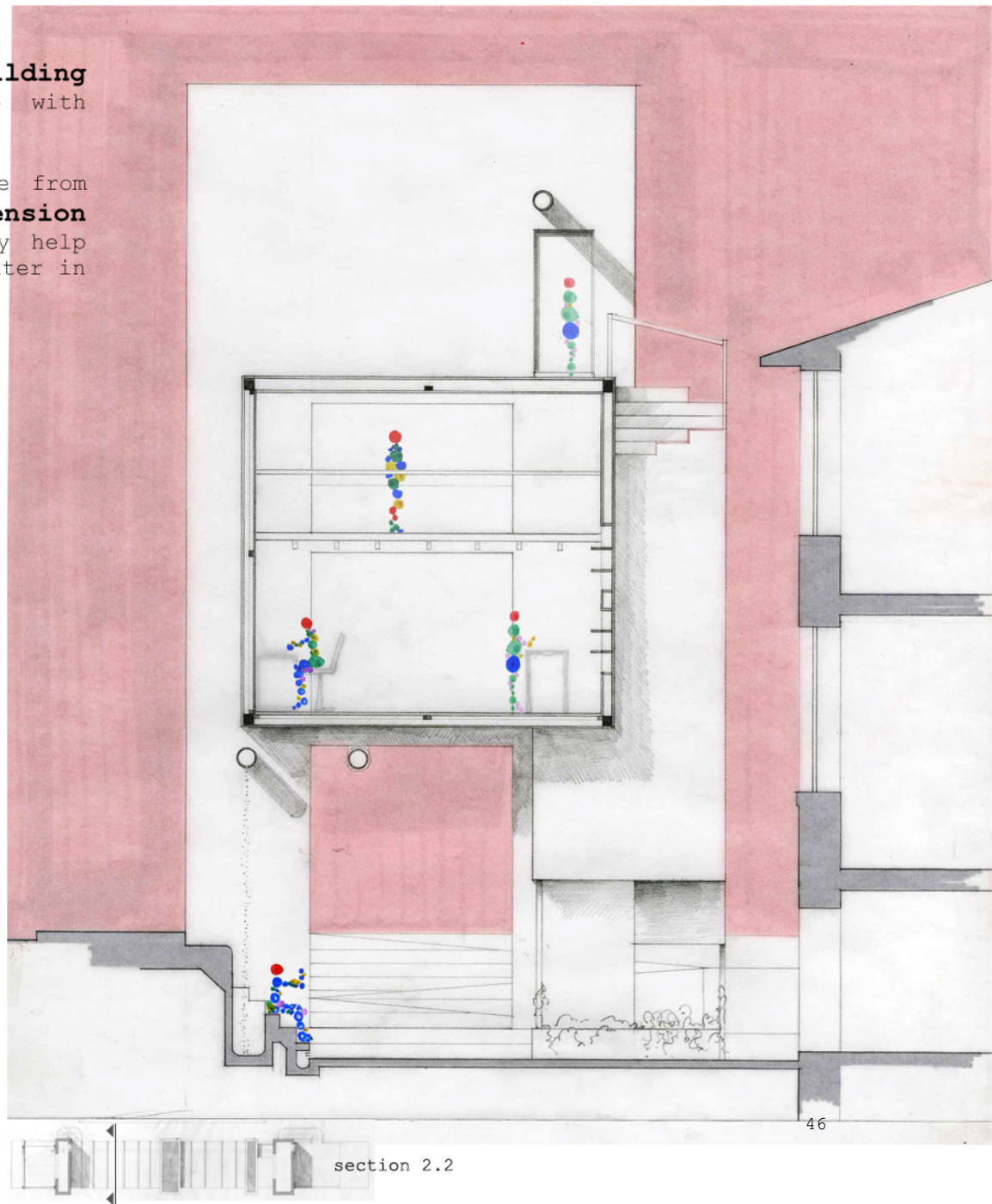
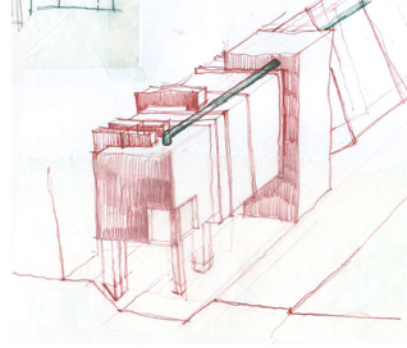
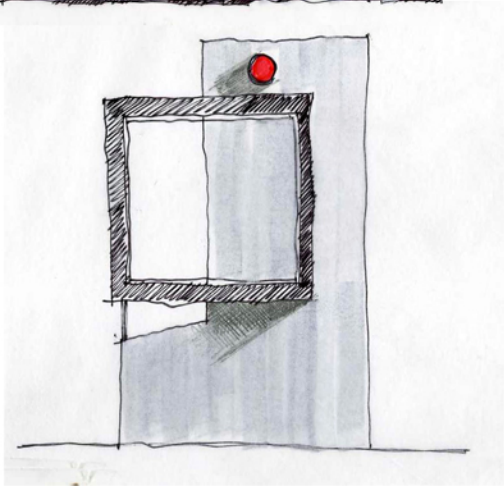
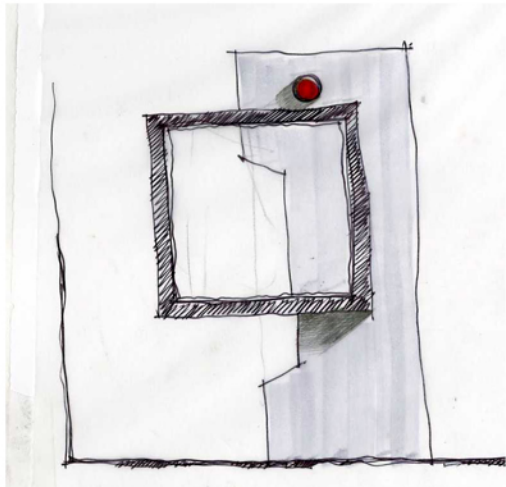
corner of Prince St and South Patrick St.





