

# Fluidity in Space

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

Master of Architecture

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## Abstract

Architecture is the will of an epoch translated into space.  
-Mies van der Rohe

Architectural space is directly related to enclosure. When inside and outside are dynamically brought together, or when a series of enclosures dynamically collaborate, perhaps one could speak of fluid space.

Inspired by clouds and water streams - objects in constantly changing form, the architecture in the project seeks to formulate space that could flow similarly but is grounded in the context of a contemporary urban environment.

## Acknowledgement

I would like to thank my committee members, Heiner, Dave and Paola. Without their support and guidance, I wouldn't have made it this far.

To my parents, without their support, I wouldn't be pursuing a degree in U.S..

To my friends in studio that we support each other day and night throughout this year.

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## Introduction



In order to explore many of the tensions that defines architecture's relationship with contemporary city, the project's site is located near Dupont Circle in Washington D.C. The project asks how could a architecture with fluidity be inspired and affects the site at the same time.

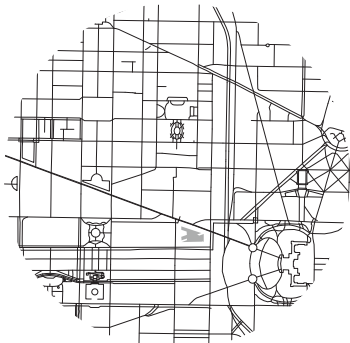
The program is about mixed-use of art gallery and dental clinic.

Site context of D.C

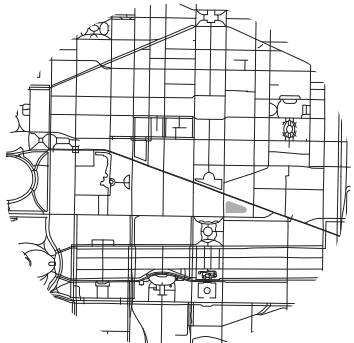
Examples of important buildings in triangular sites in Washington D.C.



Dupont Circle is one of the many circles in Washington DC. L'Enfant's radially organized plan of the city generates many triangular sites.

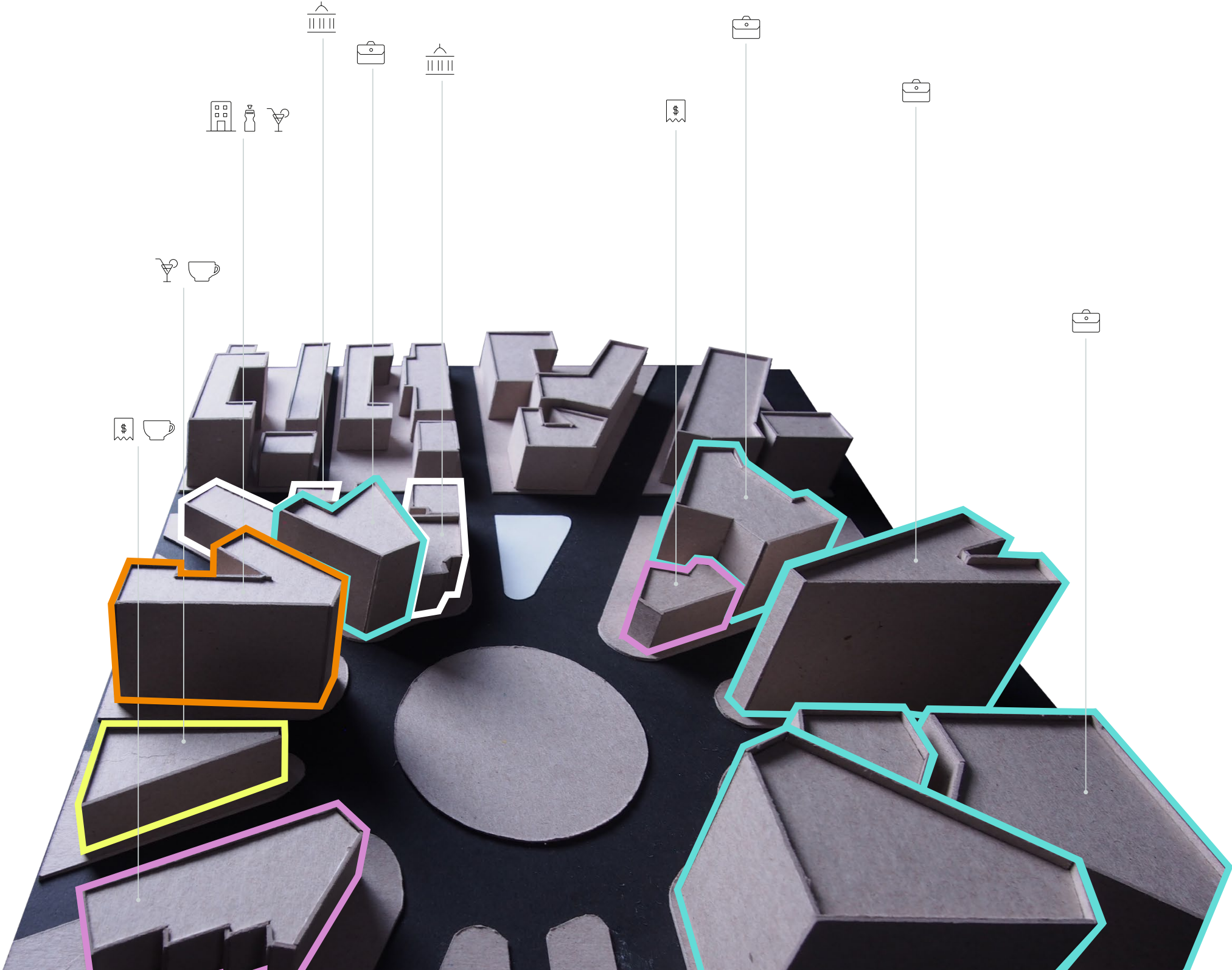


National Gallery of Art East Wing by I.M Pei



Federal Trade Commission

Site study



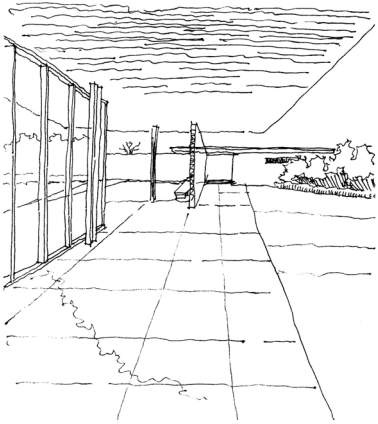
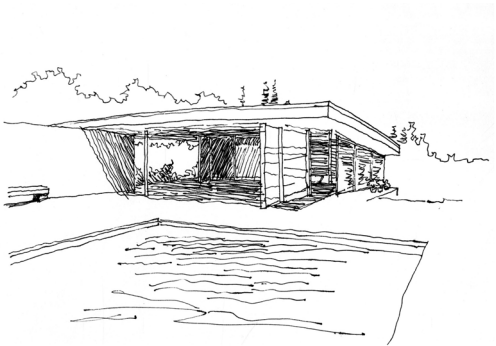
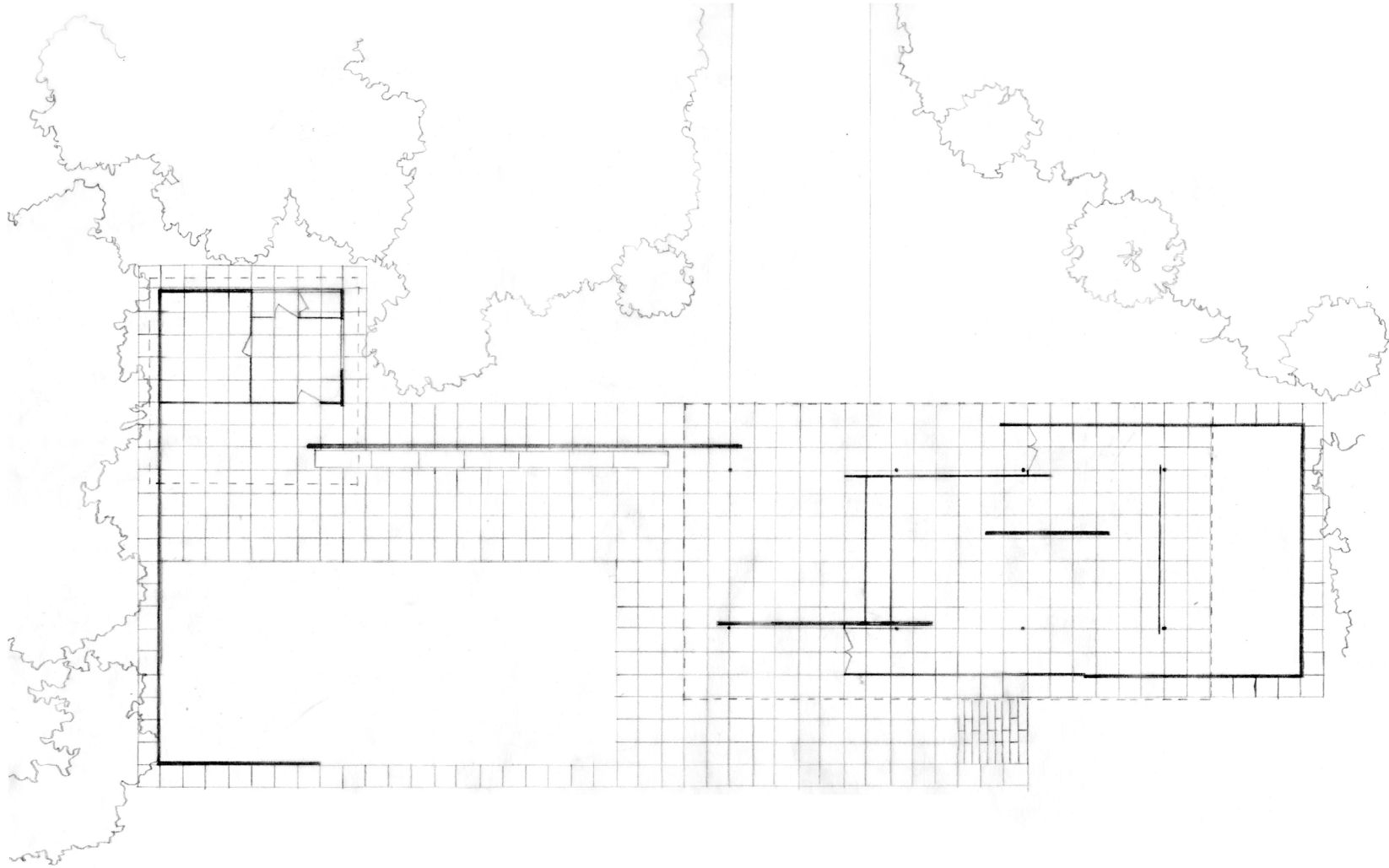
Buildings around Dupont Circle and site photos.

