# ARCHITECTURE PORTFOLIO

VALENTINA MACHADO | 2023

# CV

Valentina Celia Machado Benini
03/02/1994
(+34) 61602924
(+598) 95579596
vale.machadobenini@gmail.com
Montevideo, Uruguay

## EDUCATION

**2023** | Final master thesis. Politecnico di Milano.

-"Evaluation of strategies for the retrofitting of the building envelope of residential housing within the Uruguayan context", based on energy efficiency and sustainable materials.

**2021 - 2023** | Master's degree in Advanced Building Construction. Barcelona School of Building Construction. EPSEB. Universitat Politecnica de Catalunya.

- Obtained top marks in four different subjects. Average mark of 8.28.
- The program includes knowledge of sustainability in construction, BIM technologies, energy efficiency, construction materials such as wooden structures, and acoustic design.

**2019** | Final bachelor thesis. Taller Schelotto.

- Obtained top marks

**2012 - 2020** | Bachelors degree in Architecture at the School of Architecture, Design, and Urbanism. (FADU, UDELAR).

## WORK EXPERIENCE

**2020 - 2021** | Assistant construction manager, VANTEM Uruguay.

- Technical assistance in the construction of buildings made with Structurally Isolated Panels (SIP).
- Worked on the design of several projects alongside architectural firms, using BIM and CAD software.
- Coordination and supervision of daily site activities and delivery of construction materials.
- Identification of recurring site issues.
- Preparation and management of timetables and resources.

**2020 - Present** | Co-Founder of Hatch.arq www.hatcharq.com

- Assistance on technical drawings, floorplans, sections and construction details using both CAD and BIM software.
- Concept sketches, collages, 3D visualizations for project presentations .

**2018 - 2020** | Intern, Municipal office of Montevideo. Public works planning sector.

- Design of floor plans, sections and construction details using CAD and BIM software of future and completed public works projects.
- 3D modelling and visualization for public presentations using Sketchup, 3ds Max, Vray and Photoshop.
- Assistance on site surveying and construction management.

## WORKSHOPS

**2020** | Project management course for PMP® certification. Introduction to agile methodology.

**2020** | Marketing, Architecture and Design. Postgraduate course.

## LANGUAGES

**English** | C2 Advanced | TOEFL iBT, 114/120 (2021) | Certificate of Proficiency in English (ECPE) of the University of Michigan (2010).

**Italian**
C2 Advanced | Certificato di parietà del liceo italiano dalla Scuola Italiana di Montevideo (2011).

**Spanish**
Native Language

## TECHNICAL SKILLS

**Architecture**
AutoCad, Revit + Dynamo, Sketchup, 3Ds Max, Vray engine, Blender, Twinmotion, Relux

**Graphic design**
Adobe Photoshop, Adobe Illustrator, Adobe InDesign, CorelDraw, Paint tool SAI, Clip Studio Paint.

**Generic**
Python programming language, Matlab, Minitab, Project, Google Suite, Office Suite.

**Other**
Digital drawing and illustration. Hand drawing. Collages.

# INDEX

# FUSTA

**Timber construction project**

**Project topic:** Temporary housing for disaster relief
**Location:** Variable
**Year:** 2022

**Members:**
Valentina Machado (design, construction plans and details, 3D model and visuals).
Franciso Pacheco Guzman (design, construction details, model).
Pablo Solís Diaz (design, construction details, model).

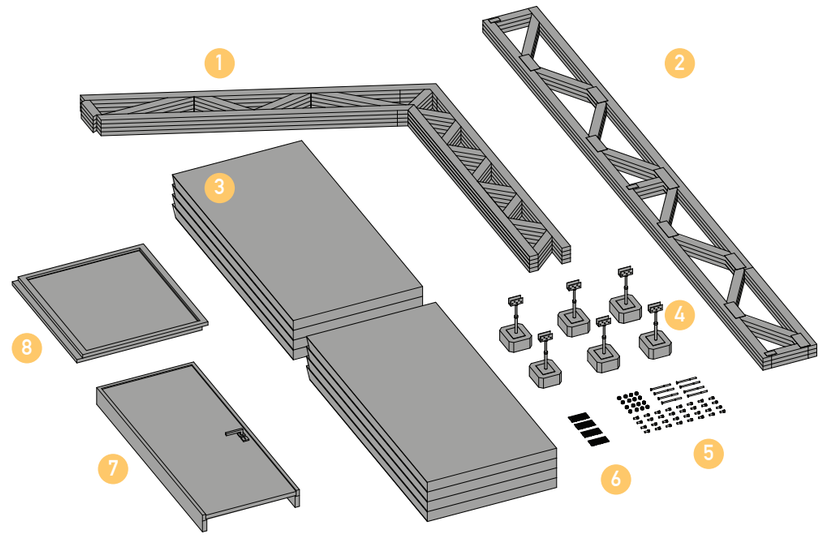
MoviMent FUSTA

Fusta, or "wood" in catalan, is based on the 7 key criteria for adequate housing: availability of services, materials, facilities, infrastructure, affordability, habitability, and accessibility. The project arises with the idea of providing a decent home to people displaced by disaster situations. These housing units are designed using an easy-to-assemble system, using standard measurements of existing timber products.

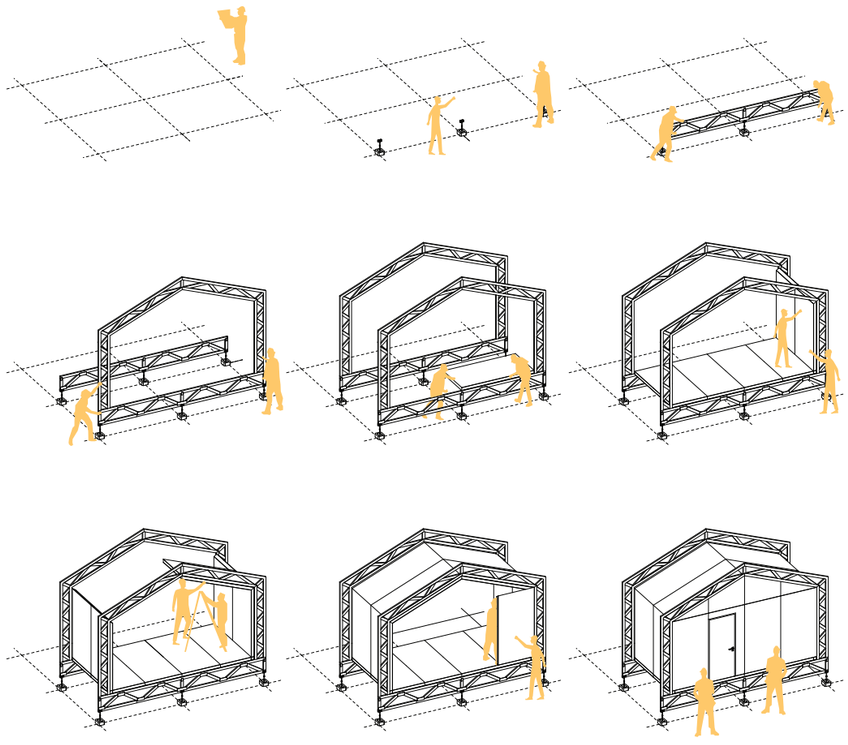
This system is based on wooden trusses that form an "exoskeleton" from which panels are fitted to create the envelope of the house. These panels form an integrated system that eliminates any problems related to thermal bridges.

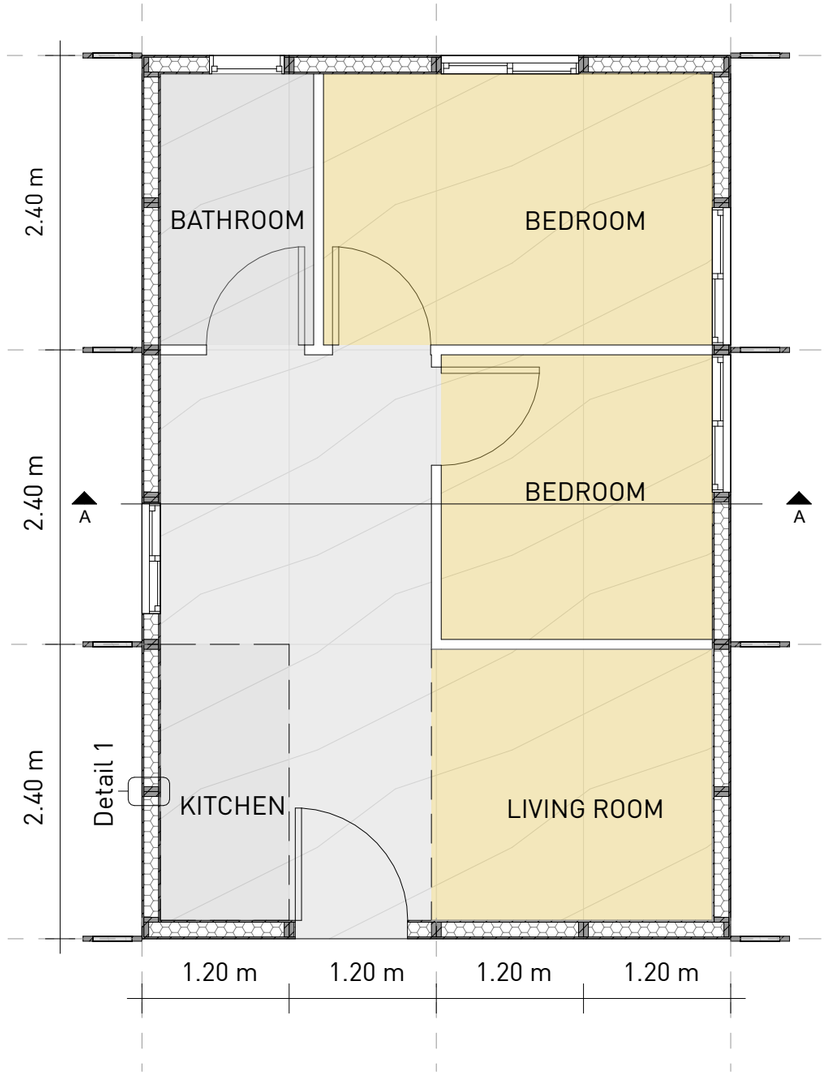
Each panel is prefabricated and cut to the project's needs, in order to reduce the work to be done on-site. At the same time, the structure is placed on adjustable metal bases so the houses can be placed on a variety of terrains. Finally, the system also allows for the easy disassembly of the pieces so that the houses can be expanded or dismantled for the reuse of the pieces.