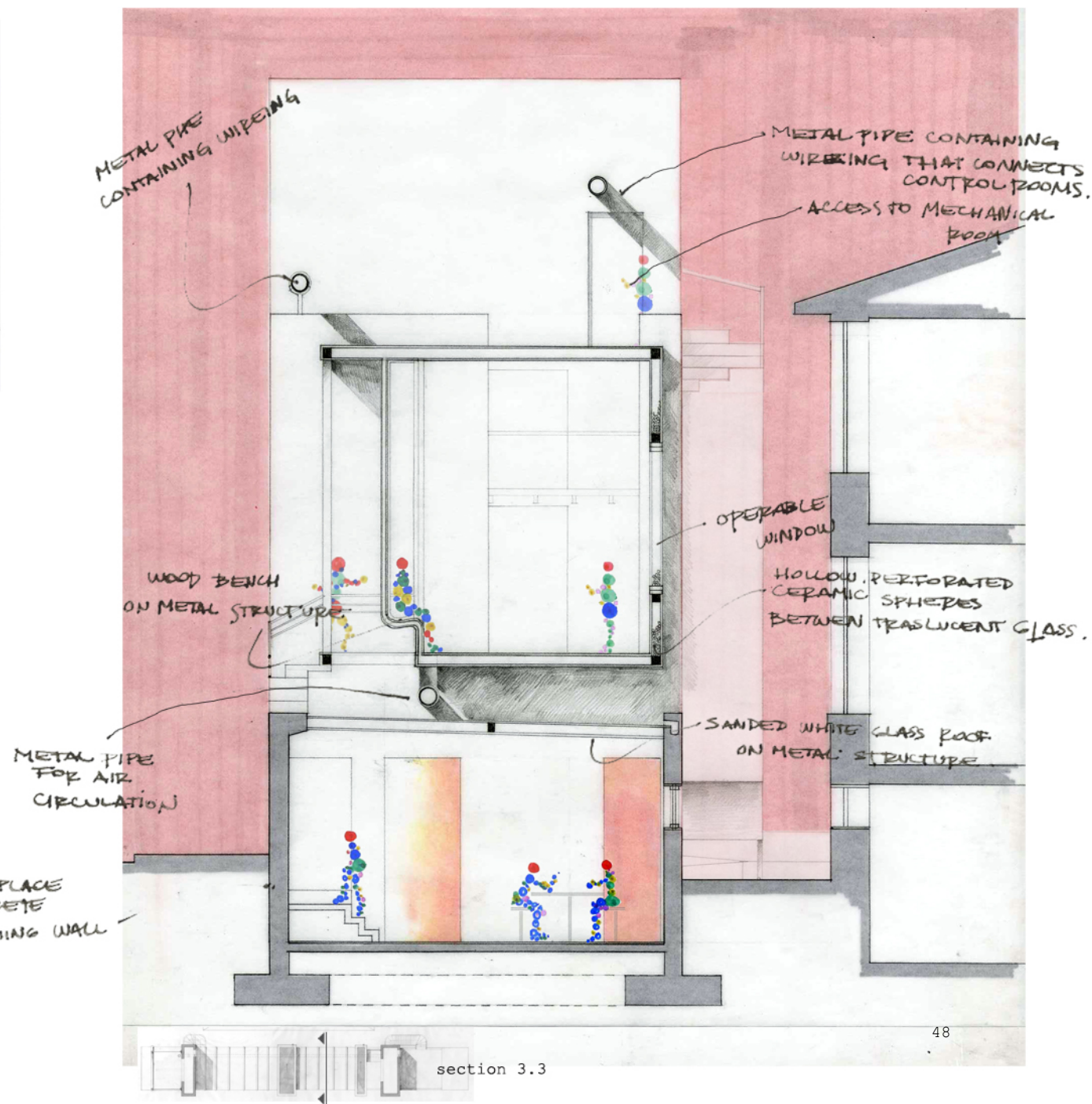
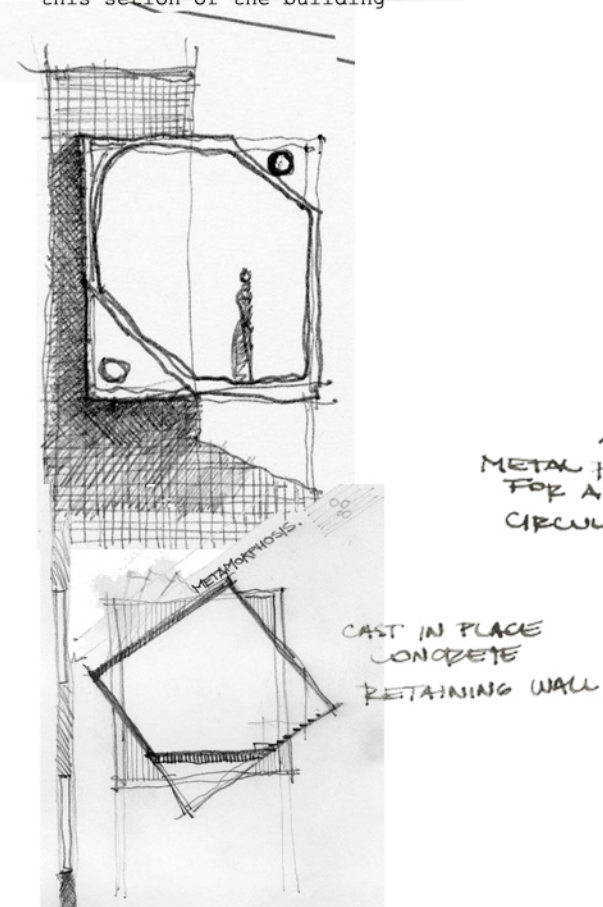
This section shows that the **WAAC building** still maintains a direct relationship with South Patrick St.

