

Work Samples 2023  
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Work Samples

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Projects 2023

December 2022

# Final Project

Type Diego serna  
Team Avril figueroa  
Rodrigo Vargas, instructor

DIEGO SERNA — Work Samples

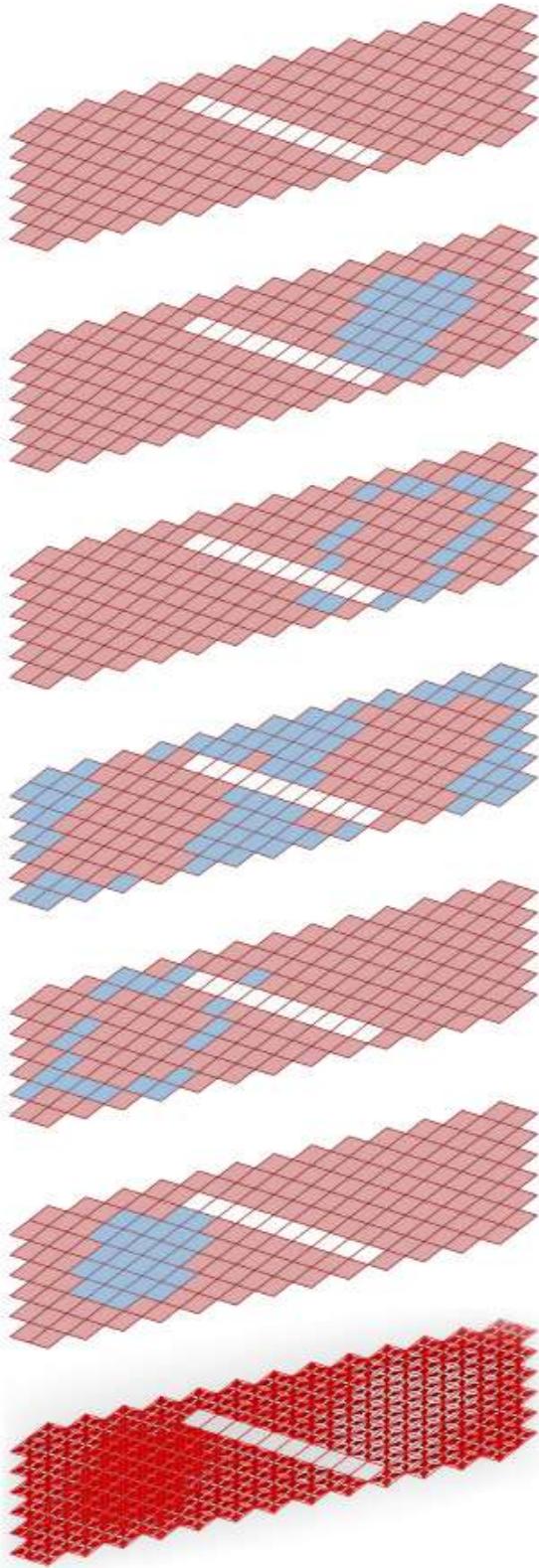
This thesis project will be approached as an opportunity to delve deeper into the development and implications of digital media, particularly those focused on parametric design, within an architectural design process. It will encompass both the theoretical aspect (concepts and history) that accompanies the digital parametric process, as well as the practical aspect aimed at comprehending, through exploration, the logic of thought and formal possibilities enabled by these design tools. Furthermore, within the exploration process, the development of a public space covering system will serve as an experimental laboratory.

This project functions as a means to explore the elements, concepts, and tools of digital parametric design.