The project is modular and scalable, with the possibility of making small modifications to adapt to the context. Whether through duplication of the structure in case the terrain requires it or the placement of additional elements in case of humid or rainy climates.

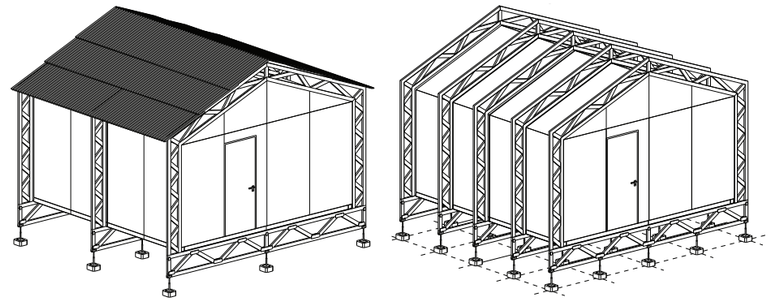



1. Vertical truss
2. Bottom truss
3. Prefabricated panel, cut according to project needs
4. Adjustable base
5. Screws and bolts
6. Nail plate for timber unions
7. Doors according to project
8. Windows according to project

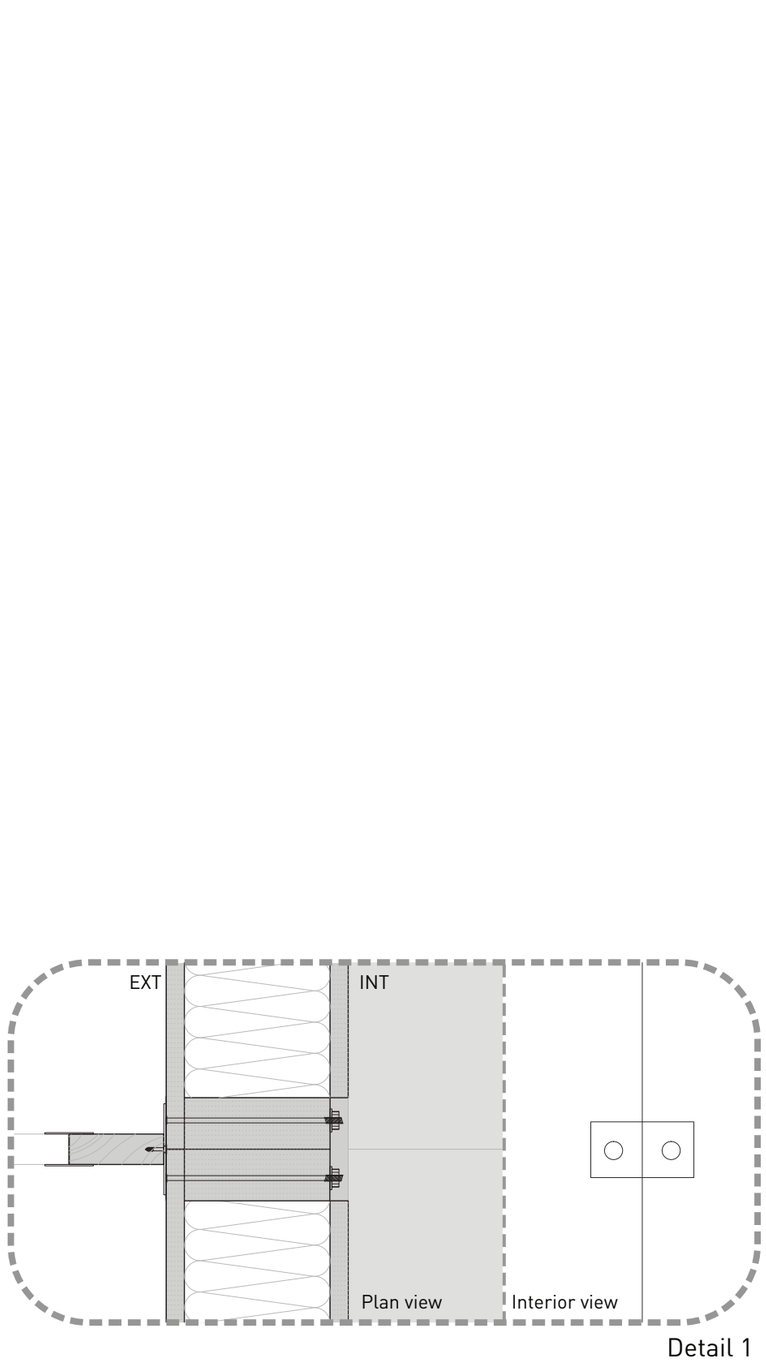




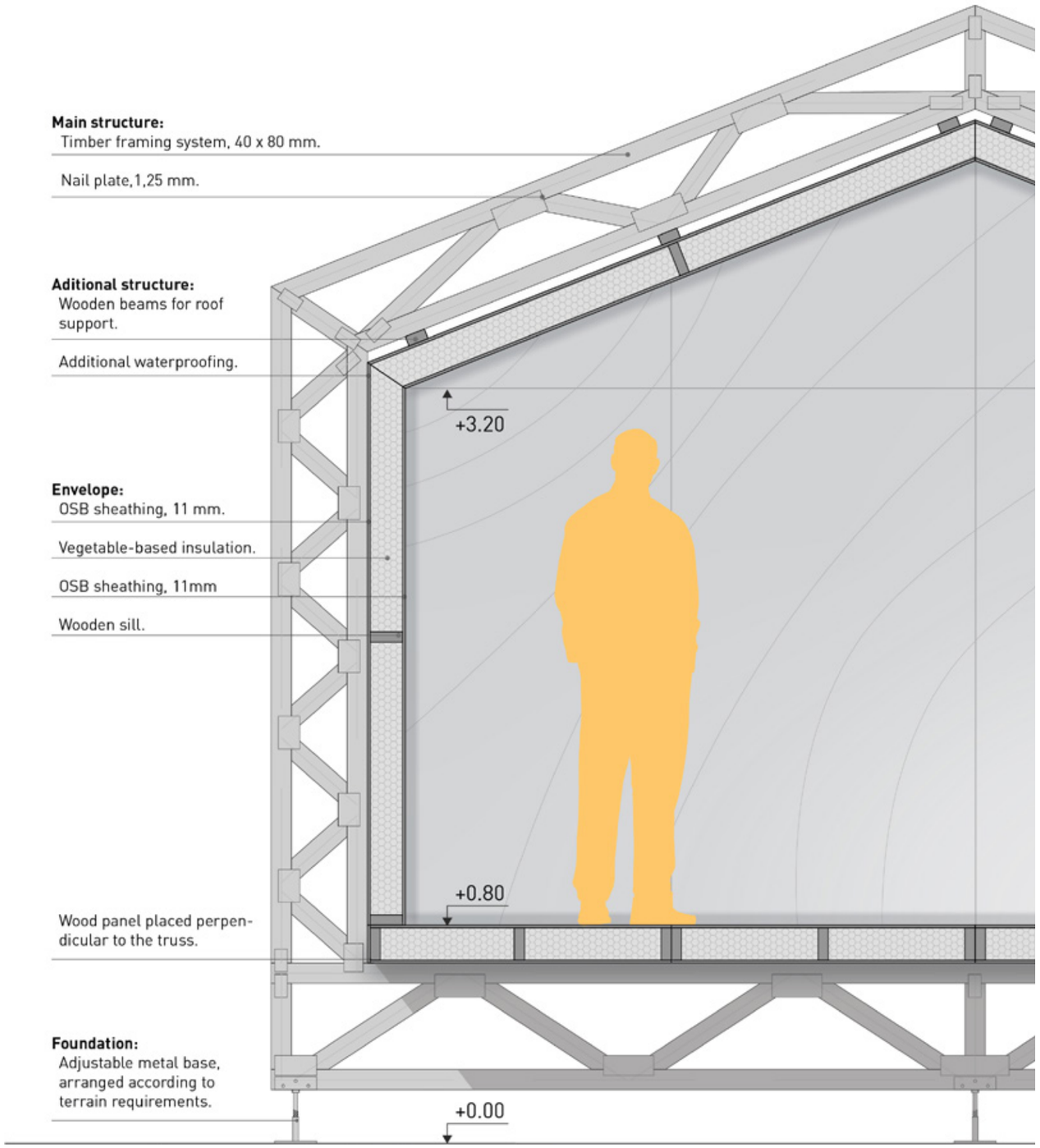

Proposed distribution



Variations to the model according to climate or terrain


EXT
INT
Plan view
Interior view

Detail 1


Main structure:
Timber framing system, 40 x 80 mm.
Nail plate,1,25 mm.
Aditional structure:
Wooden beams for roof support.
Additional waterproofing.
Envelope:
OSB sheathing, 11 mm.
Vegetable-based insulation.
OSB sheathing, 11mm
Wooden sill.
Wood panel placed perpendicular to the truss.
Foundation:
Adjustable metal base, arranged according to terrain requirements.
+3.20
+0.80
+0.00