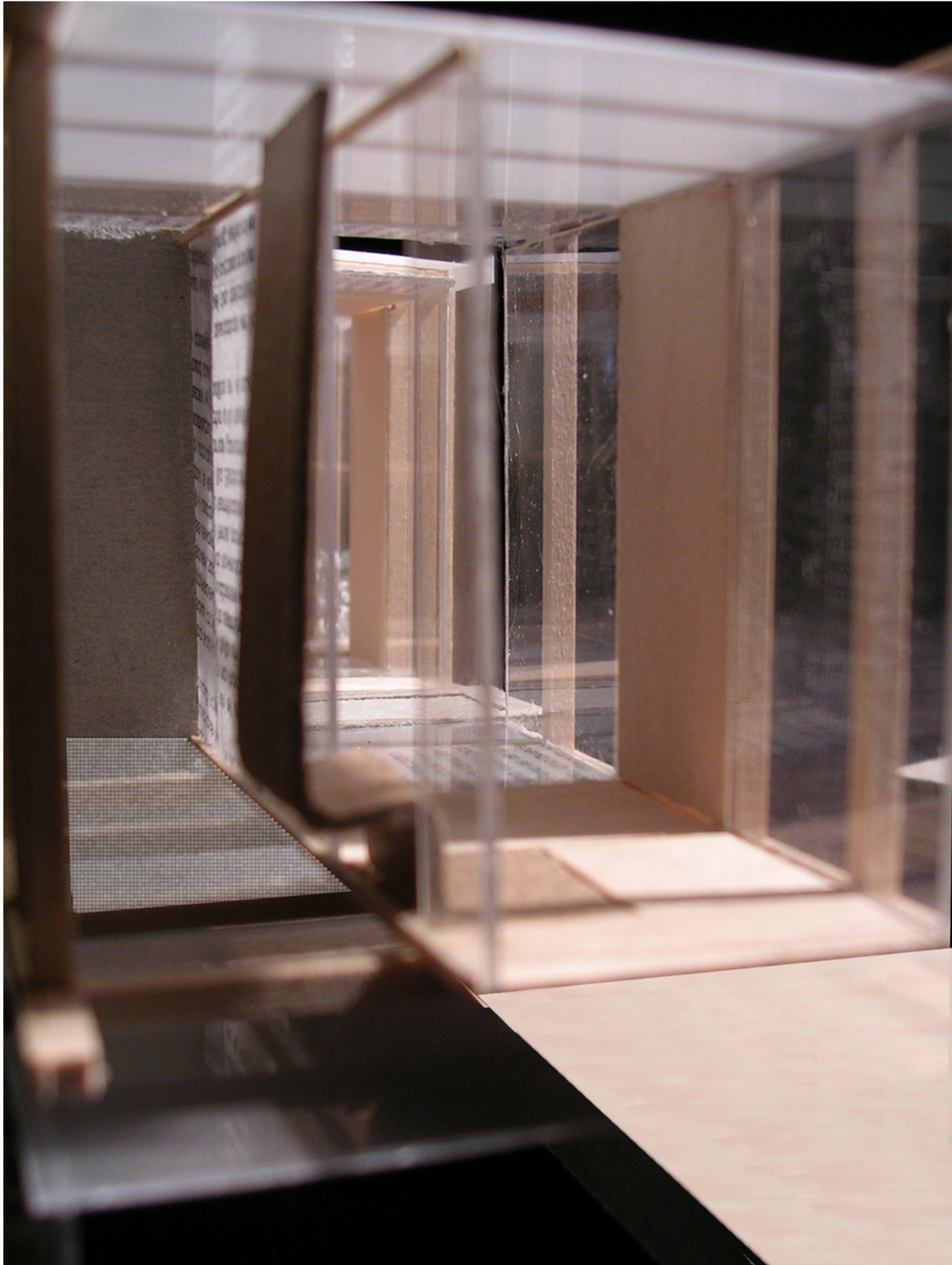
The **water curtain** mitigates the noise from the street and adds an **ephemeral dimension** to the façade (it could also eventually help regulate a sort of microclimate - warm water in winter, cold water in the summer-).





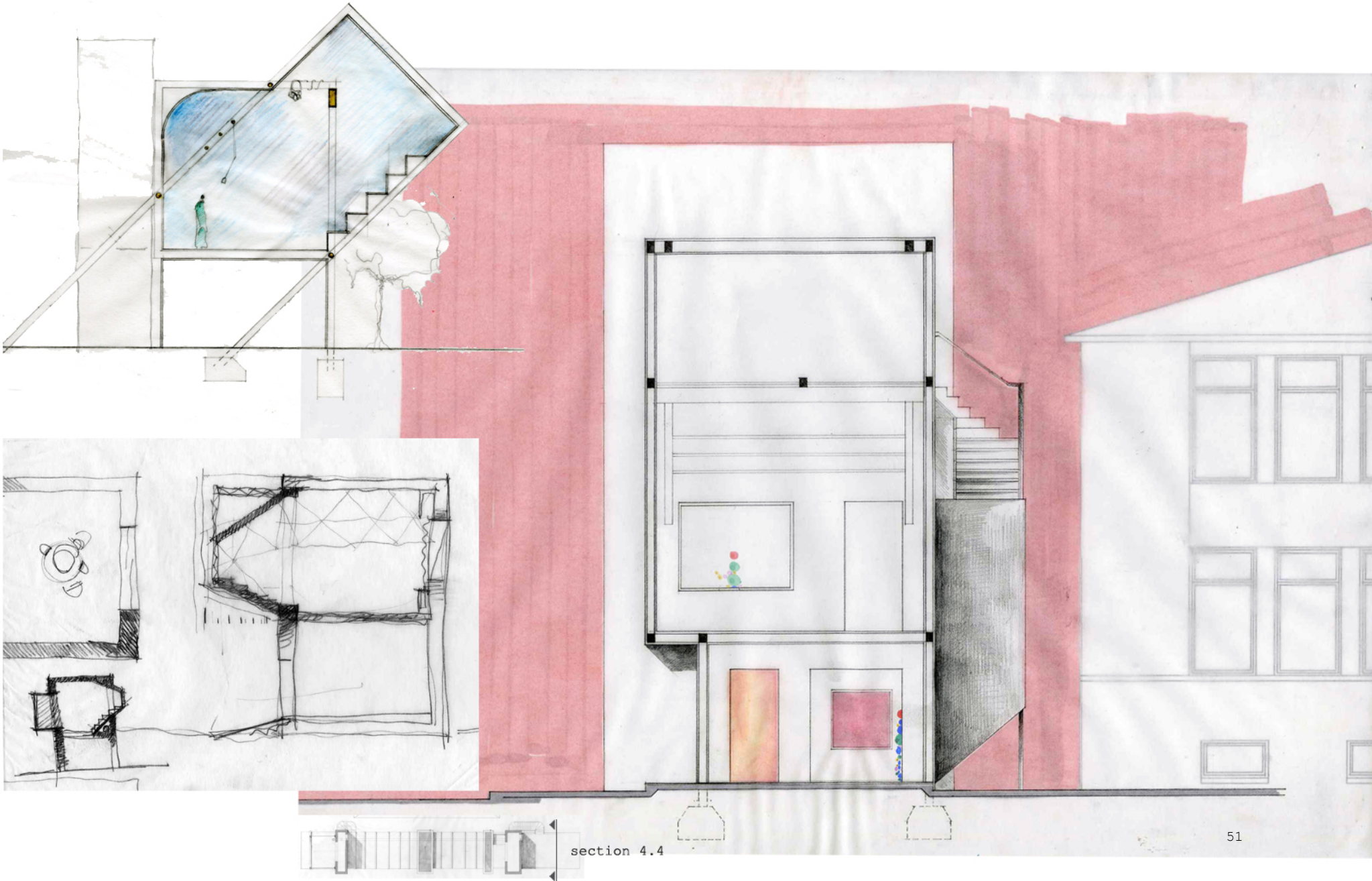
All the materials of the **surfaces** can be used in the floor, roof or walls, to help **break the certainty** of the surfaces, the notion of walking on the walls - there is no up or down.