Site study



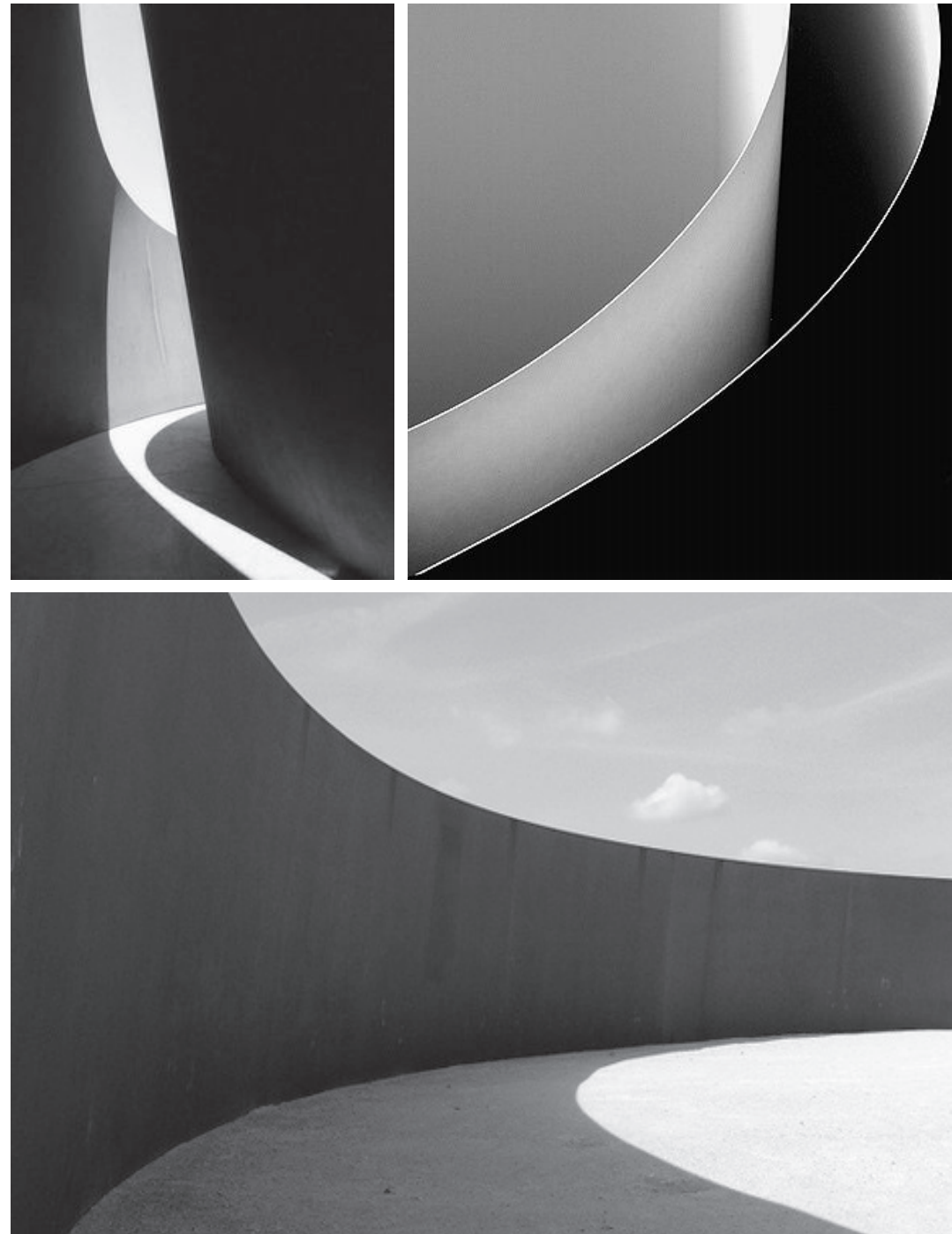
Buildings around Dupont Circle.

Case study

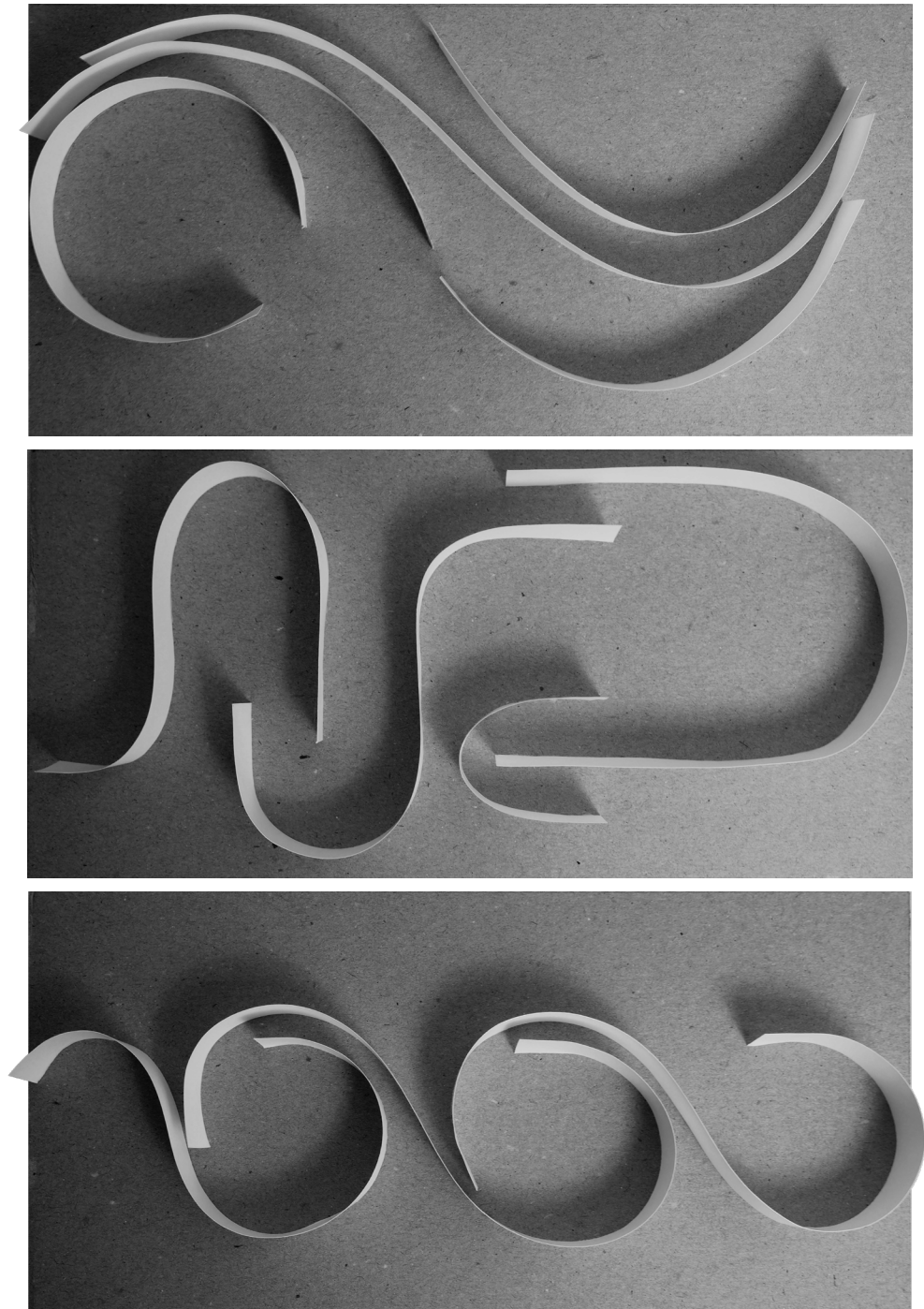


plan of Barcelona Pavilion  
Fluid space exists here in a dynamic composition of rectilinear walls.

Case study



Inspiration from Richard Serra

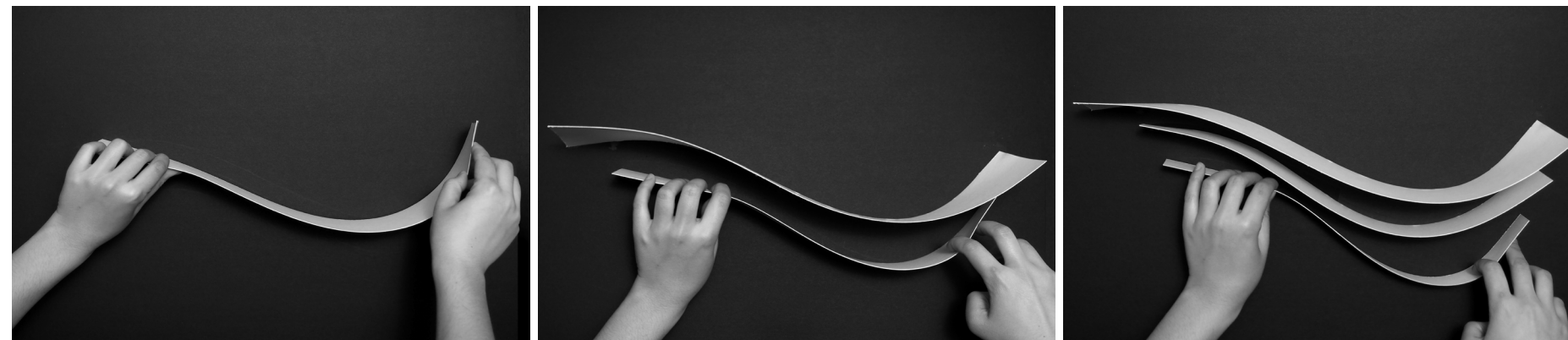
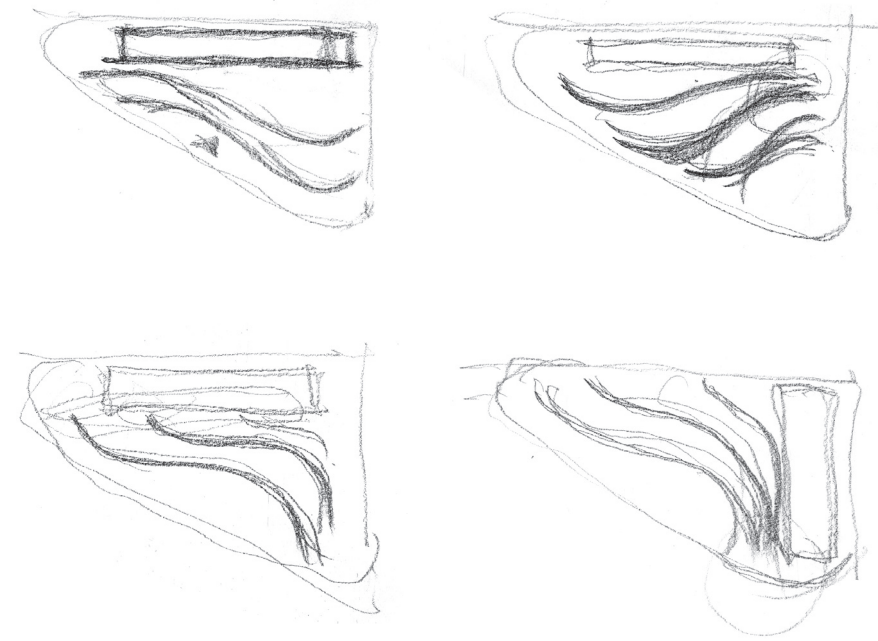