# BURDEOS

**Final Bachelor Thesis**

**Project topic:** Commercial and cultural space
**Location:** Montevideo, Uruguay
**Year:** 2019, March-December

Bachelor thesis from the Universidad de la República (UDELAR). This thesis was built upon the knowledge and perspective acquired over the last four years of university. It involves going through all the project design phases, from the initial sketches to the executive design stages, solving structural and technical challenges.

Located in the heart of Montevideo, Burdeos is a project that aims to revitalize a crucial heritage site, bringing a social and cultural program based around one of Uruguay's most awarded exports: Wine.

The program offers a space that promotes the Uruguayan wine industry both to tourists and the local public, involving all aspects of this rich industry: its history, its relation to the culinary arts and its cultural significance.

Its major strengths are the integration of public and private spaces, and its use of materials both traditional and modern.

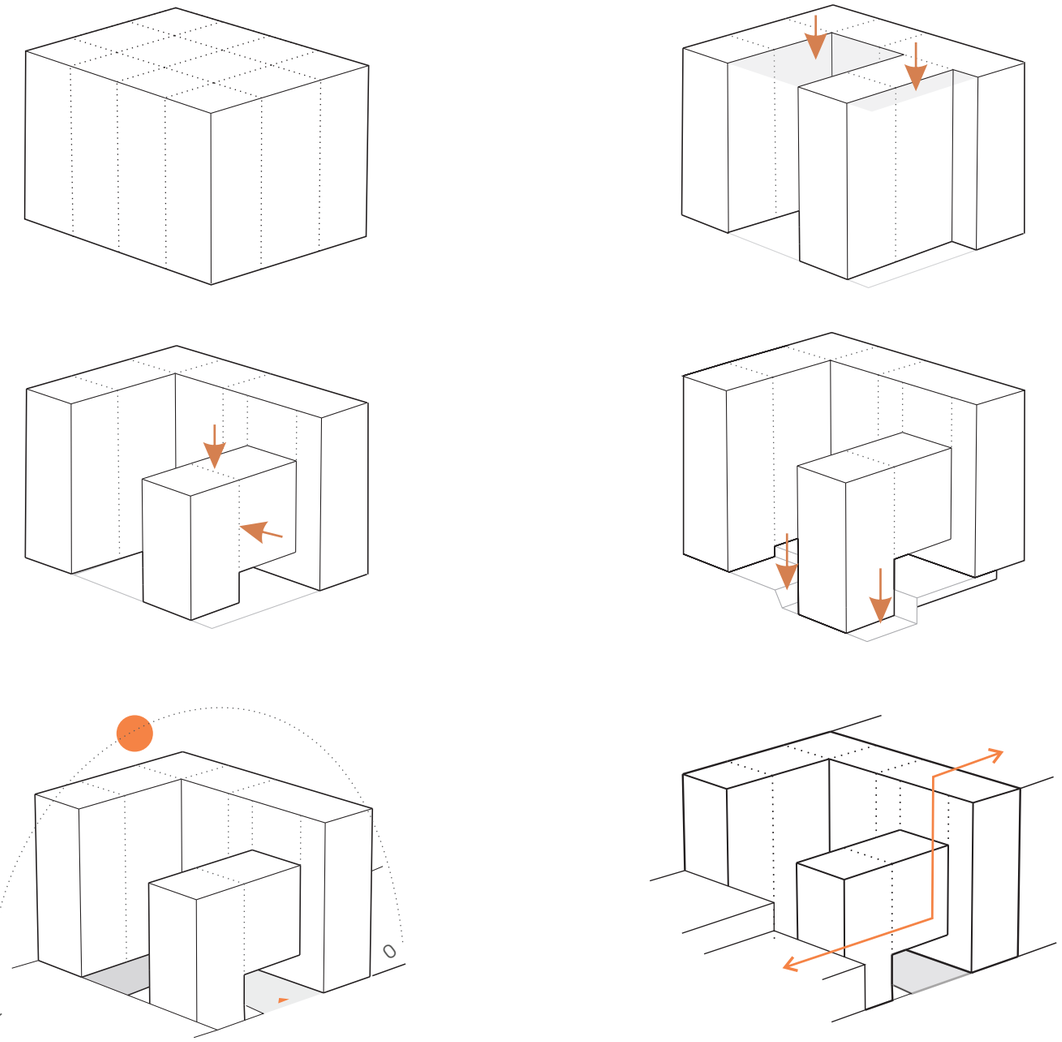
Mentors:  Carlos Sitya | Lucia Lombardi | Pablo Inzaurralde | Adriana Bobadilla

**Members:**
Valentina Machado (design, construction plans, structure plans, construction details, electrical plans, 3D visuals).
Rocio Corbo (design, construction plans, plumbing plans)

Situated at the edge of “Ciudad Vieja”, the capital’s historic quarter, it is surrounded by many cultural and commercial activities. However, the neighborhood remains largely devalued, filled with empty lots and decaying buildings.

By bringing Burdeos here, our aim is to bring all these spaces together and improve the image of the neighborhood. The program also takes advantage of the public park that encopasses most of the beachfront, renovated in 2018.