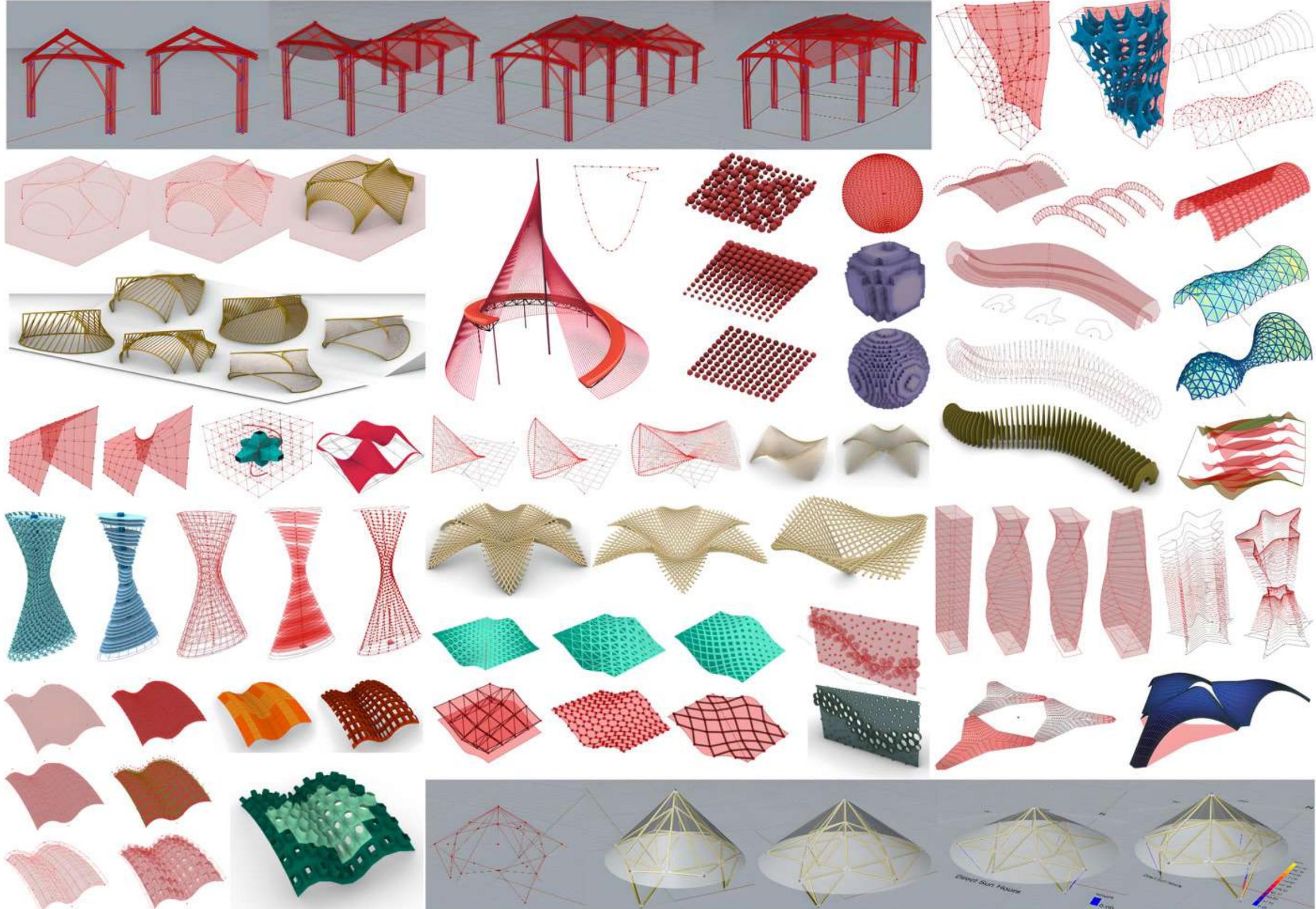
The working methodology is divided into two stages:

i) Instrumental Exploration: This stage aims to serve as an introduction to the digital tool interface and an approach to parametric thinking in the way of conceptualizing and transforming geometry. It also allows for the design and collection of algorithms that will serve as complements for the development of the second stage.

ii) Creative Project: In this stage, a public space covering system will be designed for the "Galería La Nave" and the "Cancha Canasteros." This design will seek adaptability, variability, and efficiency characteristics through the application of concepts and processes of parametric design, focused on geometric generation and its subsequent transformation based on climatic and physical simulations.



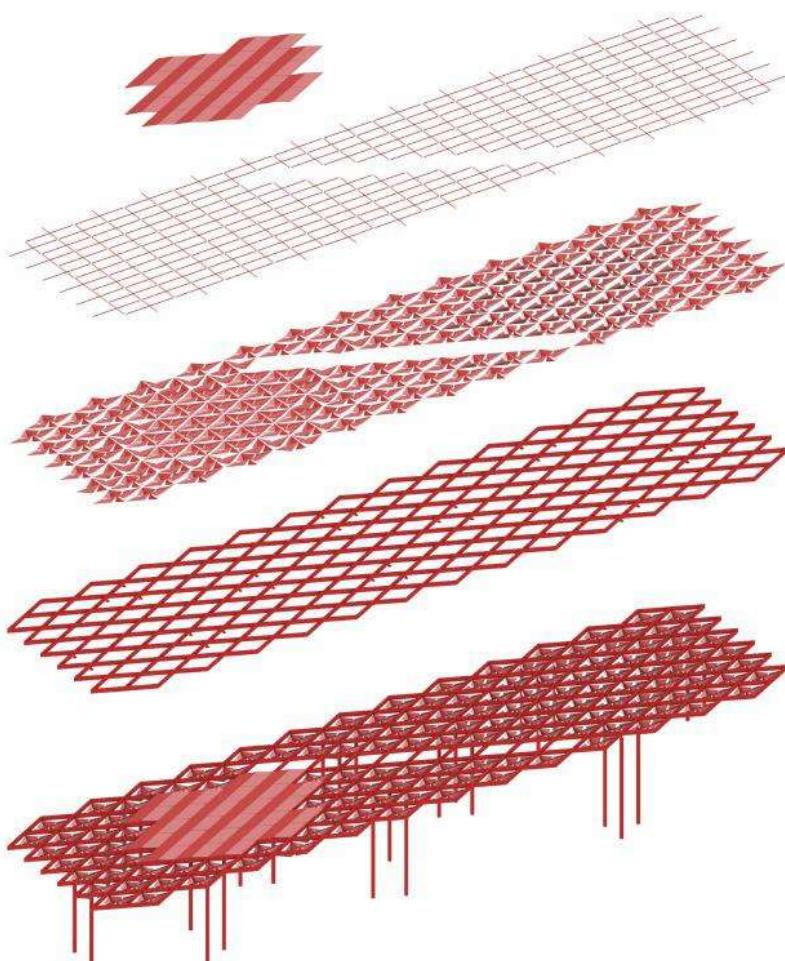
### Algoritmo para la zonificación los módulos