Initial form study models  
Compositons of curve and straight lines

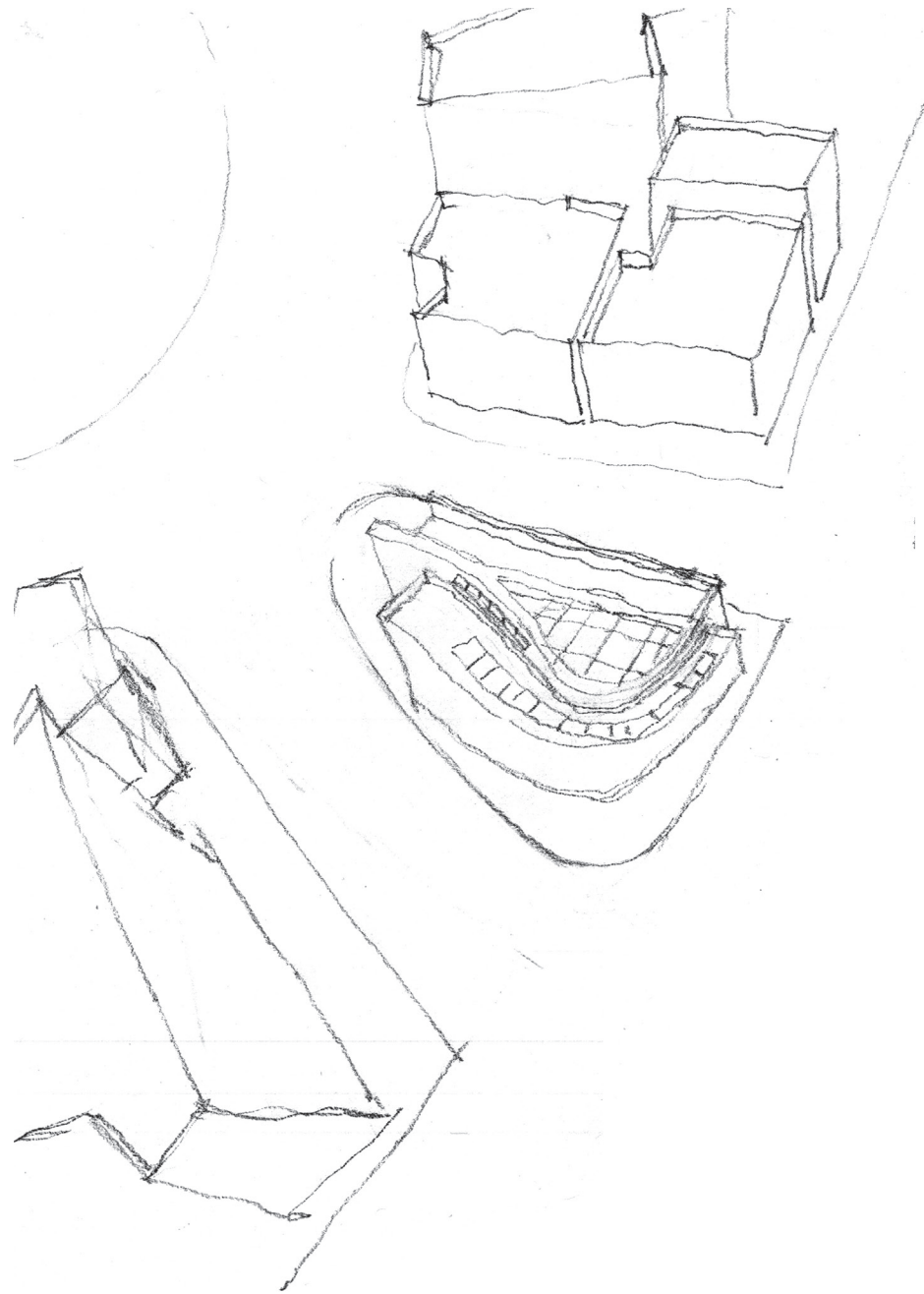
## Design experiments with curves

Bent wood strips are used to study how they affect each other in space. Also paper strips with different thicknesses were used in study models. The final space defined by curves engaged the fiber resistance of the paper strips to generate the curves.

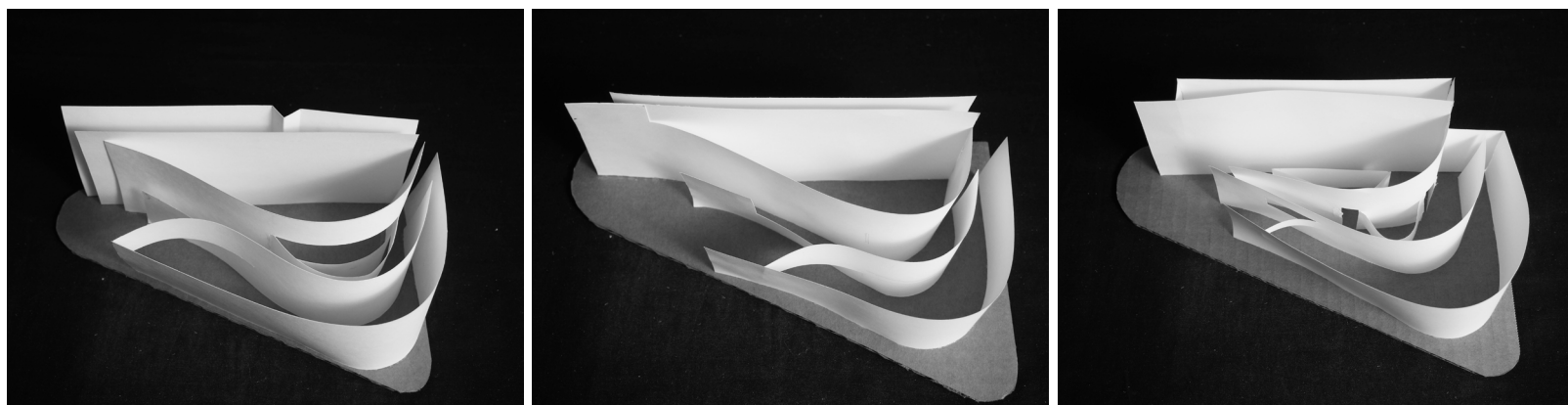
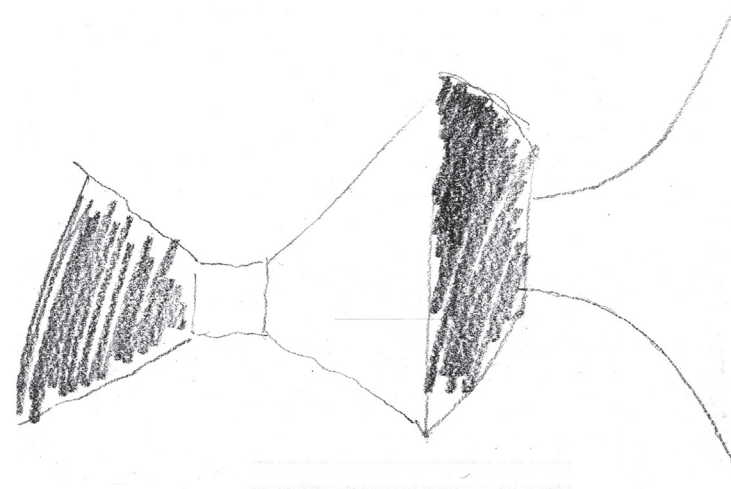
The architecture is divided into two parts-main building and service building. Different compositions of these two parts were considered.



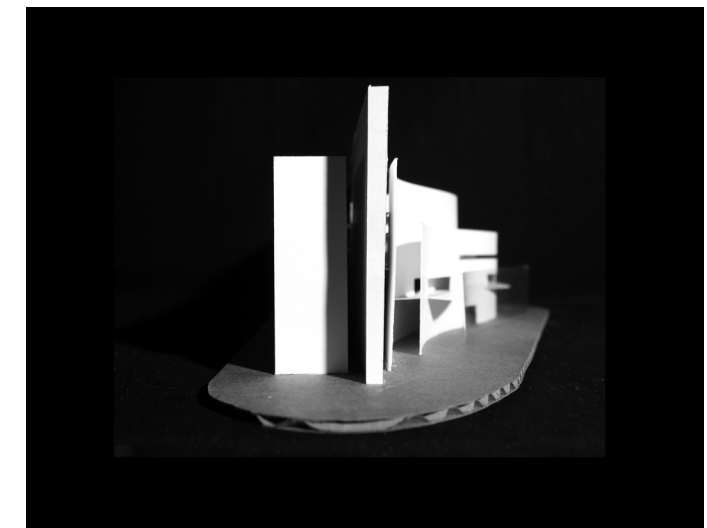
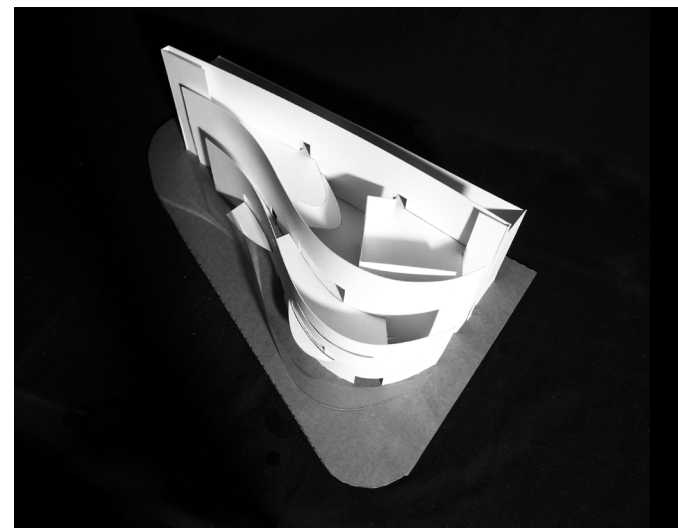
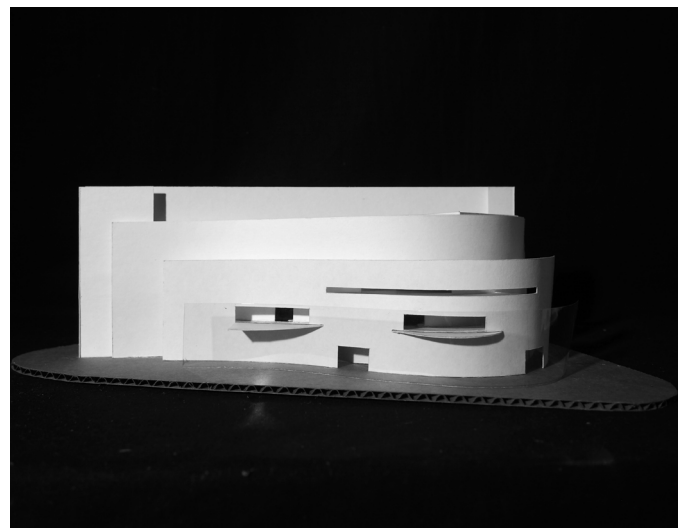
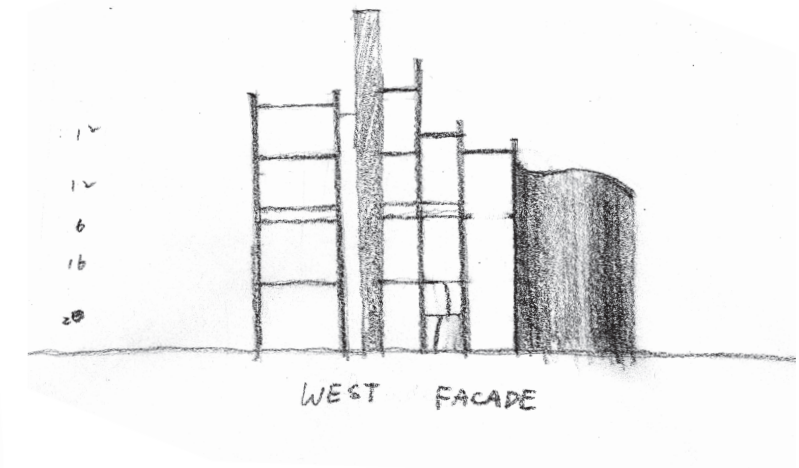
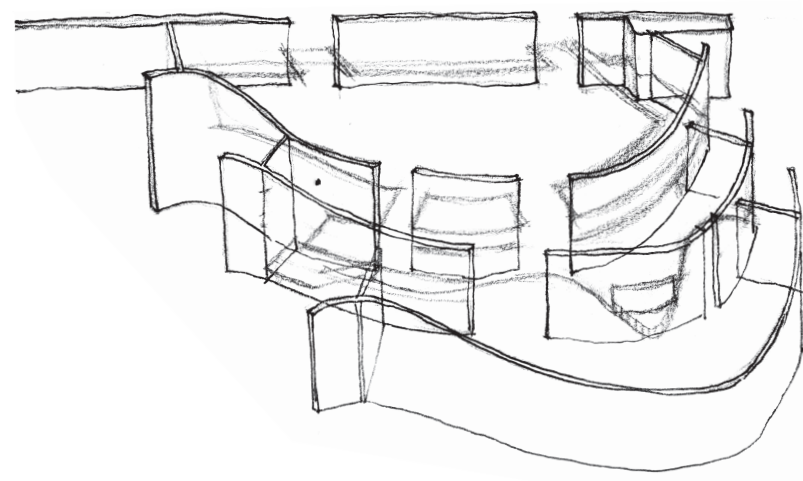
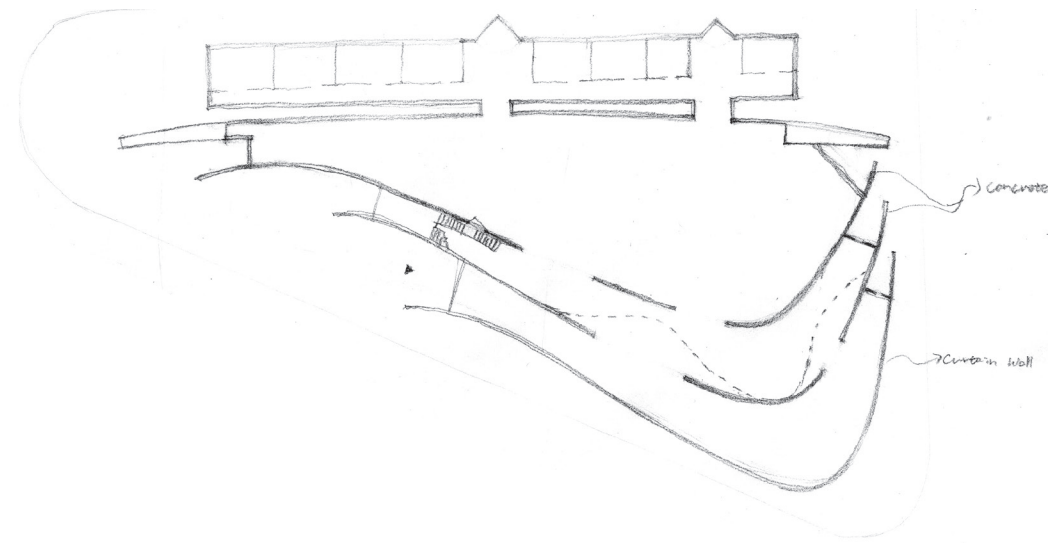
# Design process