Top: Overview of Ciudad Vieja
Right: Project location and its surroundings





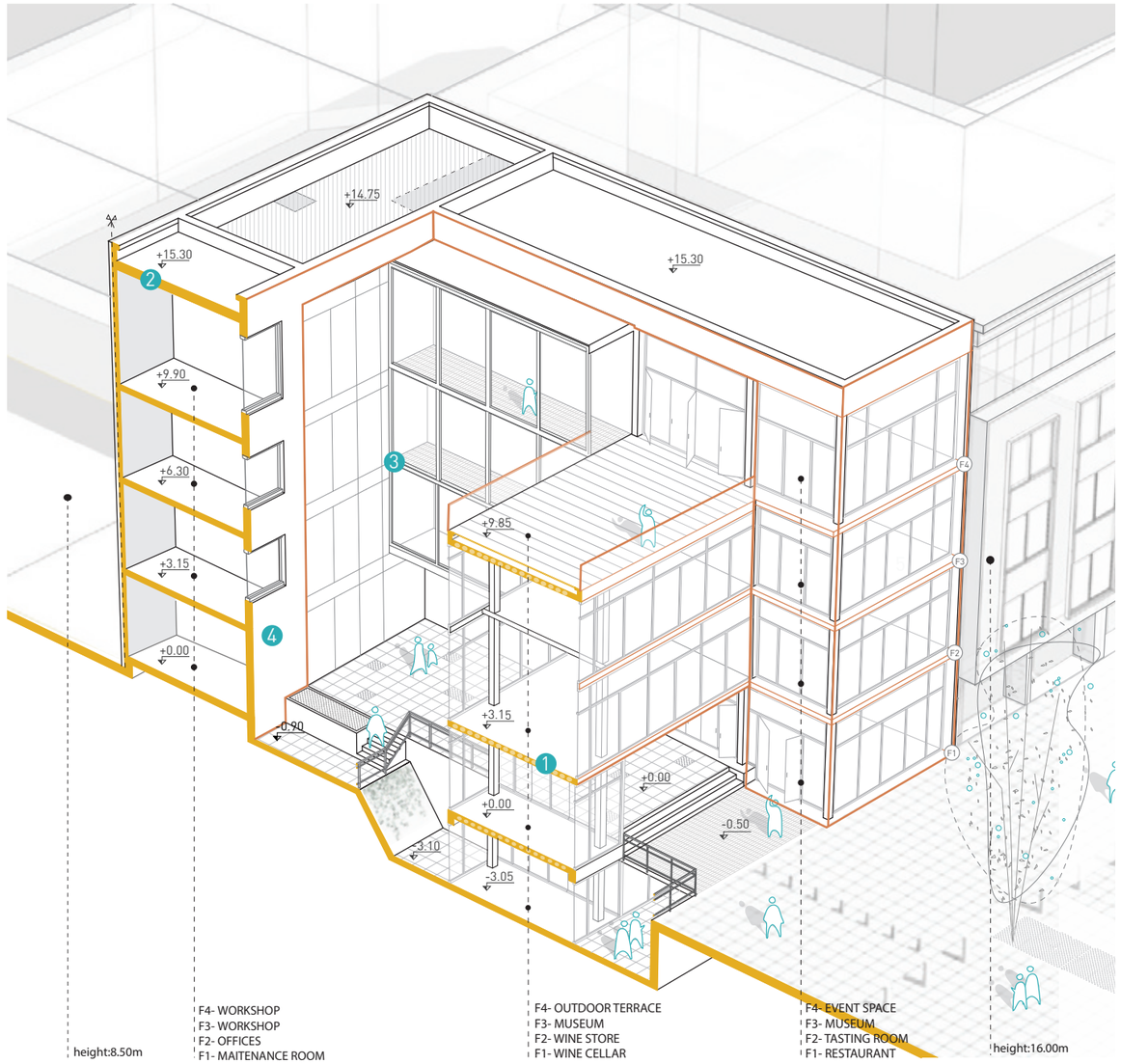




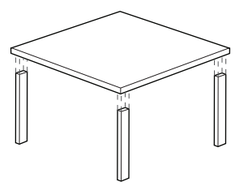
To ensure that the project integrates seamlessly with its surroundings, we created a “pocket park”, seeking to blend itself with the public space in front of it while maintaining the privacy of the building. This patio generates a space of its own despite being accessible from the outside.

Visual links are created from the patio to the entire building. The variation in heights creates a continuous movement between all spaces, creating engaging sights.

The extreme differences in heights on the neighboring plots allowed us to innovate and generate a volume that can be described as “transitional” for both sides of the party wall.

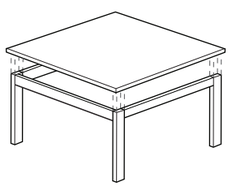



## 1 CONCRETE STRUCTURE



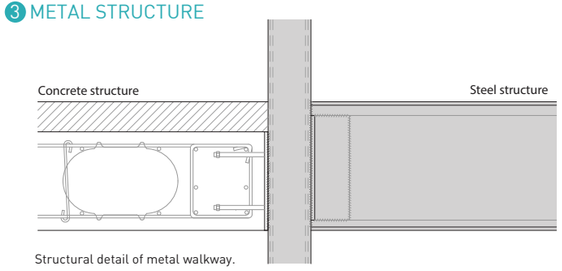
Lightened slabs with no beams

## 2



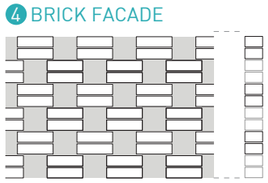
Conventional concrete structure with slabs, beams and columns.

## 3 METAL STRUCTURE

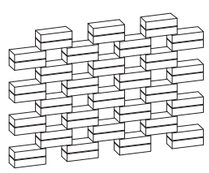



Structural detail of metal walkway.