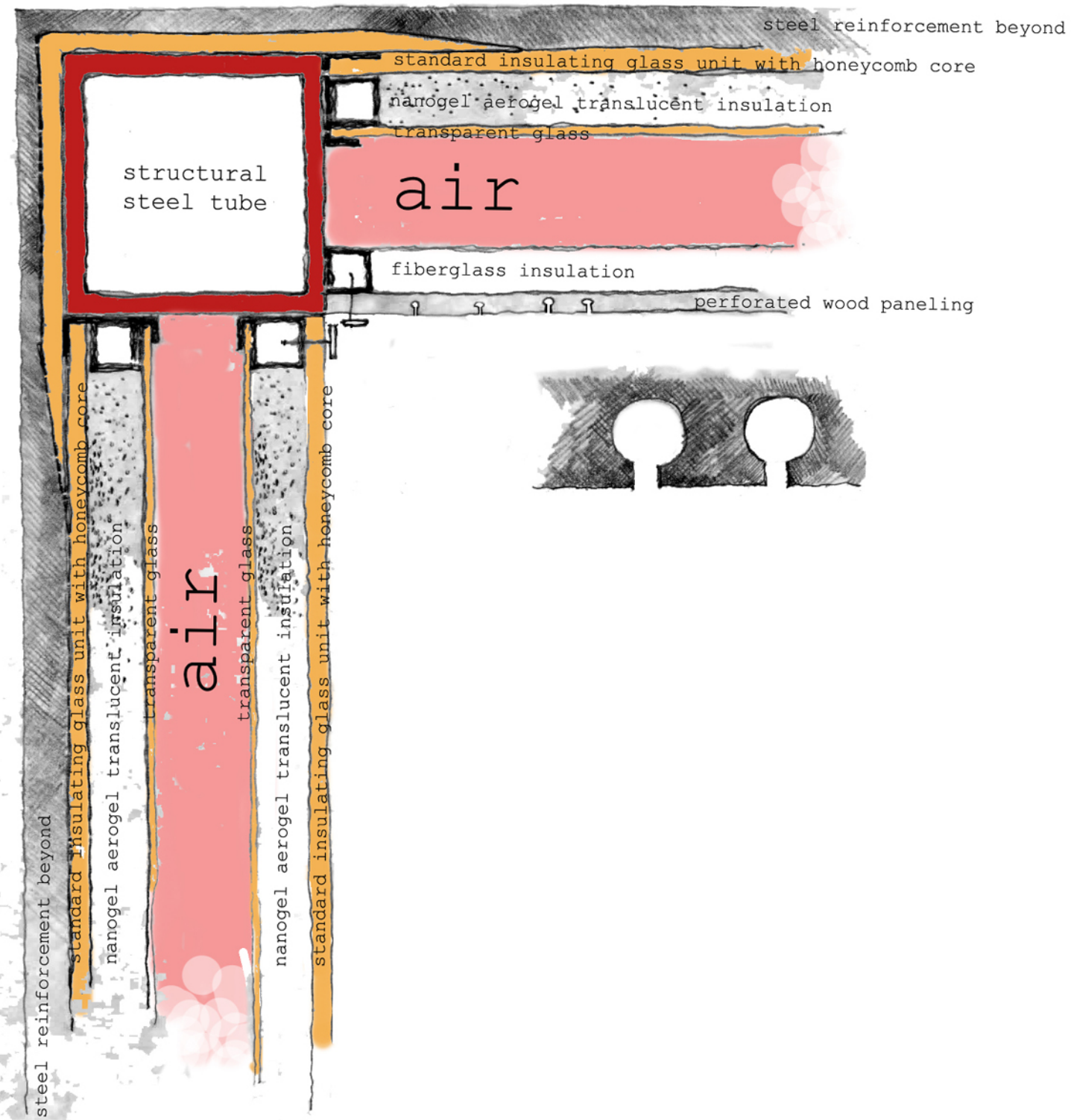


protected translucent glass on transition spaces. The focus is set to the sky.



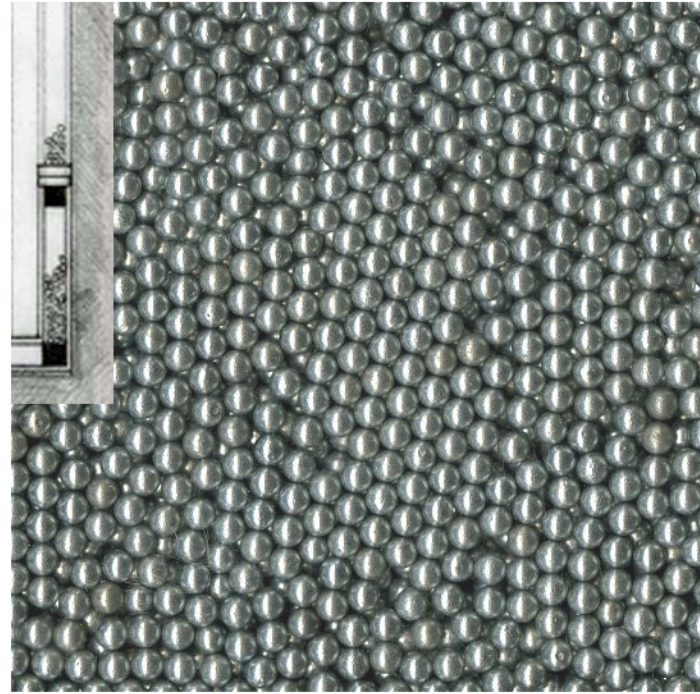


View from the parking lot.