Fluidity is about the order of interior walls and the conversation between inside and outside at the same time.



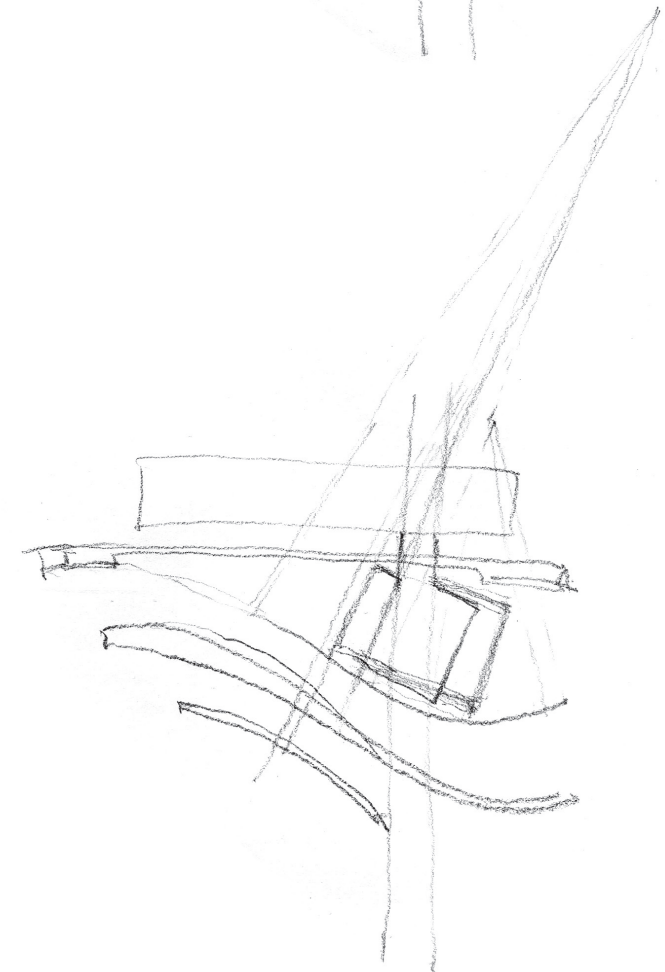
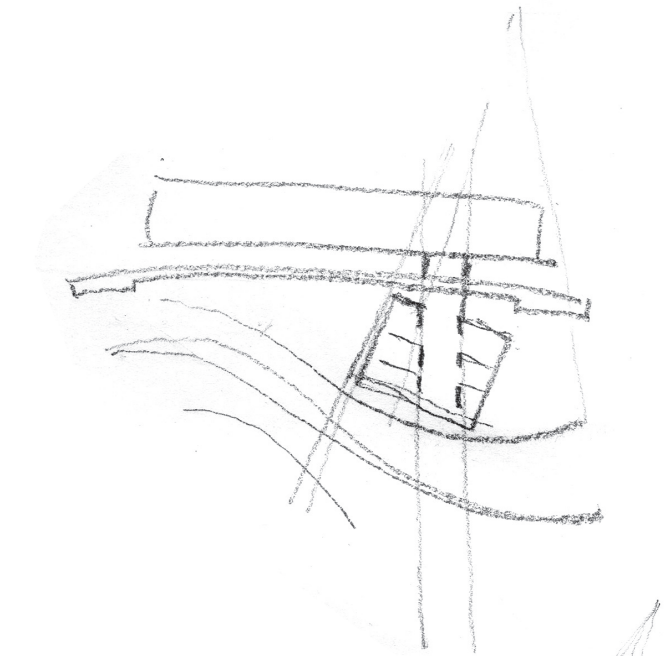
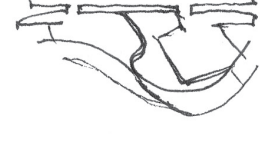
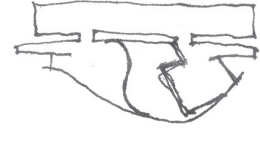
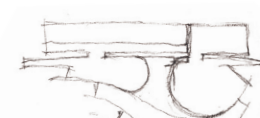
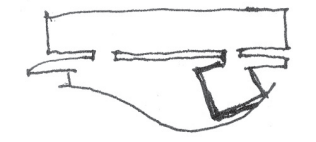
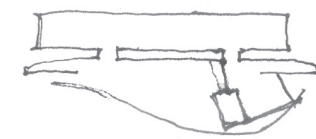
## Design process



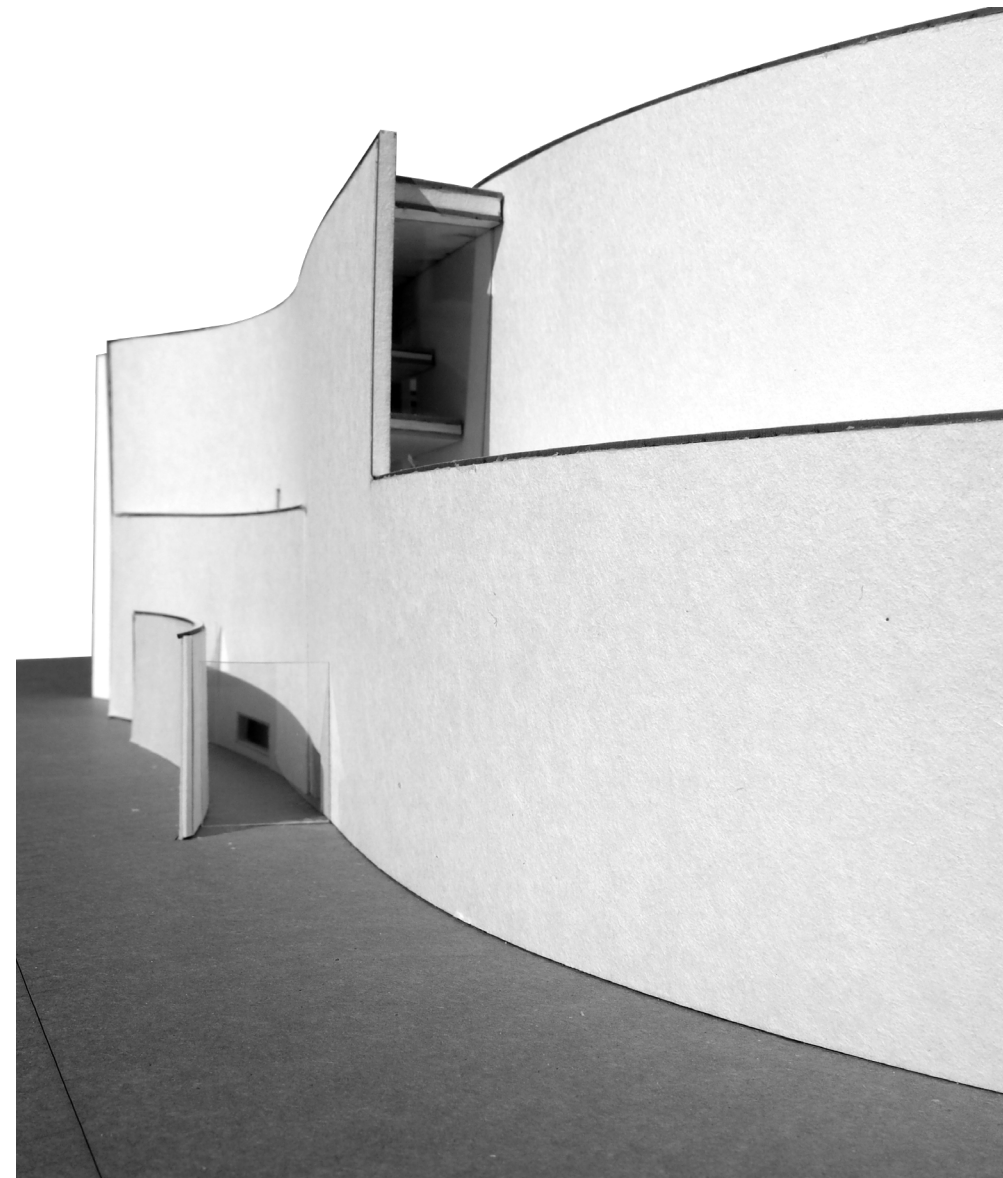
The entrance, circulation and detailed west facade are studied in this model.  
The three curved walls are parallel to each other, which means space is trapped between the walls.