## 4 BRICK FACADE

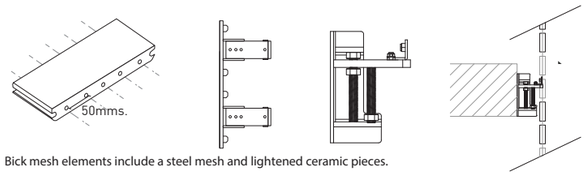


Front view Side view

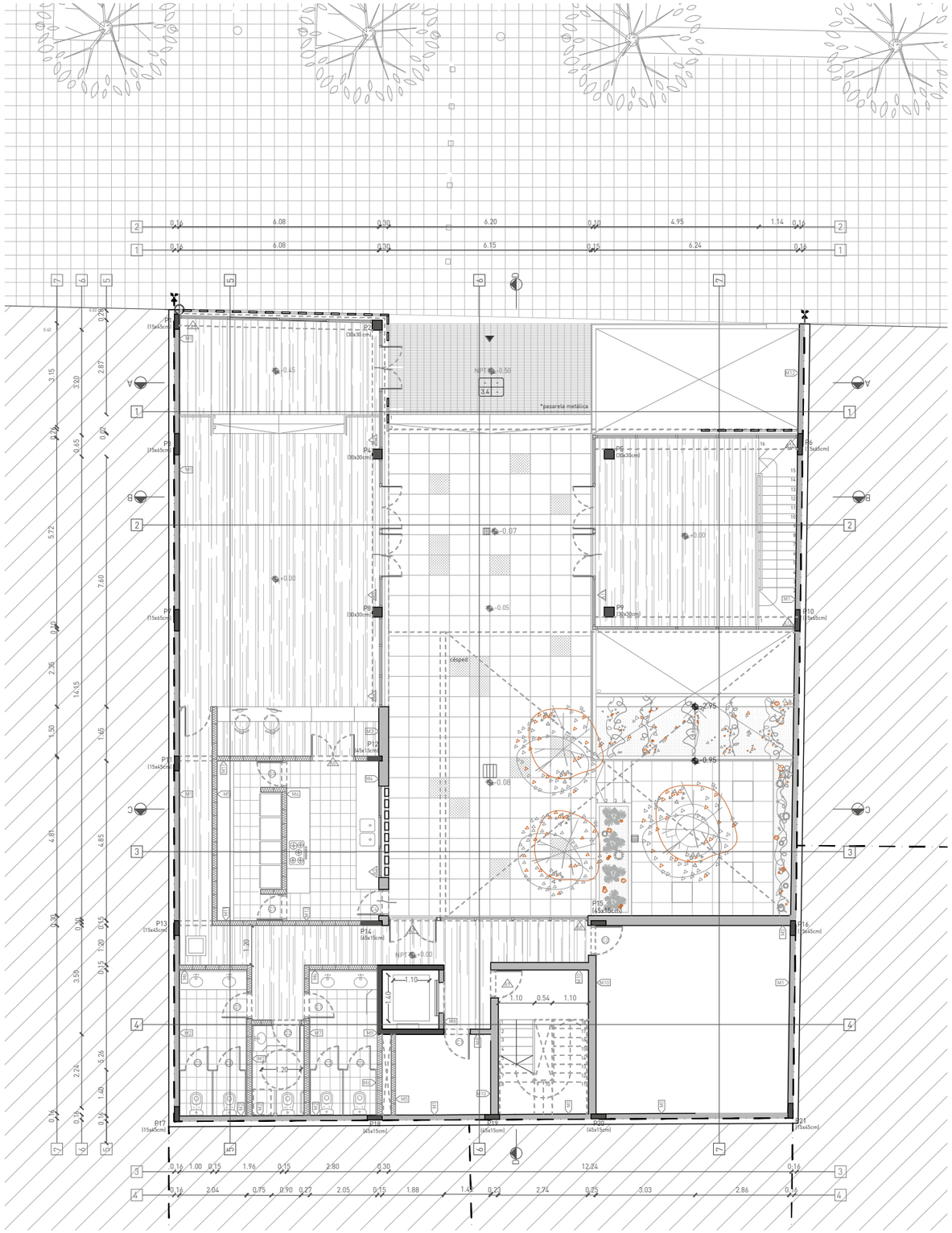


Perspective

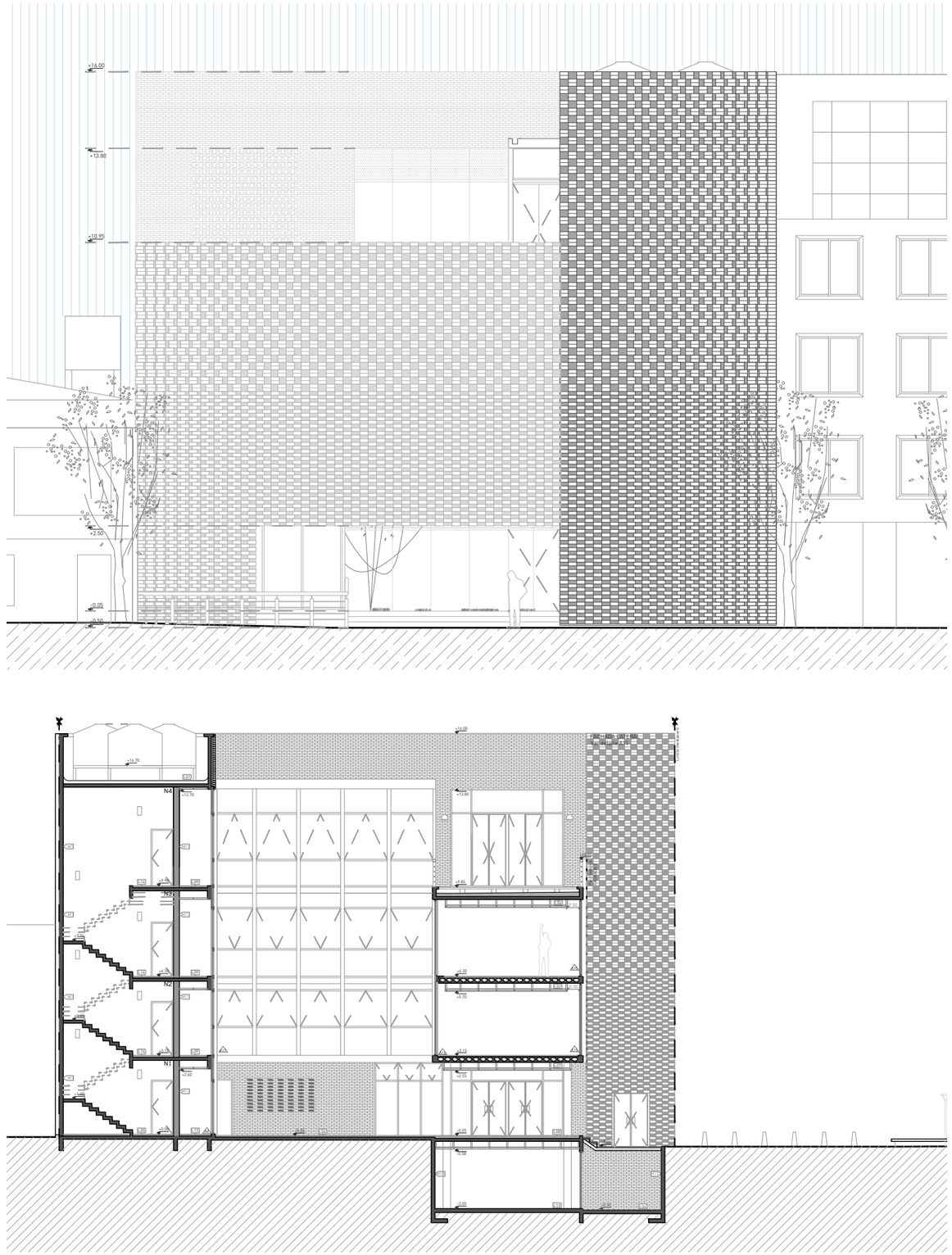
## 5 BRICK MESH



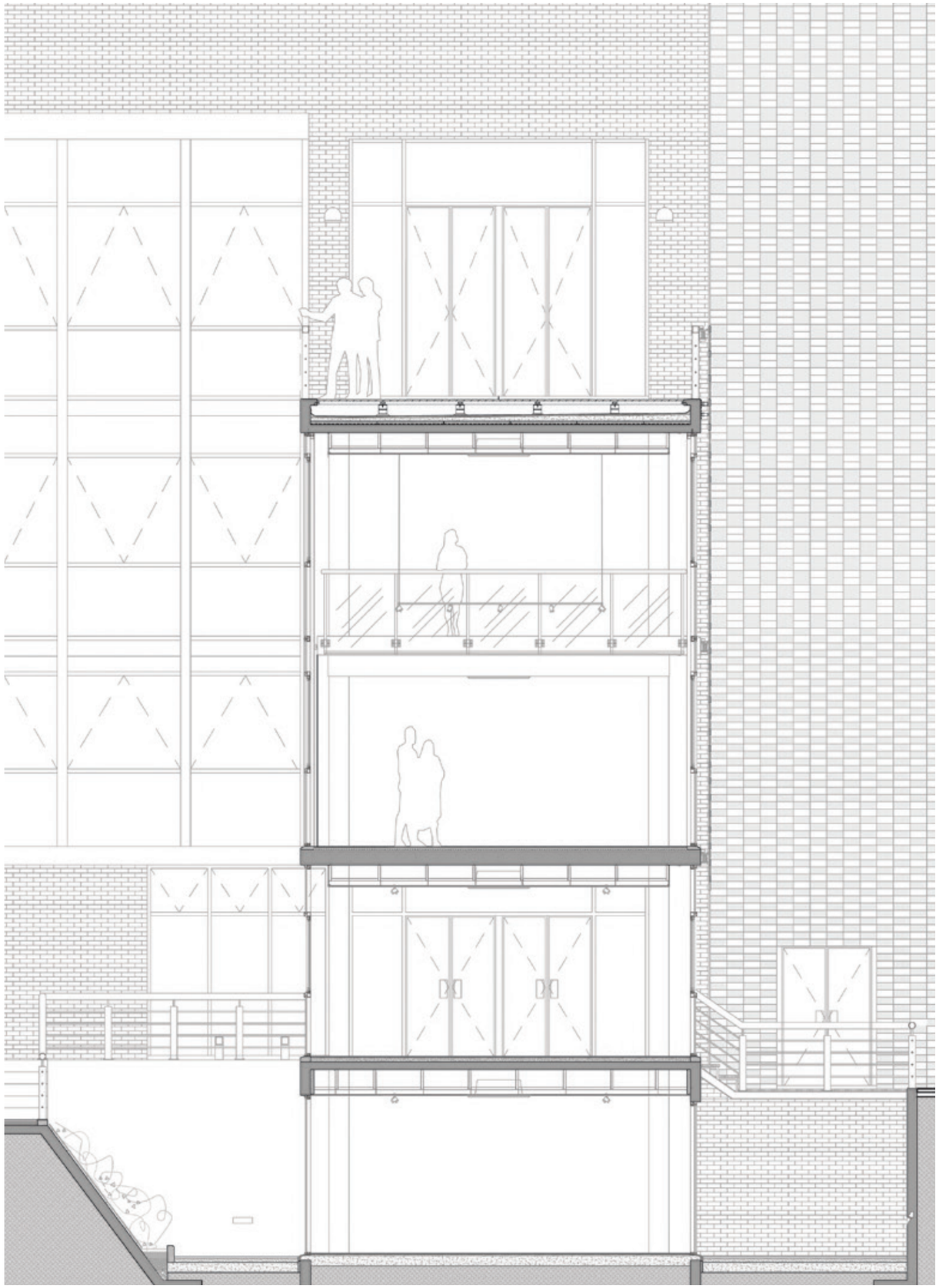

Bick mesh elements include a steel mesh and lightened ceramic pieces.




Ground Floor Plan
Graphic scale




Top: North Facade
Bottom: Section
Graphic scale



Construction details

# SPORTS CENTER

**Advanced Architectural Design Studio**

**Project topic:** Sports Pavillion
**Location:** None
**Year:** 2018

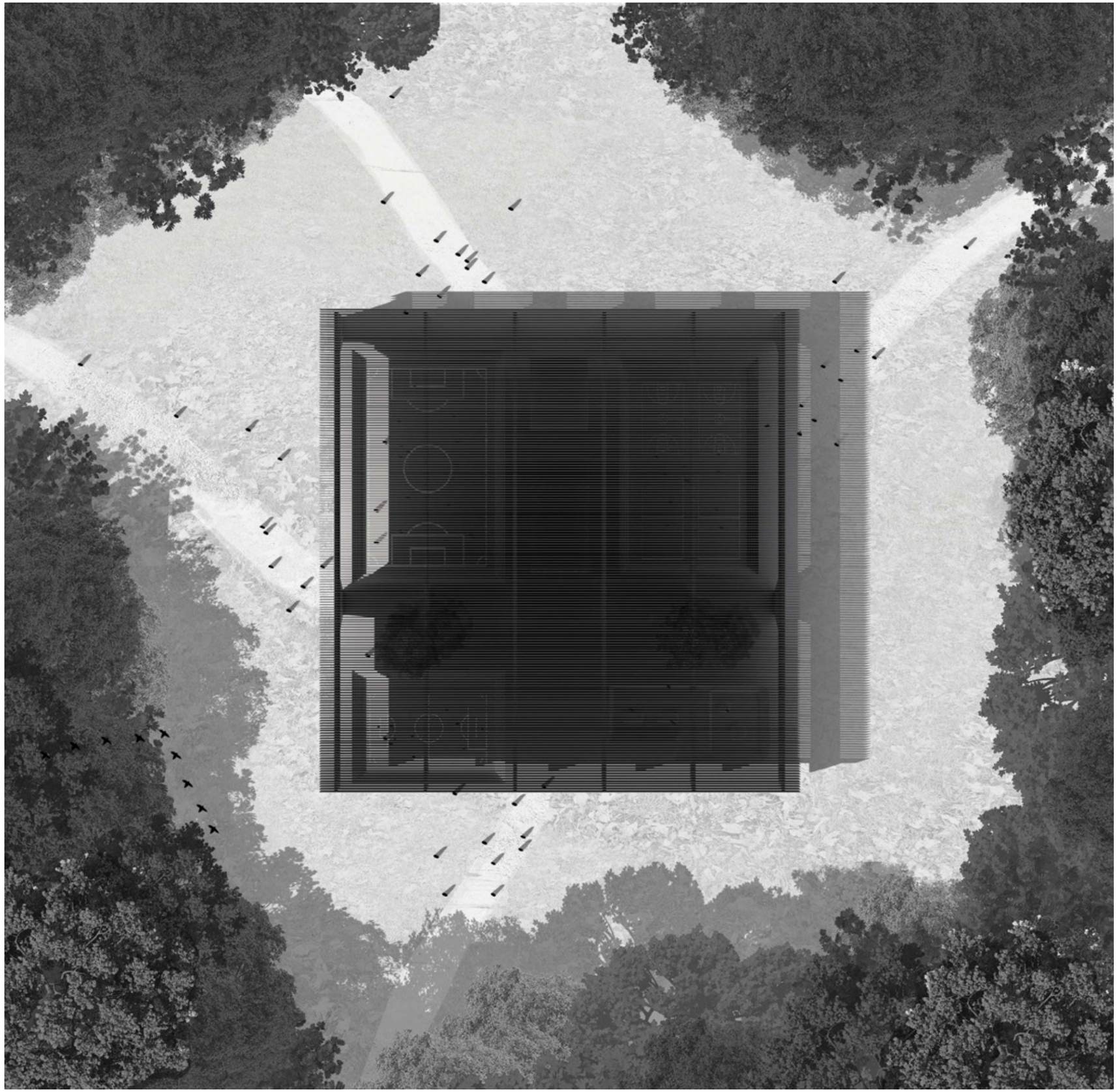
Preliminary architectural design of a sports center, based on the central concept of a megastructure built using one single material, concrete. The main goal is to push the limits of concrete structures, inspired by the brutalist works of Paulo Mendes da Rocha.