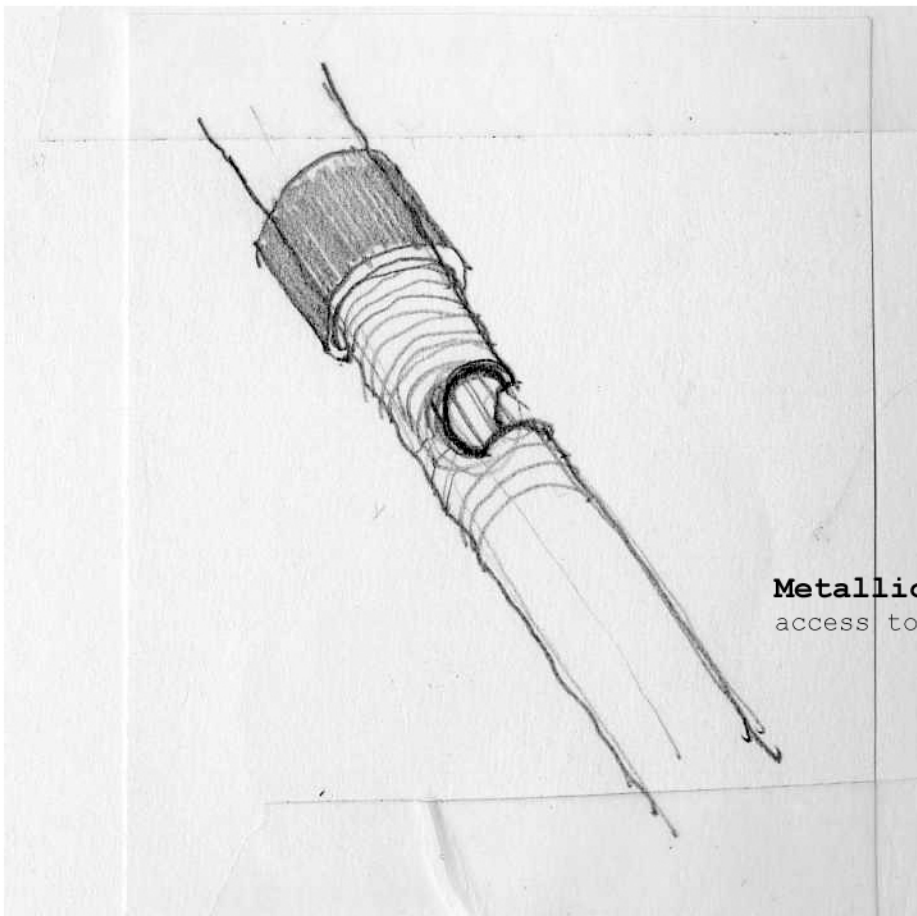


typical wall section

White hollow micro-perforated **ceramic spheres** between panes of **transparent glass**: the spheres help reduce noise created by vibration by trapping the sound waves.