## Design process

A gallery and a dental clinic seem two totally unrelated functions but they could be complementary. This thesis also makes an attempt to combine the two in a new typology.

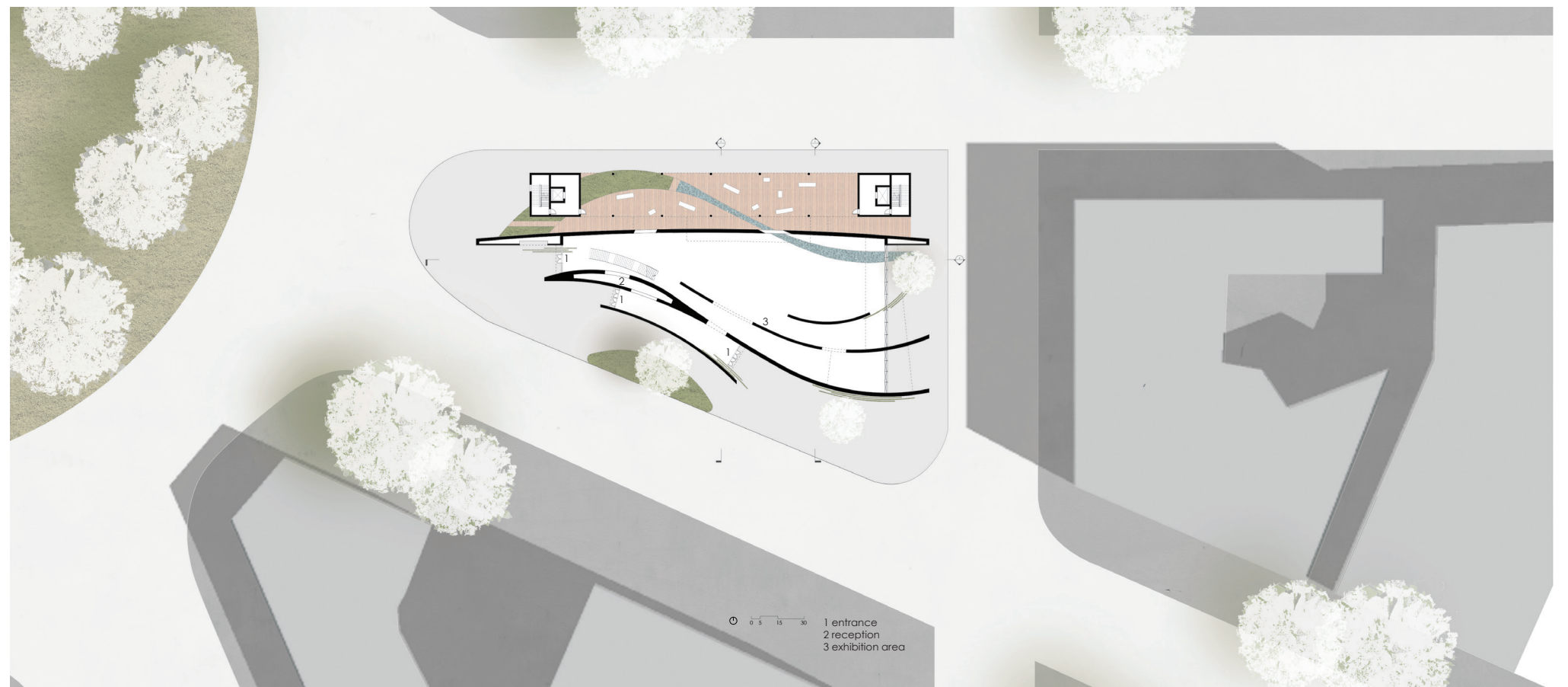


Last iteration





entrance perspective from street



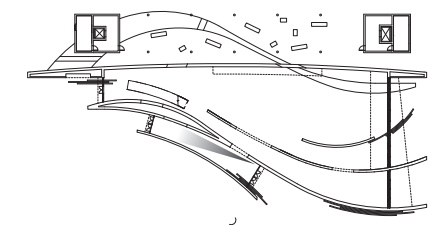
site plan



entrance perspective from Dupont Circle

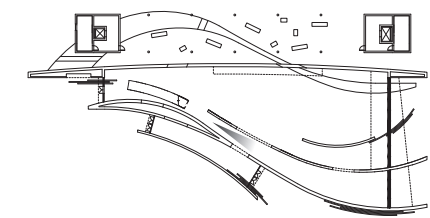


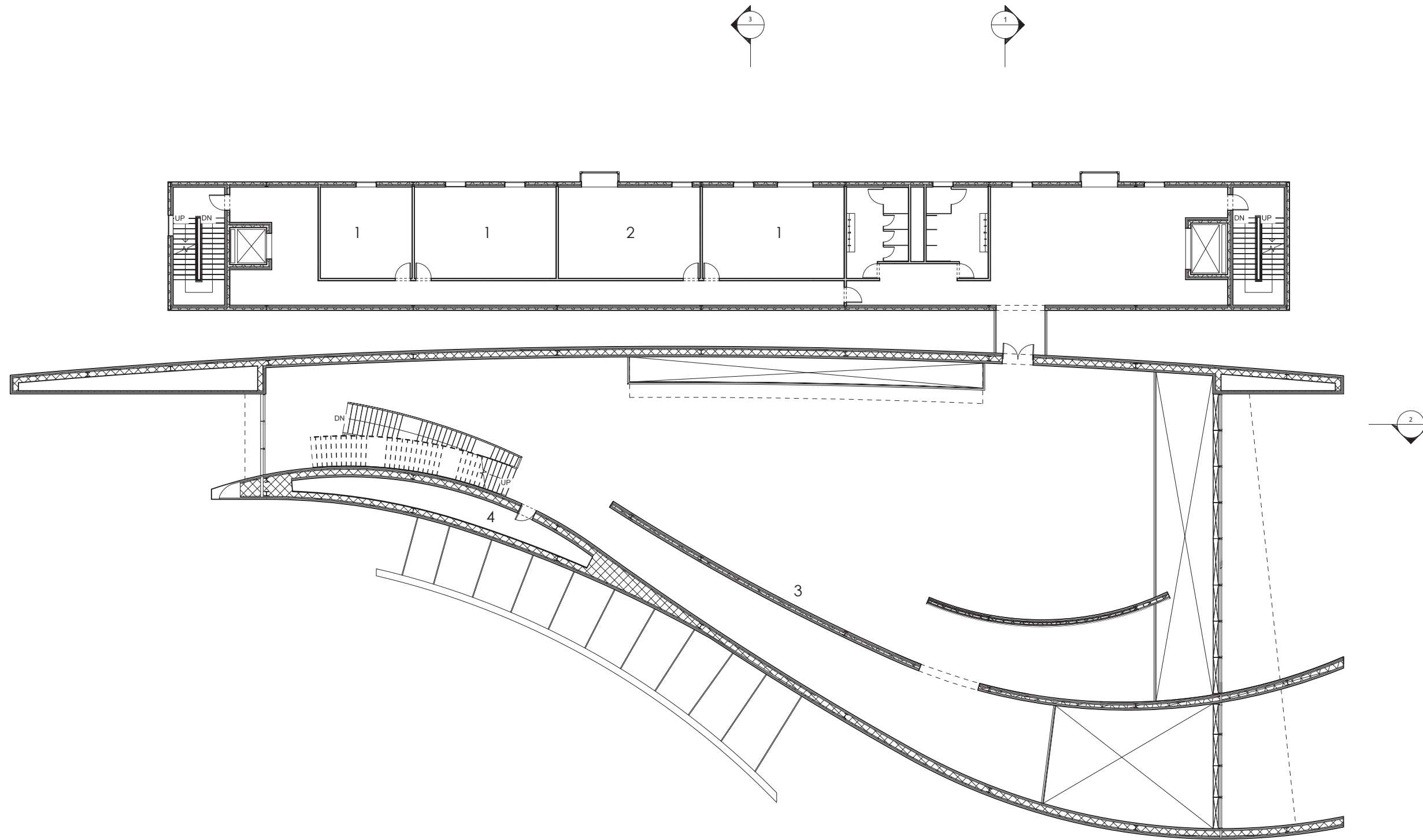
entrance perspective





first level interior perspective

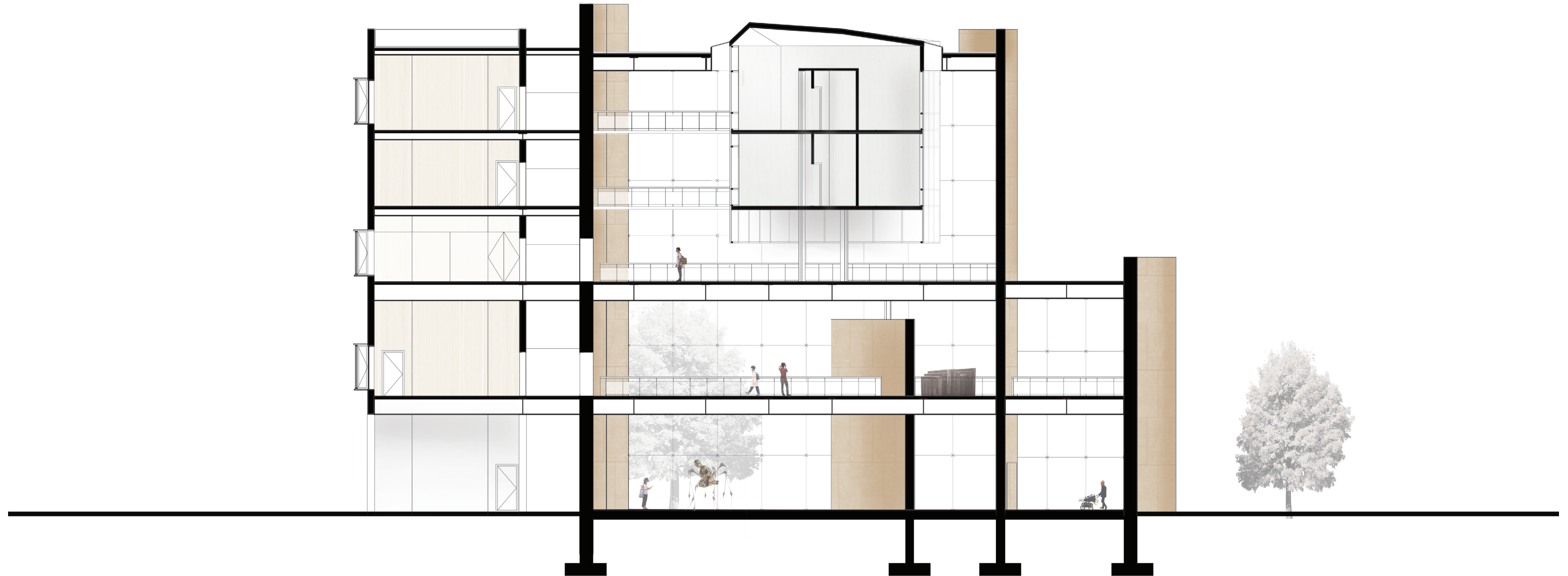




Second Level Plan

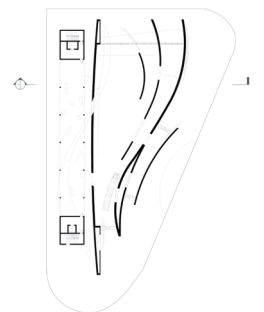