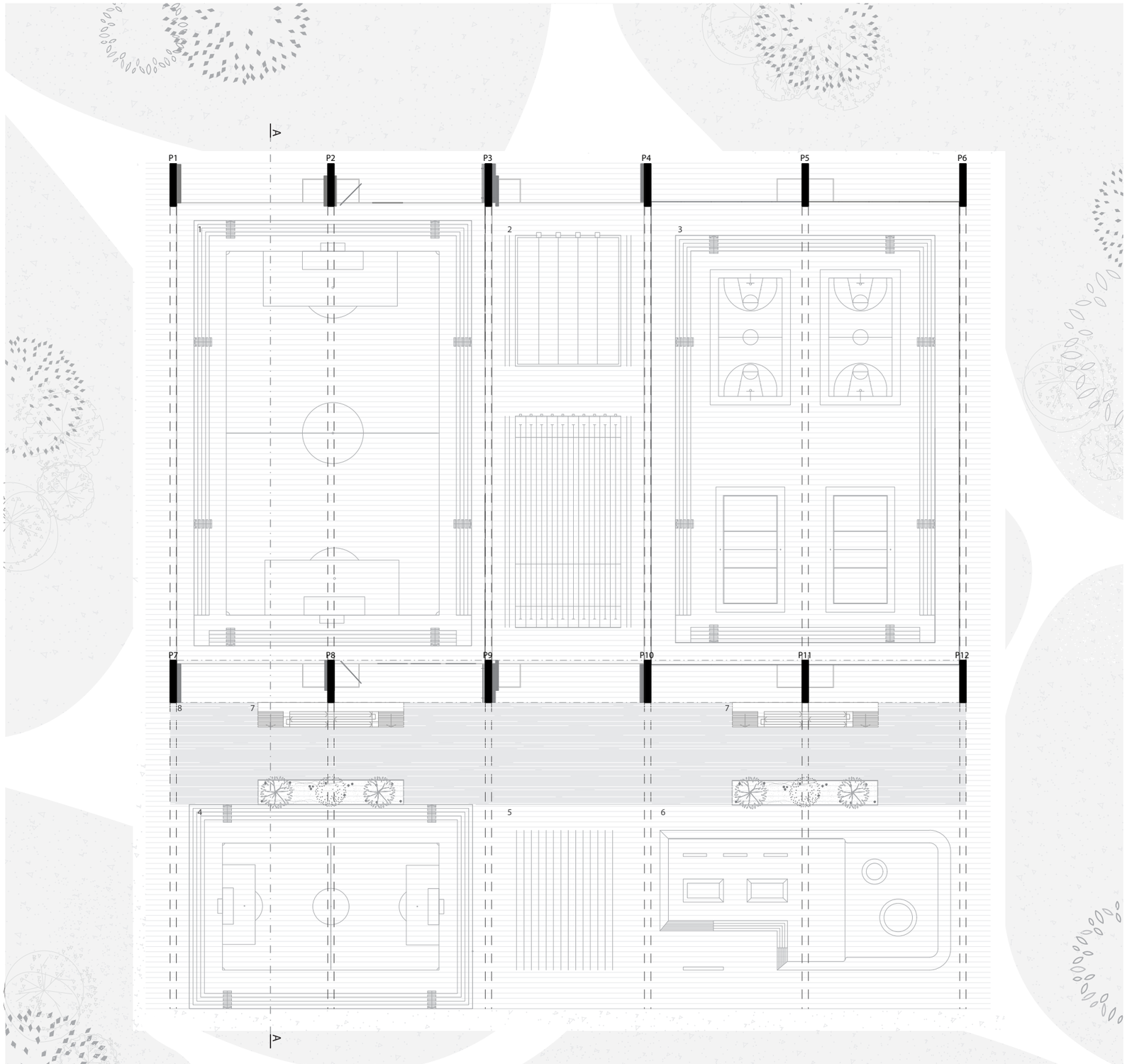
This project is characterized by its prominent longitude, structured by its six lines of pillars, with primary and secondary beams running from side to side.

The sports center is divided into different areas, connected transversally by a circulation pathway that includes various facilities

**Mentors:** Luciana Echevarria | Pablo Frontini | Marcelo Roux

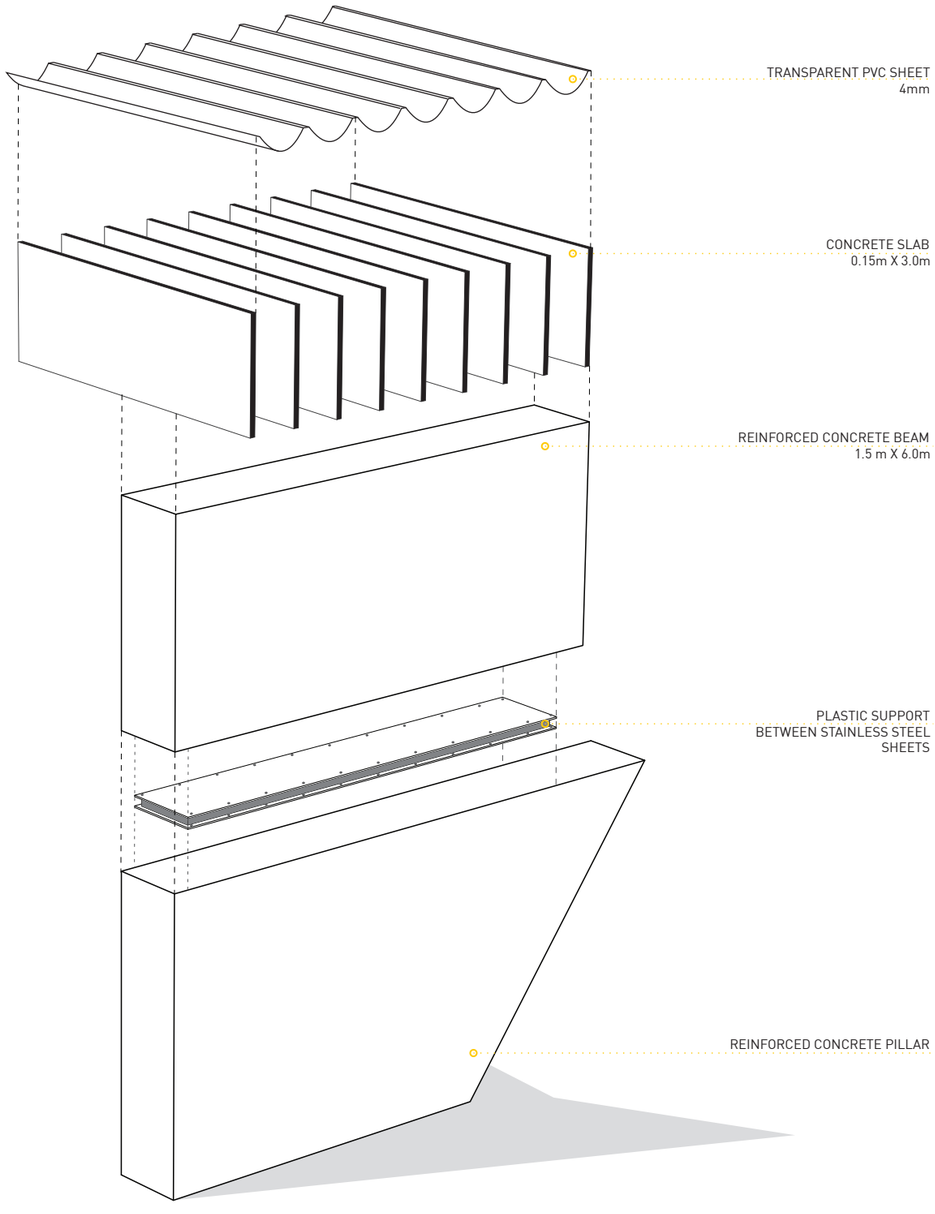
**Members:**
Valentina Machado (design, structure, 2D and 3D visuals)
Rocio Corbo (design, structure, 2D visuals)