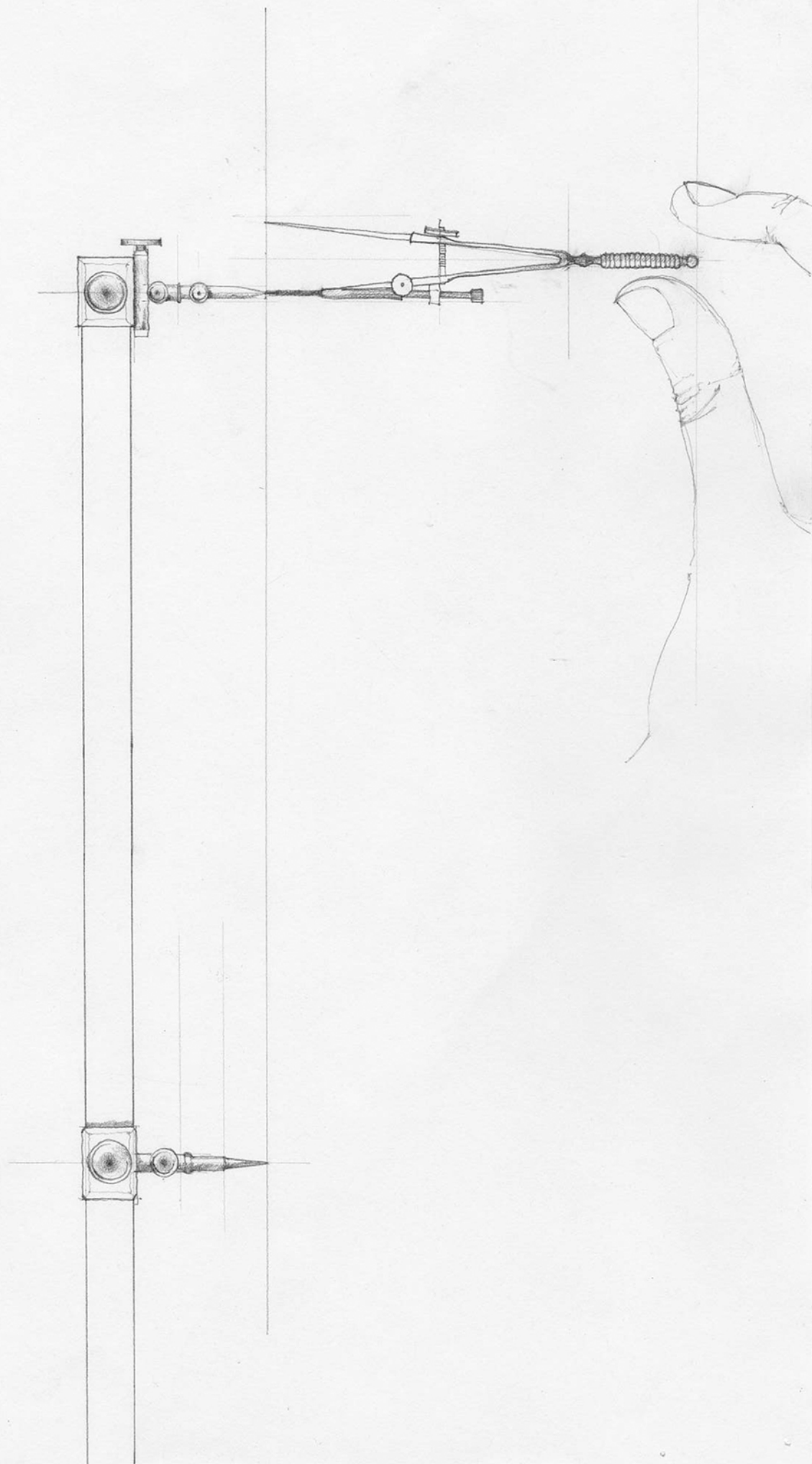


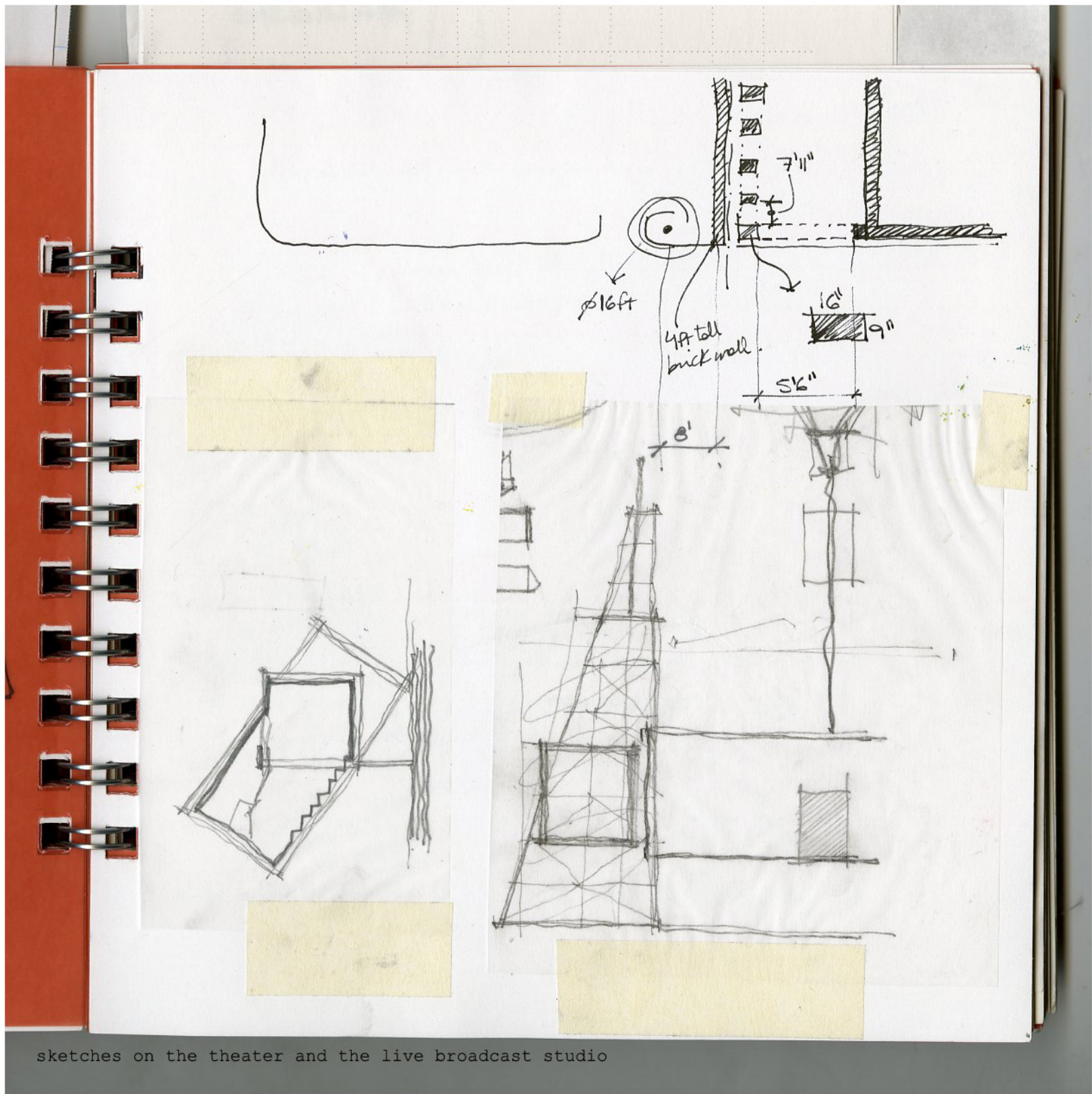
The **metallic beads** give a slight idea of how the conjunction of ceramic spheres will look like. This image's scale is 1:1.



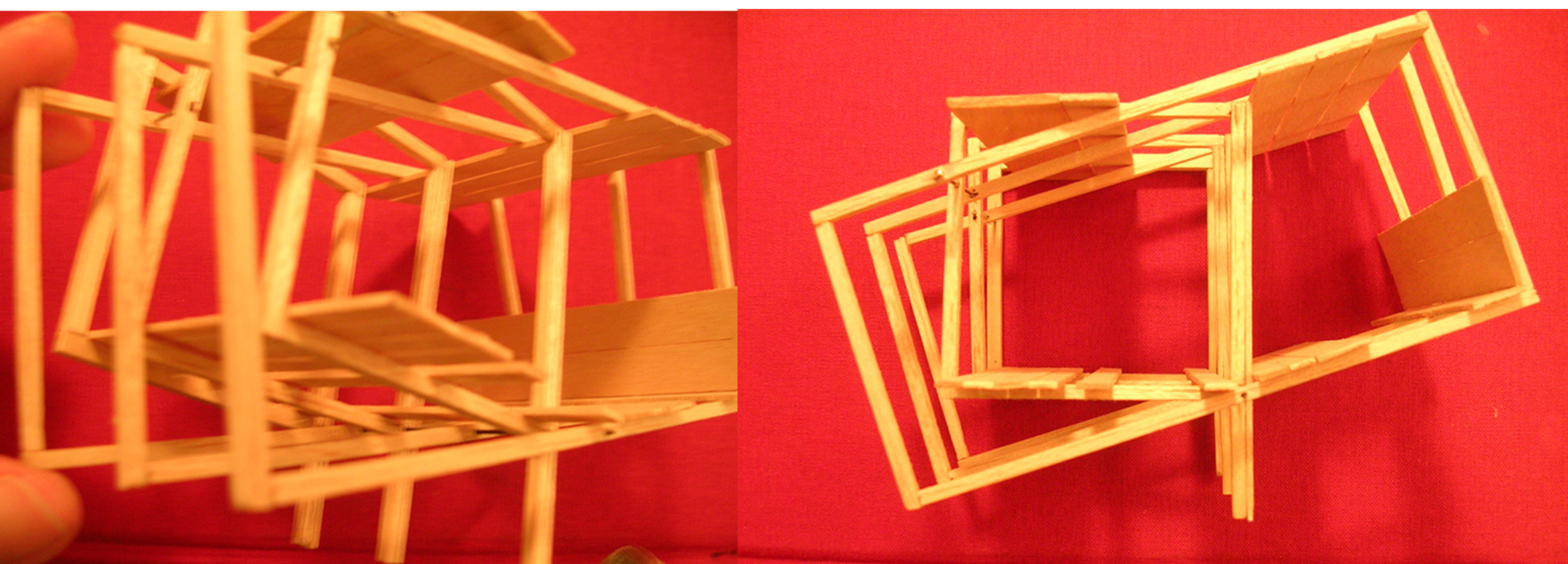
Metallic pipes: sketch showing service access to pipes that carry wiring.