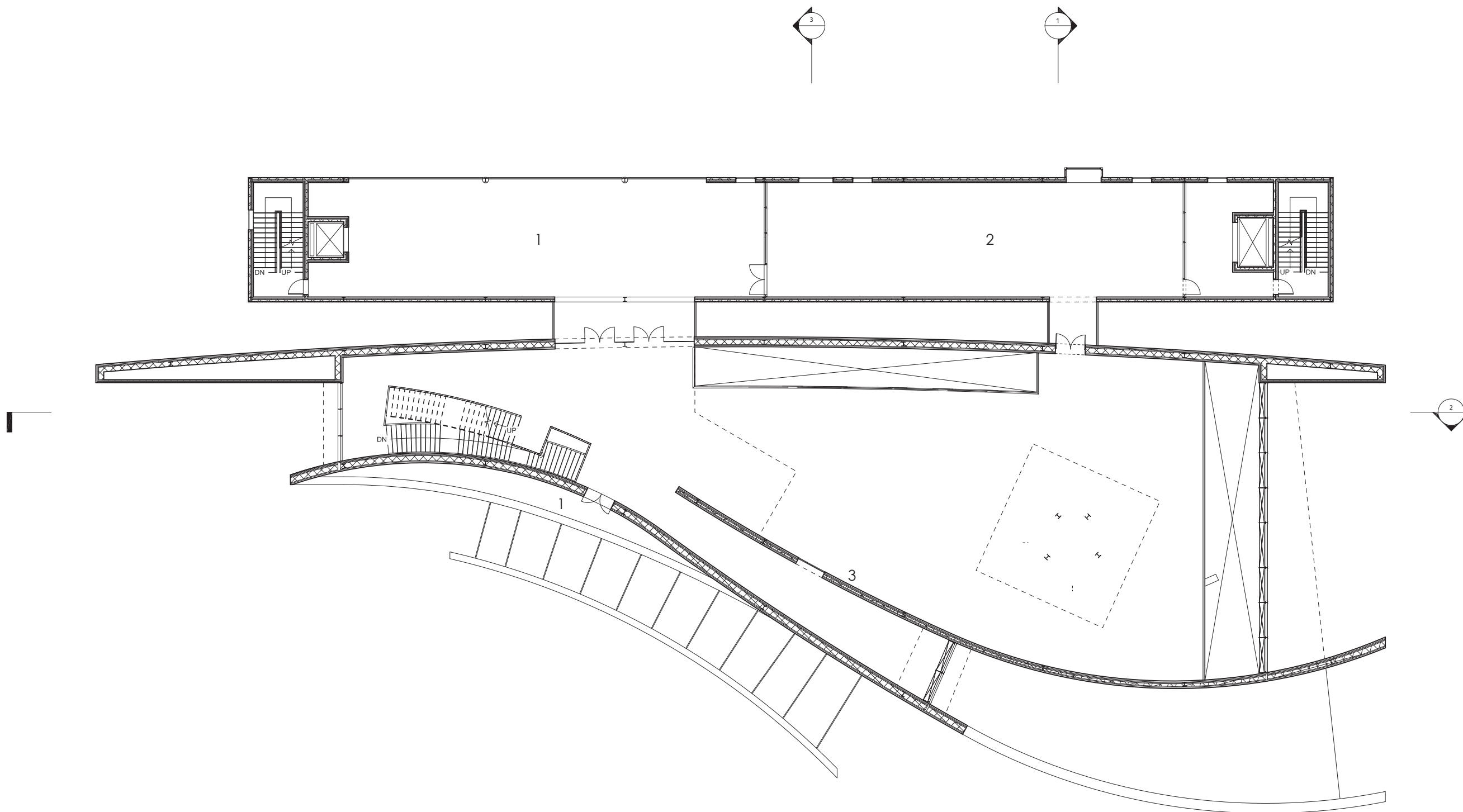
- 1 office
- 2 meeting room
- 3 exhibition area
- 4 equipment room



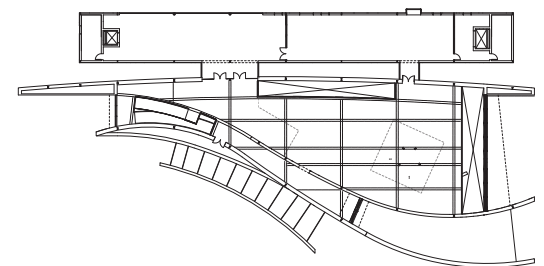
Section 1

The shortest interior wall is designed to not touch the upper floor.



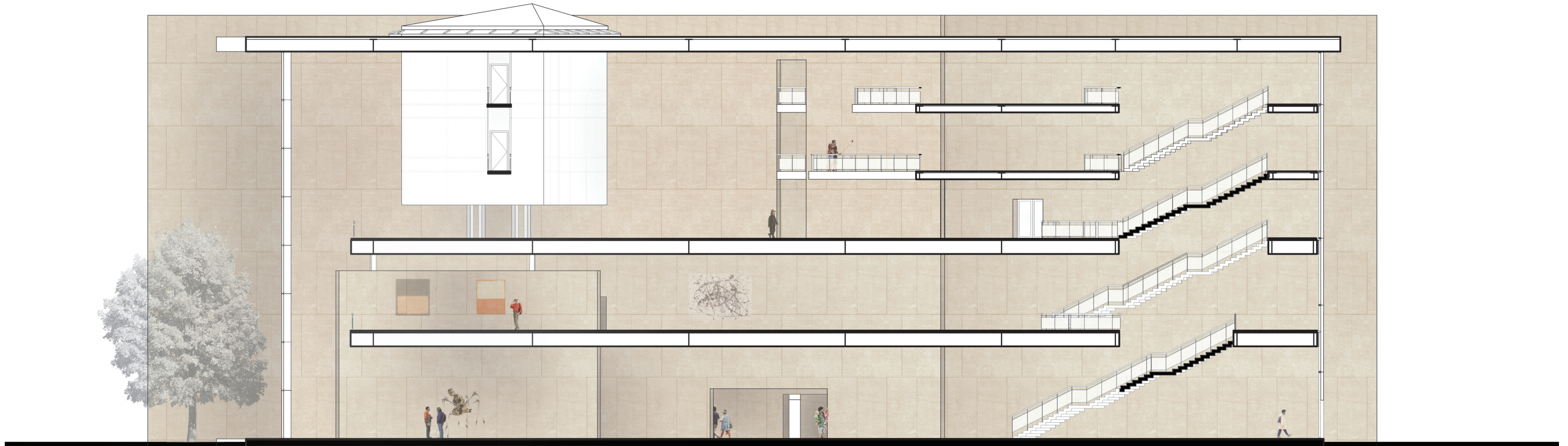


Third Level Plan

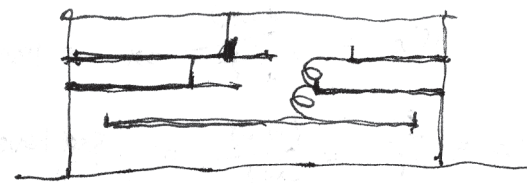


Main part structure Plan

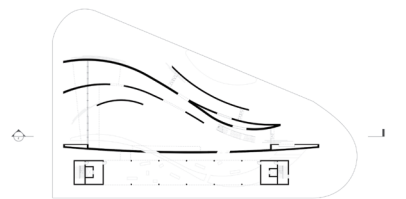
- 1 open terrace
- 2 cafeteria
- 3 exhibition area



Section 2

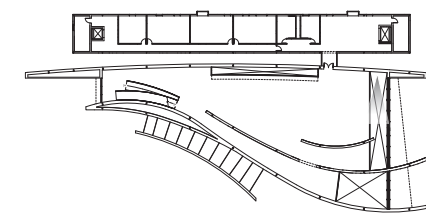


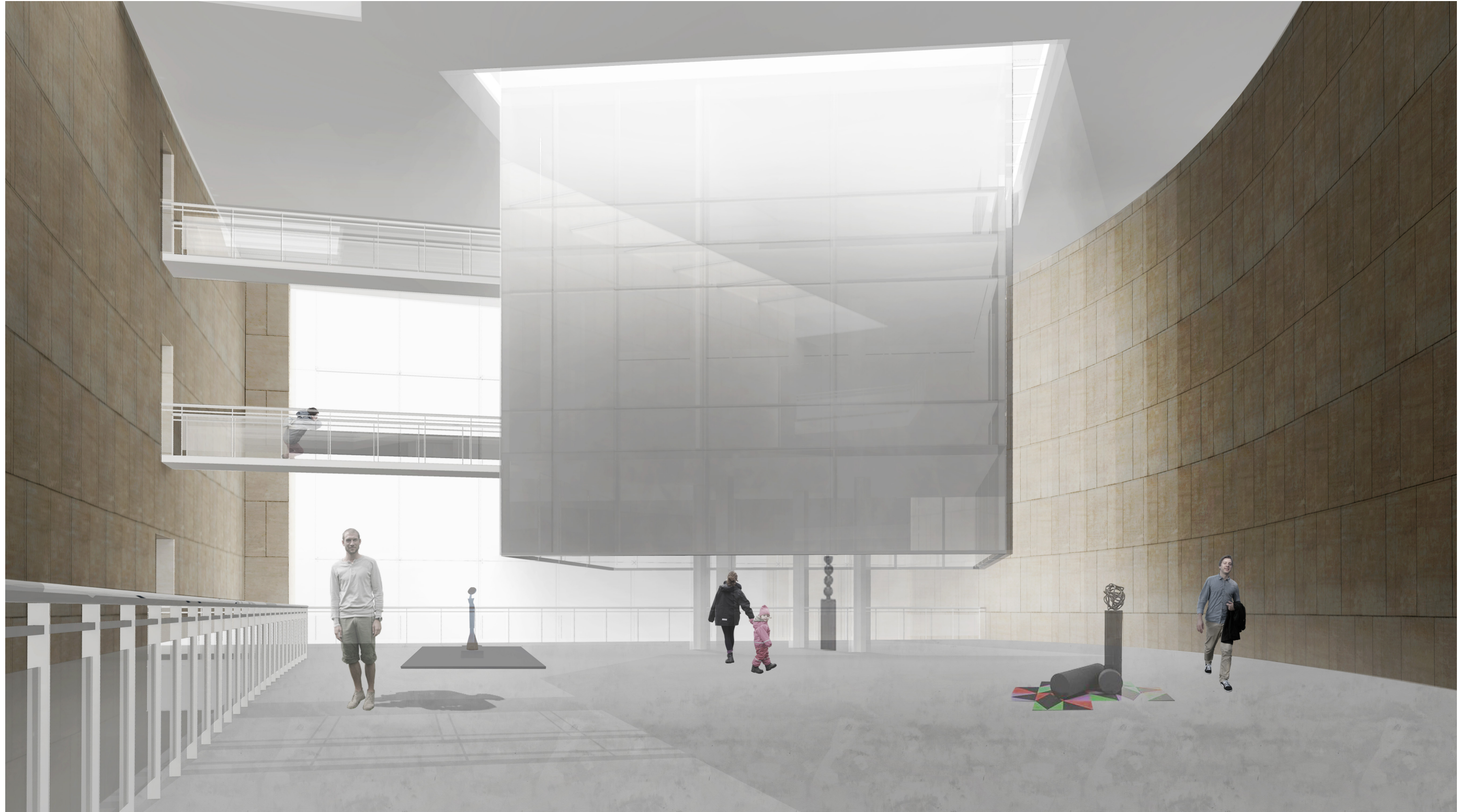
Gaps help space flow in all direction.