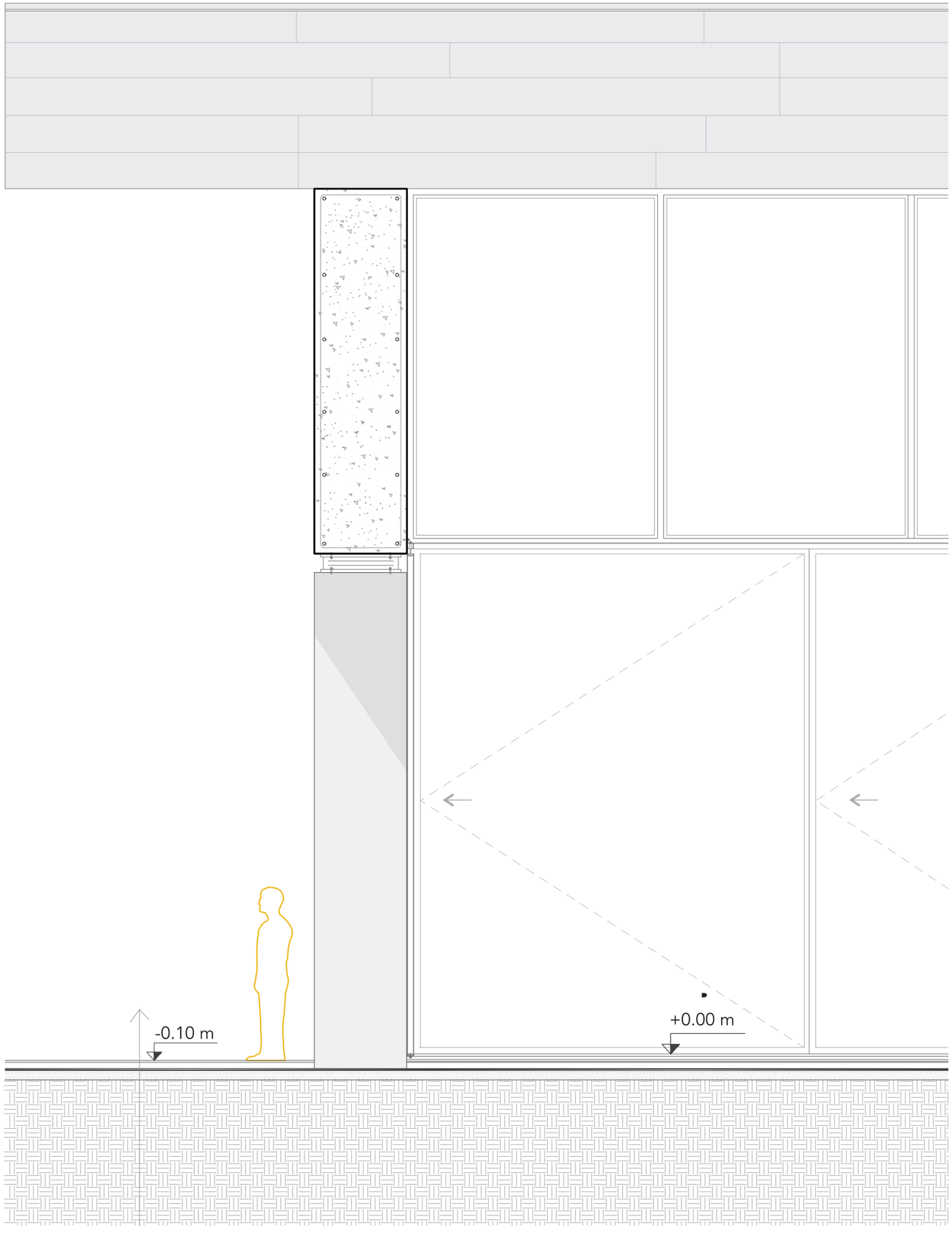




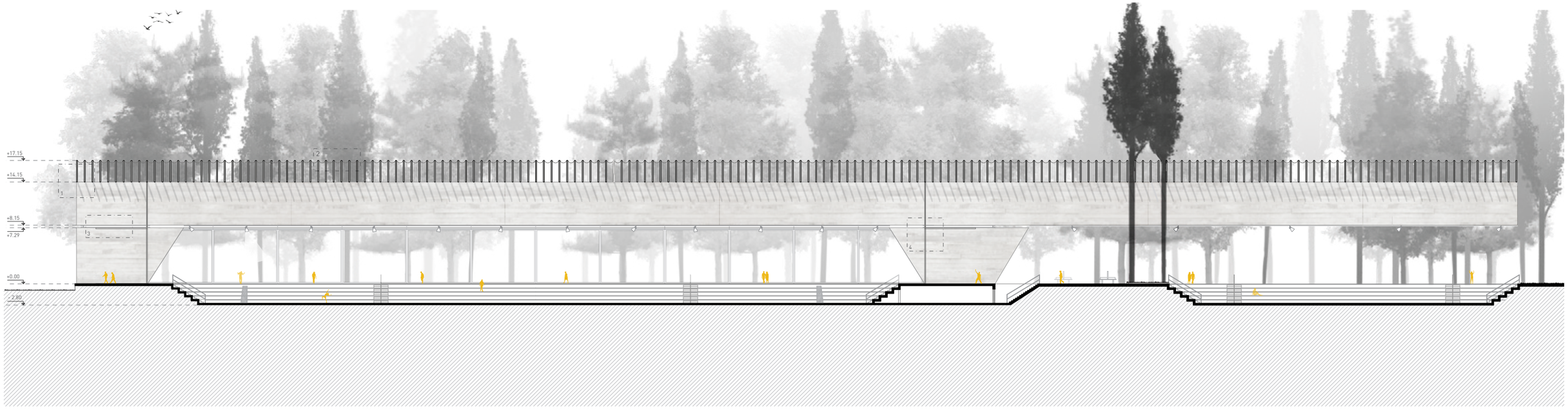

Top: Exterior view
Left: Ground Floor

1.FOOTBALL FIELD | 2.OLYMPIC POOL | 3.VOLLEYBALL AND BASKETBALL | 4.SEVEN-A-SIDE FOOTBALL | 5. OUTDOORS GYM | 6.SKATE | 7.FACILITIES | 8.MAIN CIRCULATION




Left: Structure diagram
Right: Construction detail
Graphic scale




Top left: Interior view | Top Right: Exterior view
Bottom: A-A Section cut
Graphic scale

# LAKEVIEW HOTEL

**Architectural design studio**

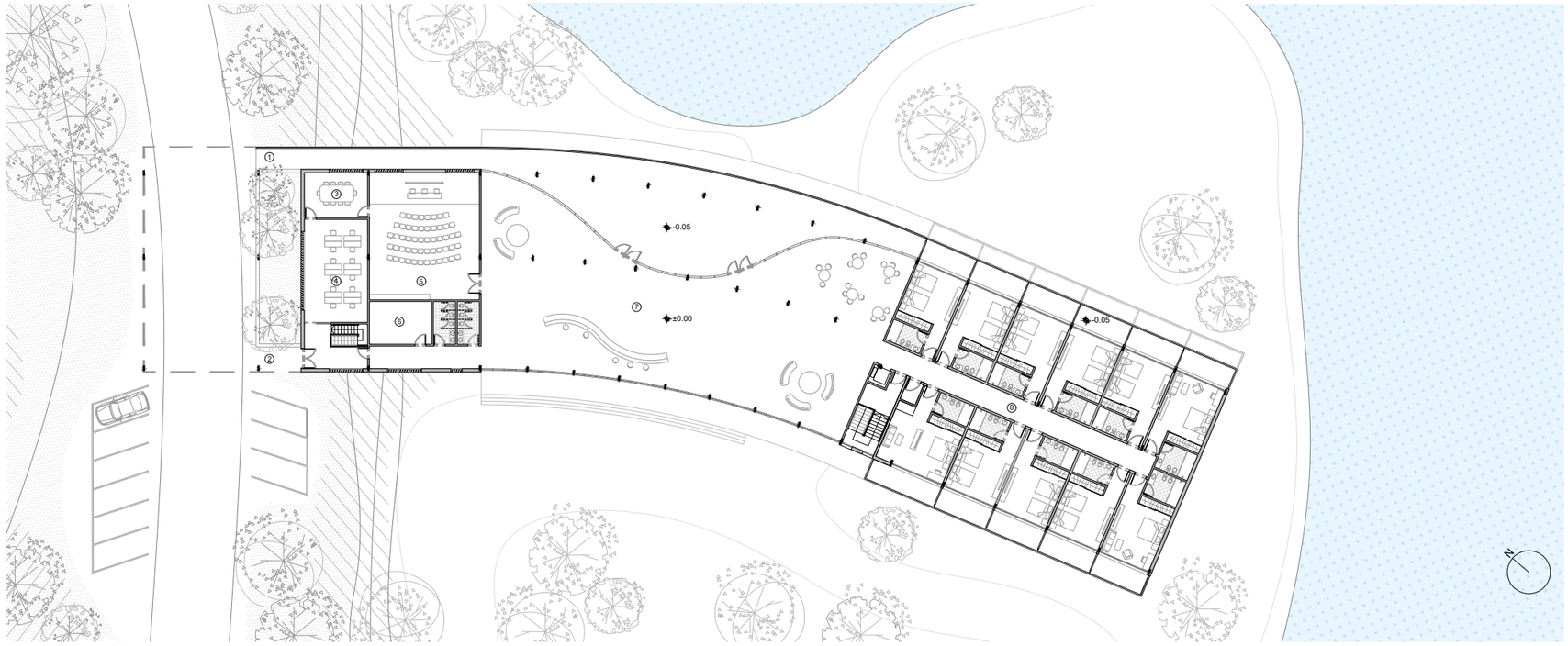
**Project topic:** Hotel
**Location:** Montevideo, Uruguay
**Year:** 2017

Located at the base of an abandoned quarry in the outskirts of Montevideo, this project is born from two ideas.