Appendix
on trying

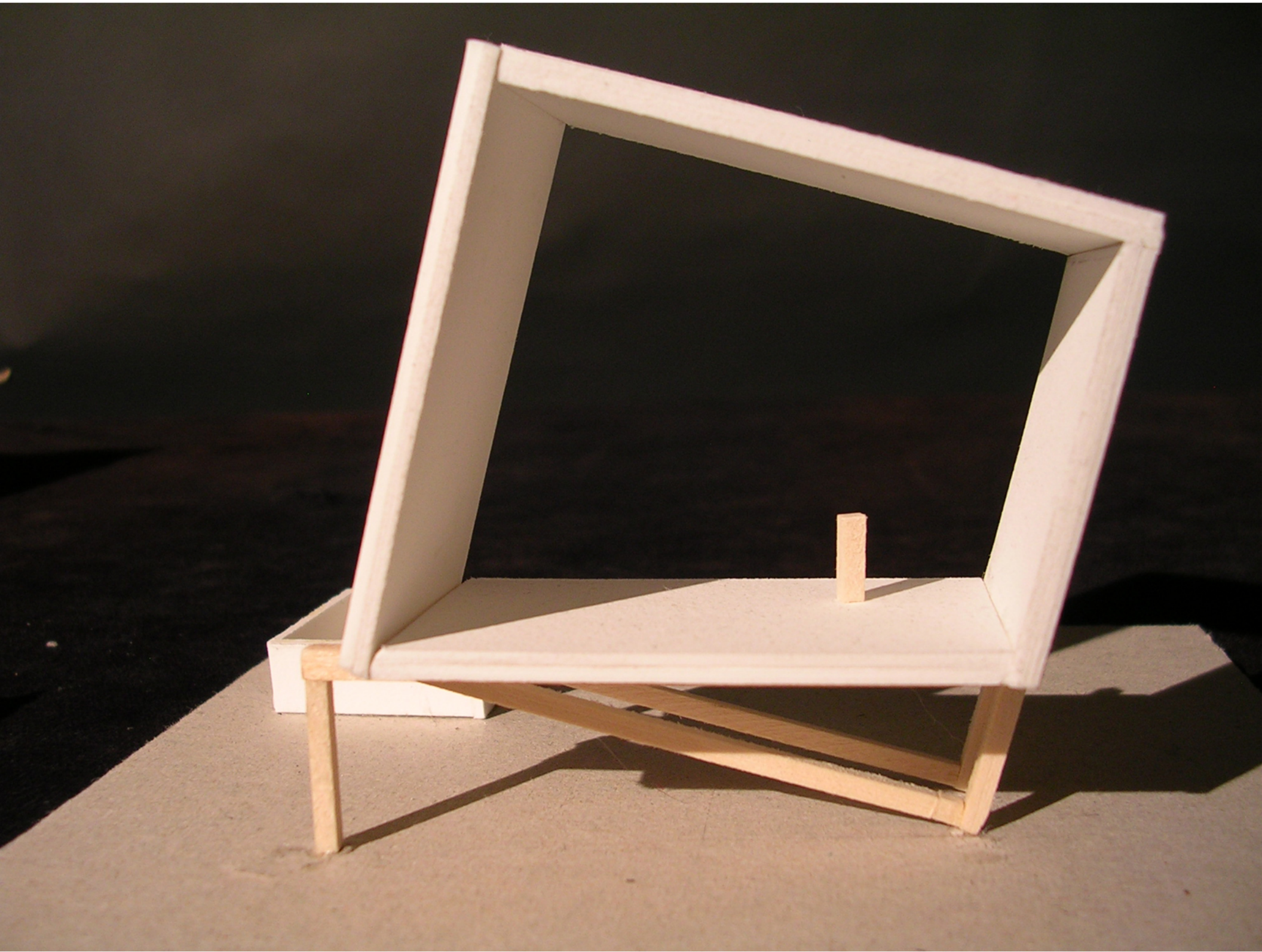




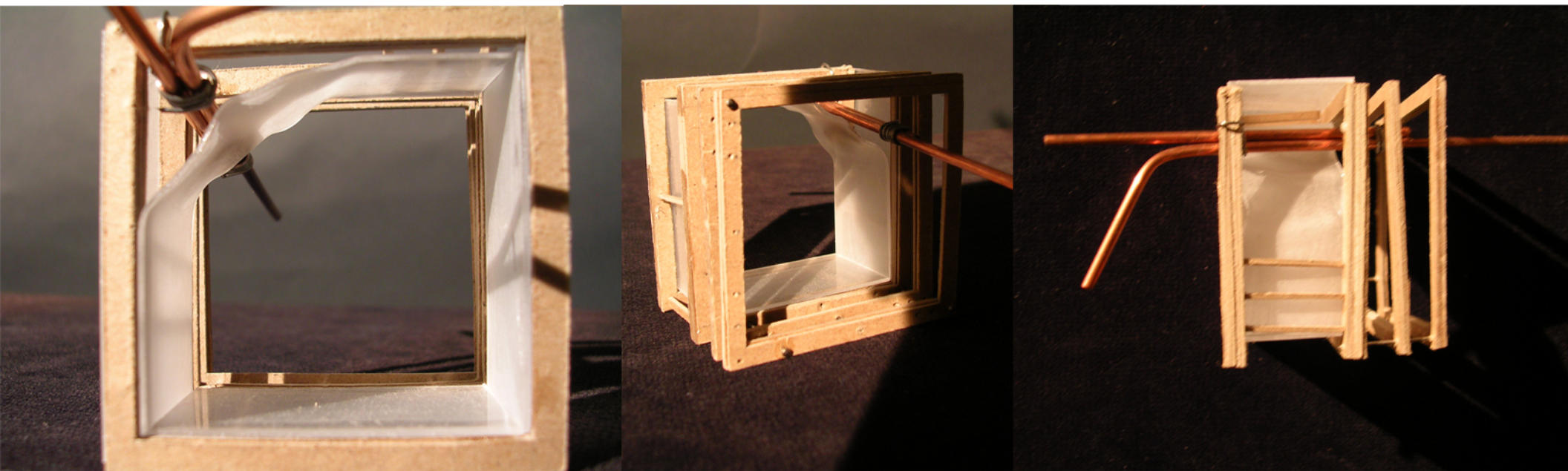
sketches on the theater and the live broadcast studio