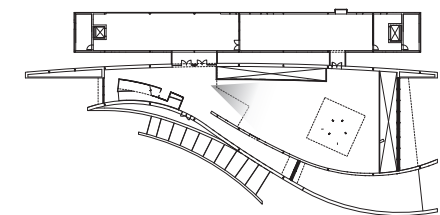


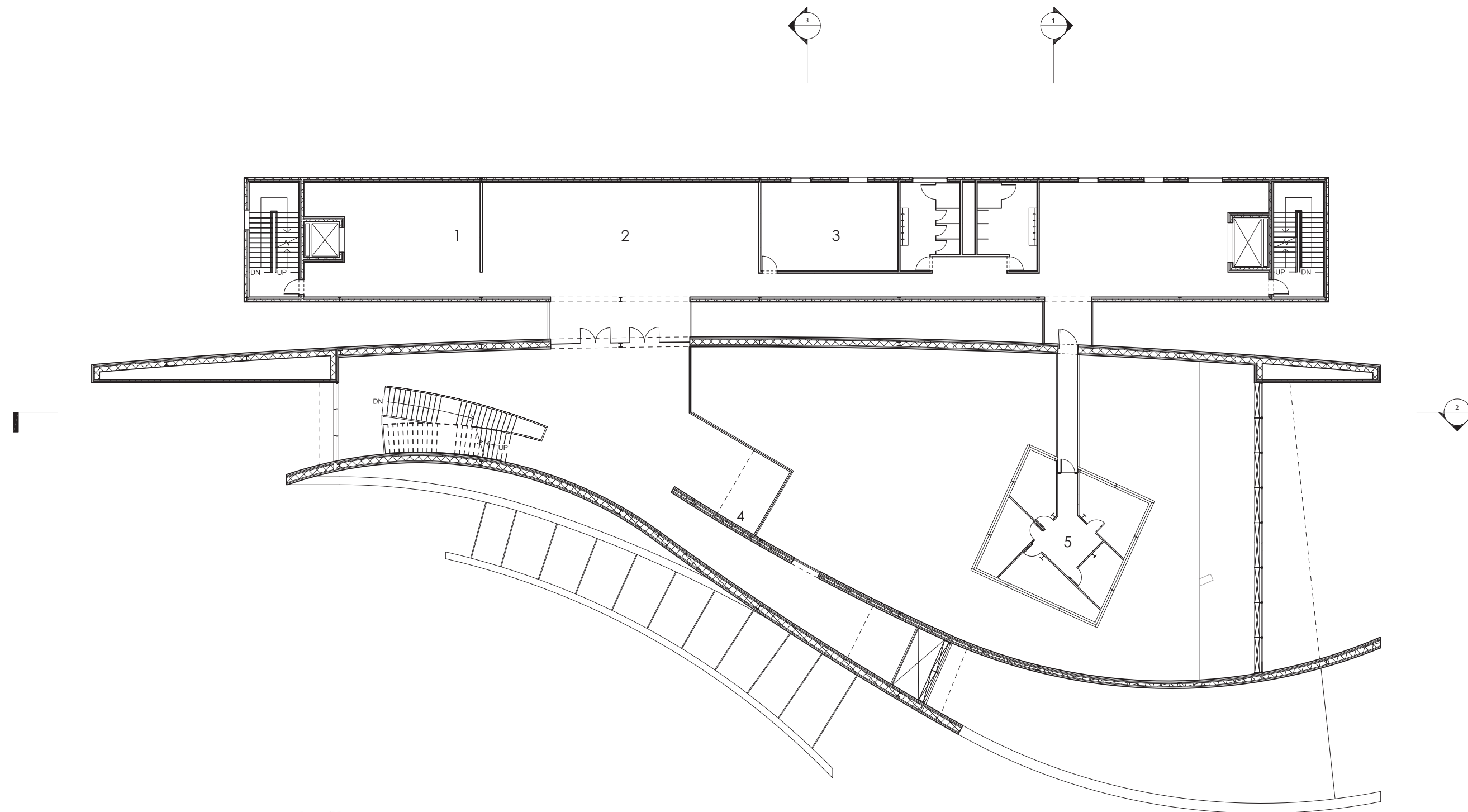
second level perspective





third level interior perspective

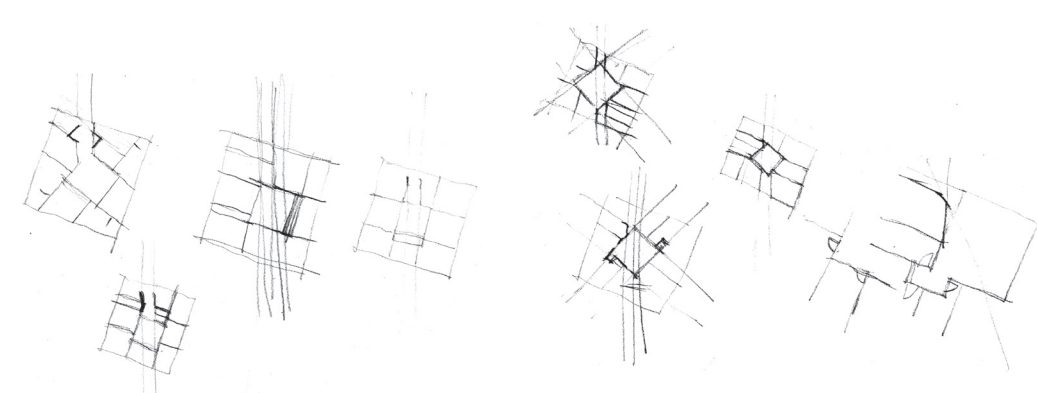




Fourth Level Plan



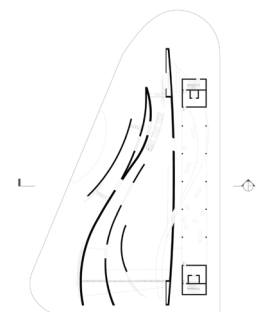
- 1 dental reception
- 2 waiting room
- 3 doctor's room
- 4 exhibition area
- 5 operation rooms