On the one hand, the quest to create a fluid transition between the public, semi-public and private spaces. This form is achieved by building curves that follow the topography of the quarry, with a top accessway that moves until reaching the rooms. On the other hand, the incorporation of new and innovative materials like cross-laminated timber. This gives the buildings the flexibility and structural safety of concrete while having a minor environmental impact. Furthermore, it creates more natural textures in concordance with its surroundings.

**Mentors:** O. Ferreyra | C. Sitya | A.Fernandez | G. Parodi | P. Inzaurralde

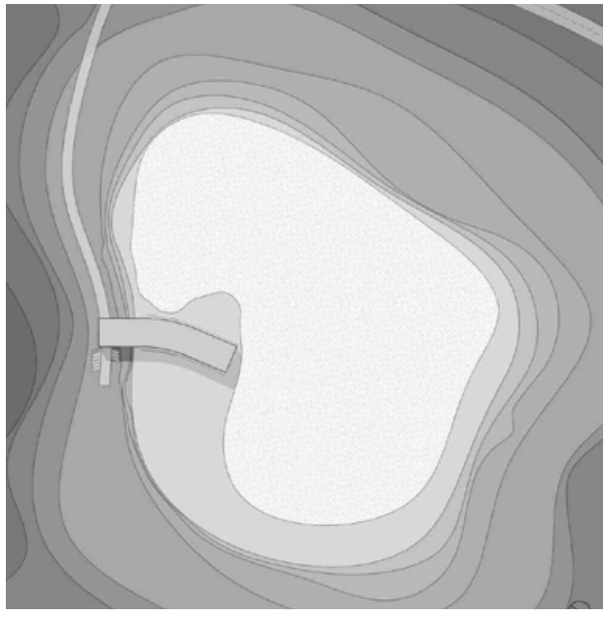
Solo project

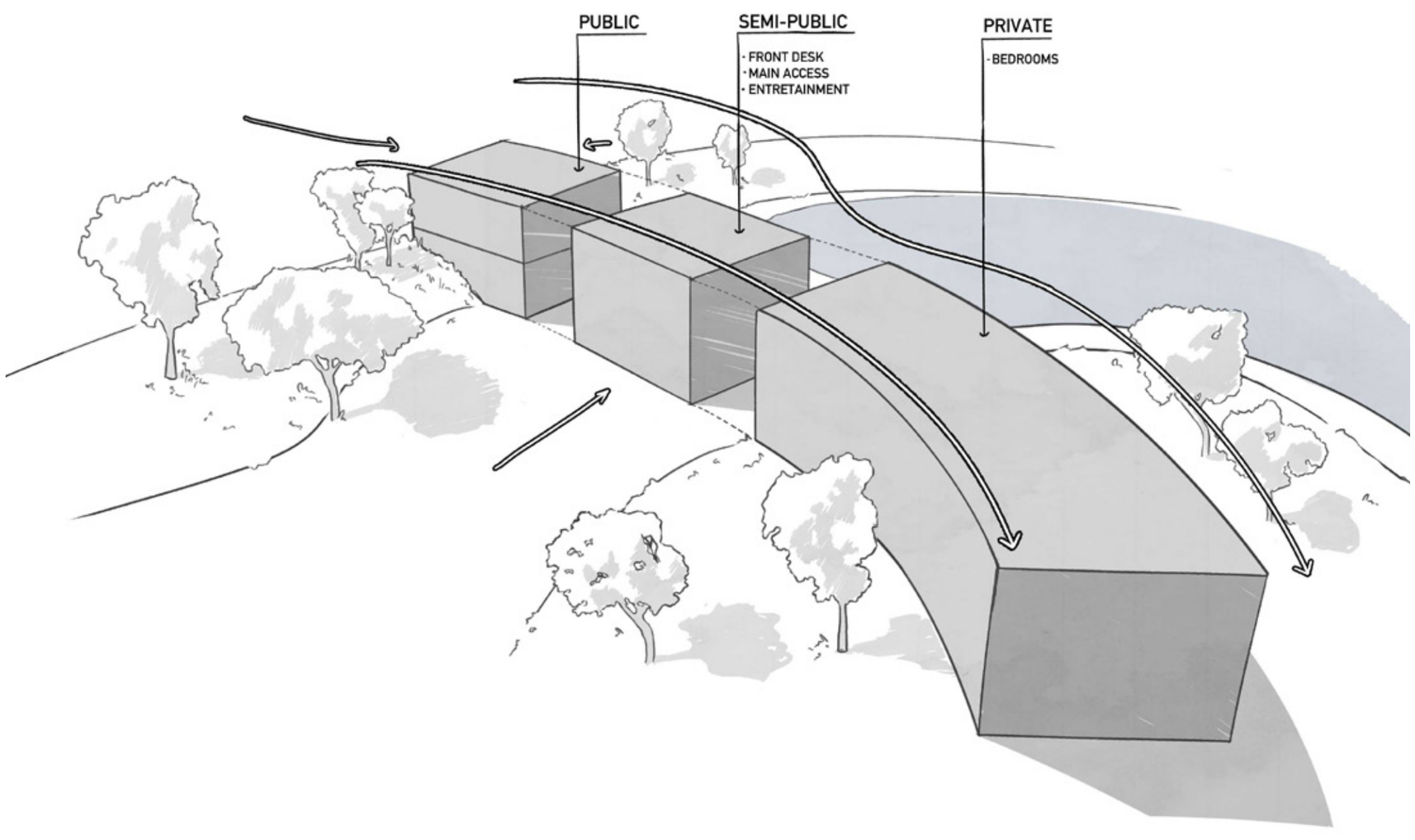




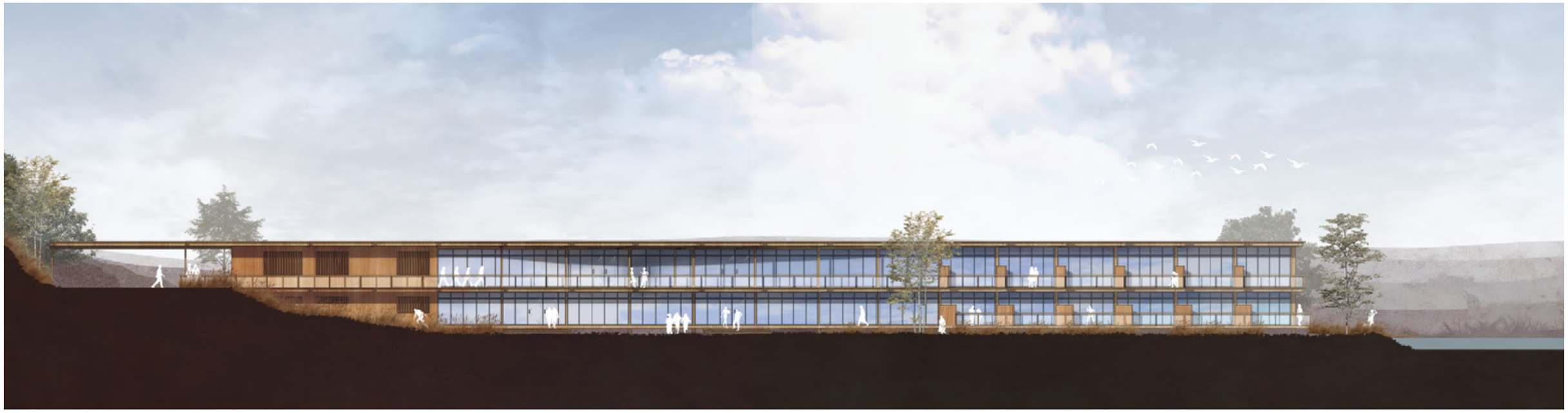
Top: First Floor
Bottom: Ground Floor
1:500 scale

1.MAIN ACCESS | 2.SECONDARY ACCESS | 3.MEETING ROOM | 4.ADMINISTRATION | 5.PRESS ROOM | 6.COATROOM | 7.FRONT DESK | 8.PRIVATE ROOMS | 9.LAUNDRY ROOM | 10.LOCKER ROOM | 11.DEPOSIT | 12.BUFFET | 13.KITCHEN | 14.COLD ROOM | 15.PANTRY | 16.RESTAURANT | 17.BAR/ LOUNGE | 18.REC ROOM | 19.GYM | 20.PHYSIOTHERAPY | 21.SAUNA






Top: Project Overview and Location
Right: Concept sketch



Top Right: Main entrance view
Top Left: Interior view of the common area
Bottom: Territorial section