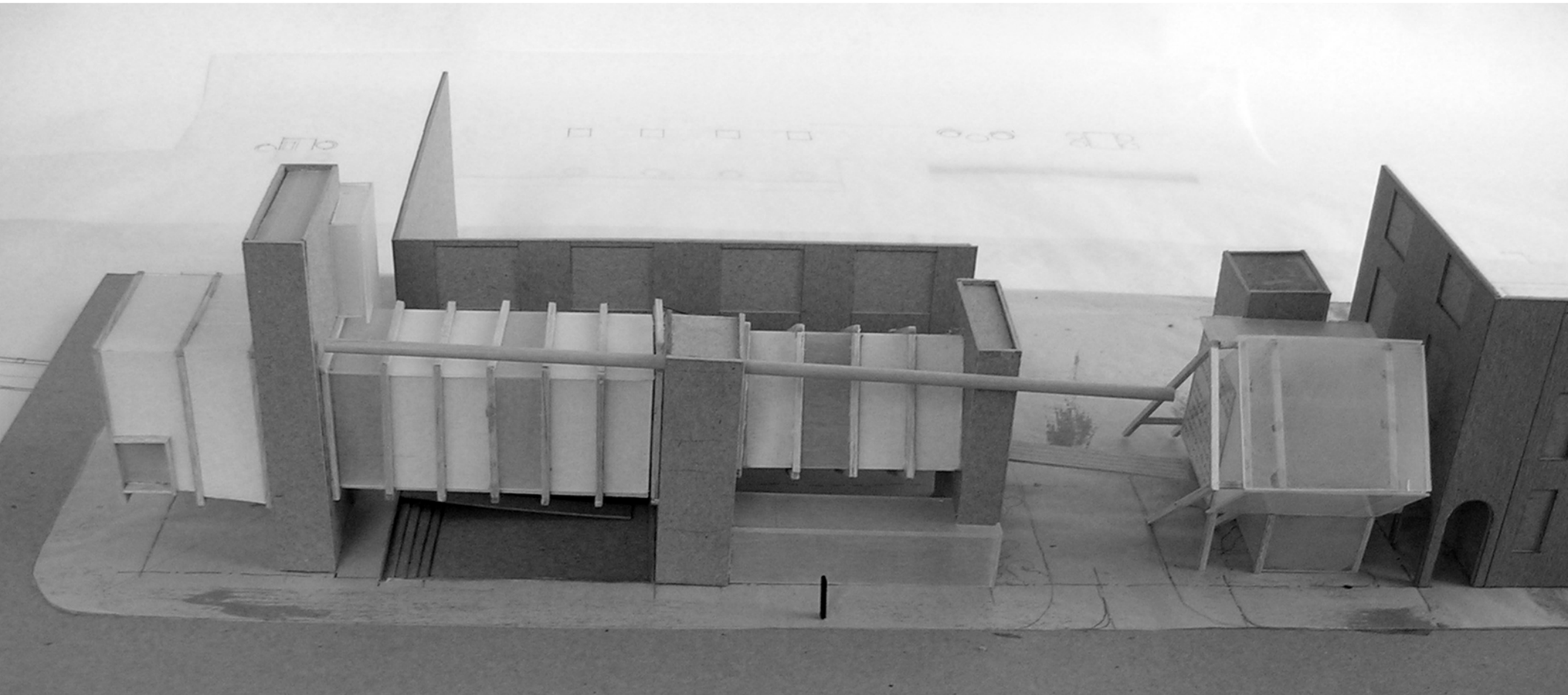
study on the structural components of the broadcast/auditorium room



separation of skin and structure



separation of skin and structure



study model



study model

THANK YOU for guiding me

Paul Emmons
Marcia Feuerstein
Jaan Holt

THANK YOU for accompanying me

Santiago Mosso my knight

Laura Croce
Nestor Cerami
Ariadna Belmonte my wizards

Kate Drury
Magdalena Egues
Elif Ertekin
Bjorn Steudte my army

Bibliography **cited**

1. The visible and the invisible, Maurice Merleau-Ponty. Northwestern University Press, 1968
2. Magical realism: Theory, history, community. Lois Parkinson Zamora and Wendy B. Faris. Duke University Press, London, 1995.
3. Magic Realism, New Objectivity and the arts during the Weimar Republic, Irene Guenther. from Magical realism: Theory, history, community. Lois Parkinson Zamora and Wendy B. Faris. Duke University Press, London, 1995.
4. www.privateline.com/TelephoneHistory/soundwaves.html - photograph, from the book The First Book of Sound: A Basic Guide to the Science of Acoustics by David C. Knight, Franklin Watts, Inc. New York (1960)
5. On the marionette theater. Heinrich Von Klein

Bibliography **visited**

Mask of Medusa: works, 1947-1983. John Hejduk. Rizzoli international publications, NY 1985.

Victims": a work., John Hejduk. Architectural Association, London, 1986.

Bestiario, Julio Cortazar. Ed. Alfaguara, Argentina 2003.

Cien años de soledad. Gabriel Garcia Marquez, Ed Sudamericana.

The Grey Cloth, Paul Scheebart. Introduced, translated, and with drawings by John A. Stuart.

From Mimesis to Fantasia: The quattrocento vocabulary of creation, inspiration and genius in the visual arts. Martin Kemp.

Archigram. Peter Cook, Warren Chalk, Denis Crompton, David Greene, Ron Herron, Mike Webb. Princeton Architectural press. NY, 1999.

Archigram: architecture without architecture. Simon Sader. MIT Press, 2005.

Architectural Acoustics. M. David Egan. McGrawhill, 1988.

Detailing for acoustics. Peter Lord and Duncan Templeton.

Utopia, fantasia y caos. Peinado Ponton, Javier. Escala, Volume:25, Issue: 160\

Light is like water. Barragán and the question of magic. Sheryl Tucker de Vasquez.

The function of the oblique: the architecture of Claude Parent and Paul Virilio 1963-1969. Pamela Johnston, editor/translator. AA Publications, London, 1996.

The magic of M.C. Escher. Introduction by J.L. Locher ; designed by Erik Thé. New York, Harry N. Abrams, 2000.

Cecilia de la Vega

delavega@vt.edu

Facultad de Arquitectura y Urbanismo.
Universidad de Mendoza. Mendoza, Argentina.
1999-2004

Masters of Architecture.

College of Architecture and Urban Studies.
Virginia Polytechnic Institute and State
University. Alexandria, Virginia.
2005-2006

Now what?