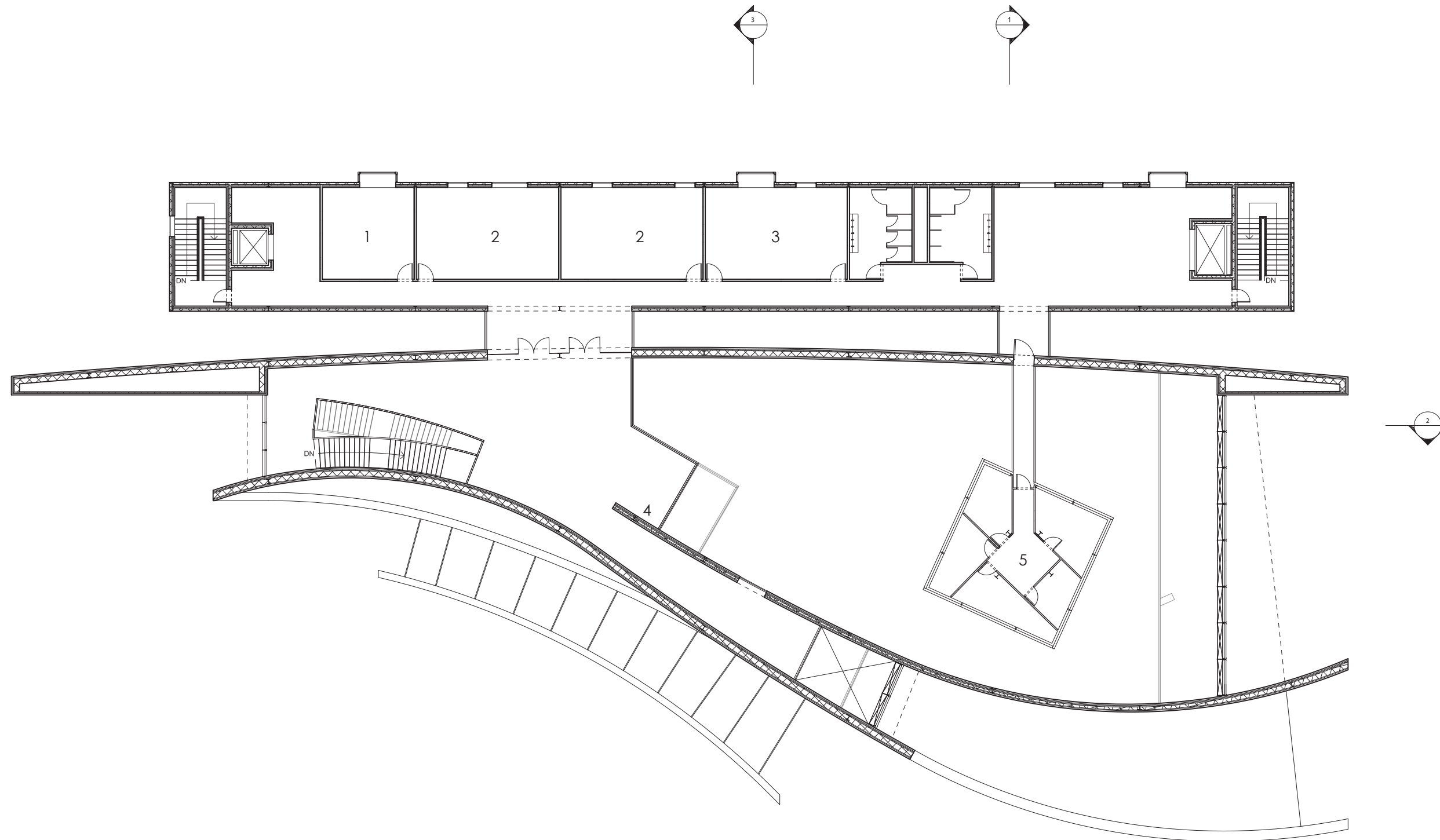




Section 3

Horizontal space between interior walls flows freely via openings

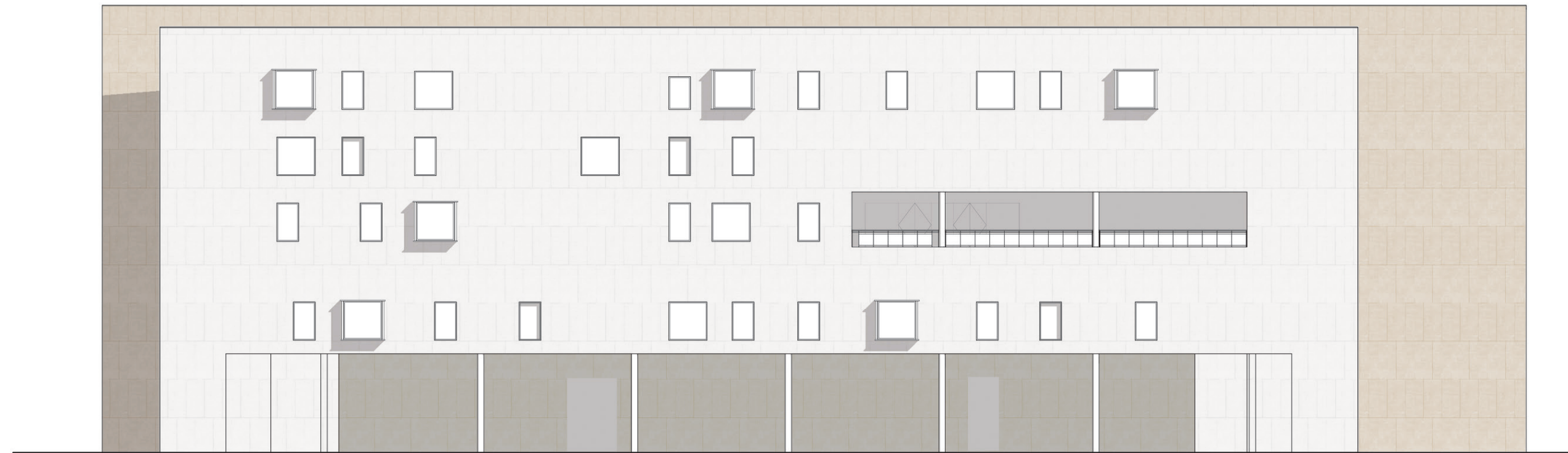




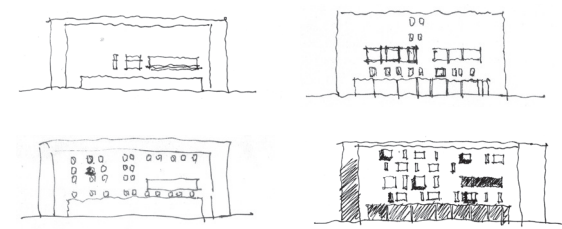
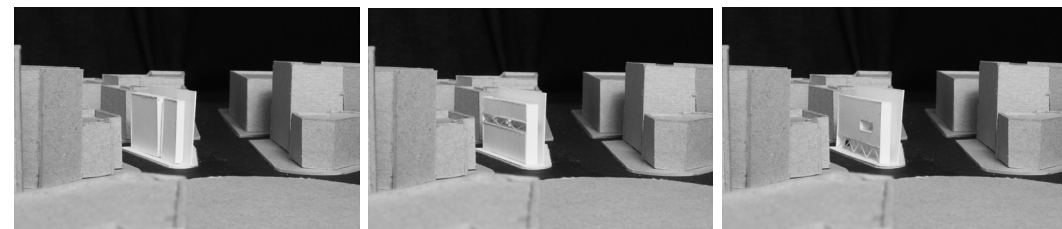
Fifth Level Plan



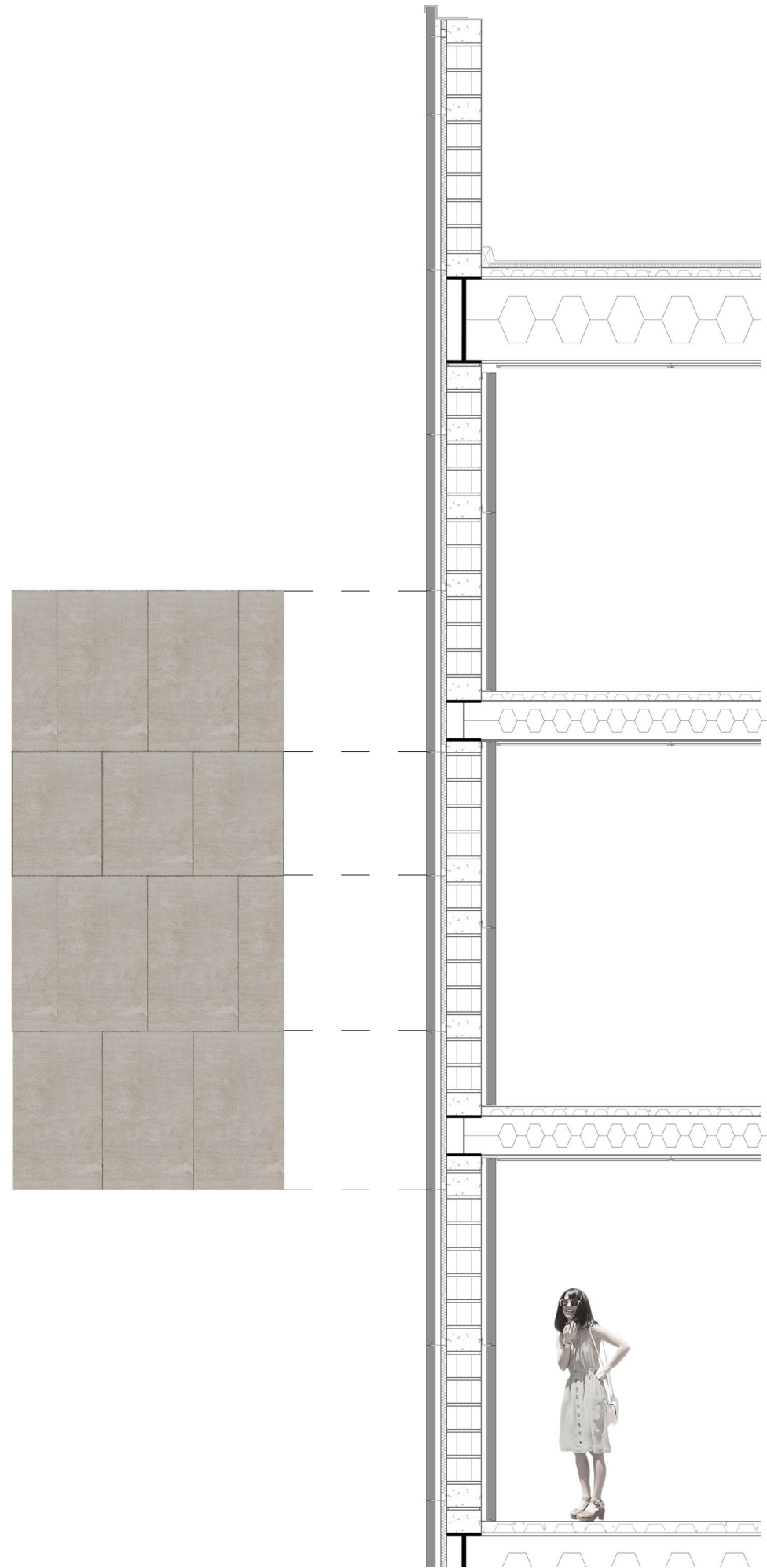
- 1 storage
- 2 doctor's room
- 3 meeting room
- 4 exhibition area
- 5 operation rooms

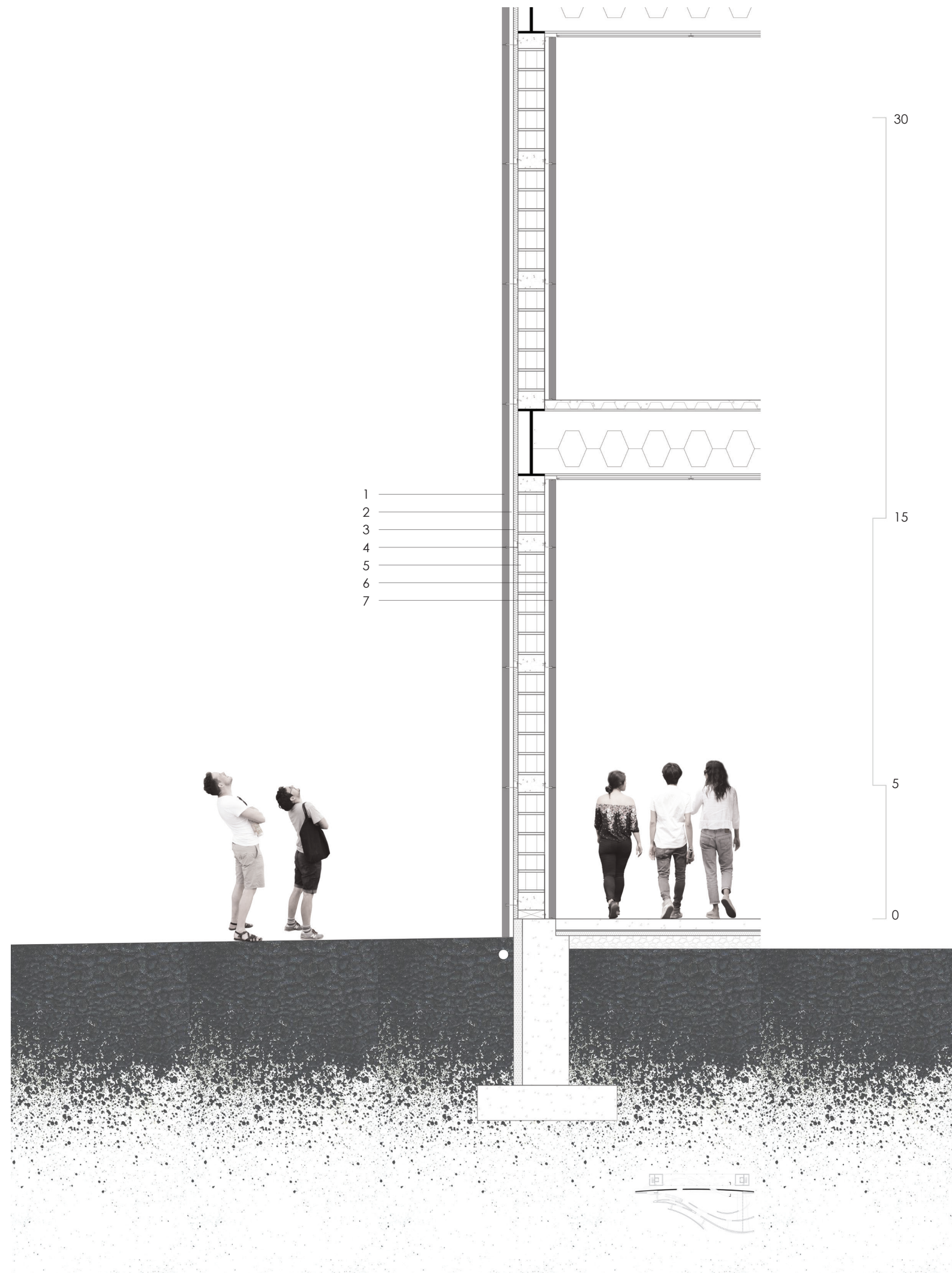


North Elevation



By lifting up first level of service part, the architecture could have a spatial communication with the neighbourhood.





## Conclusion

The typical room, a totally enclosed volume of space, is static. Free-standing planes generate a controlled expansion of space in all directions, encouraging movement within a dynamic composition.

By freeing the defining planes of a volume of space, a new vision of spatial understanding is created. Inner space becomes related to the outer space. All is brought into a dynamic unity.

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Siza, Álvaro, *Alvaro Siza : writings on architecture*, Milan : London : Skira ; distributed by Thames & Hudson, c1997.

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