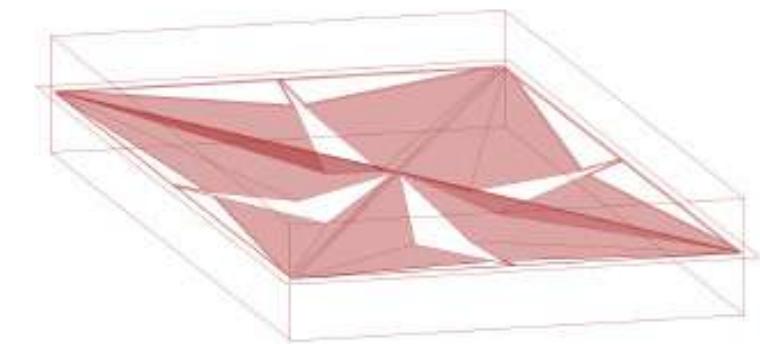
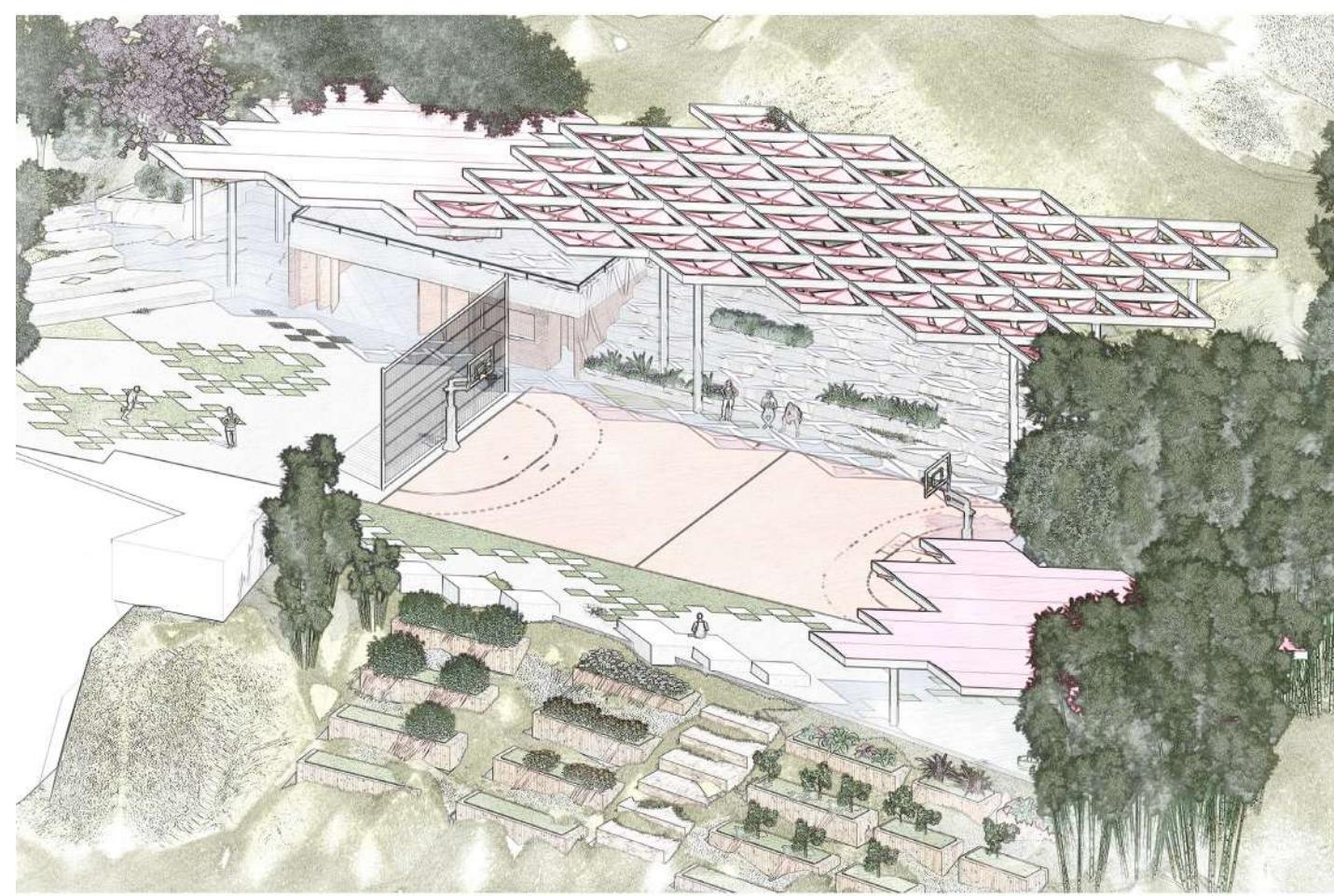
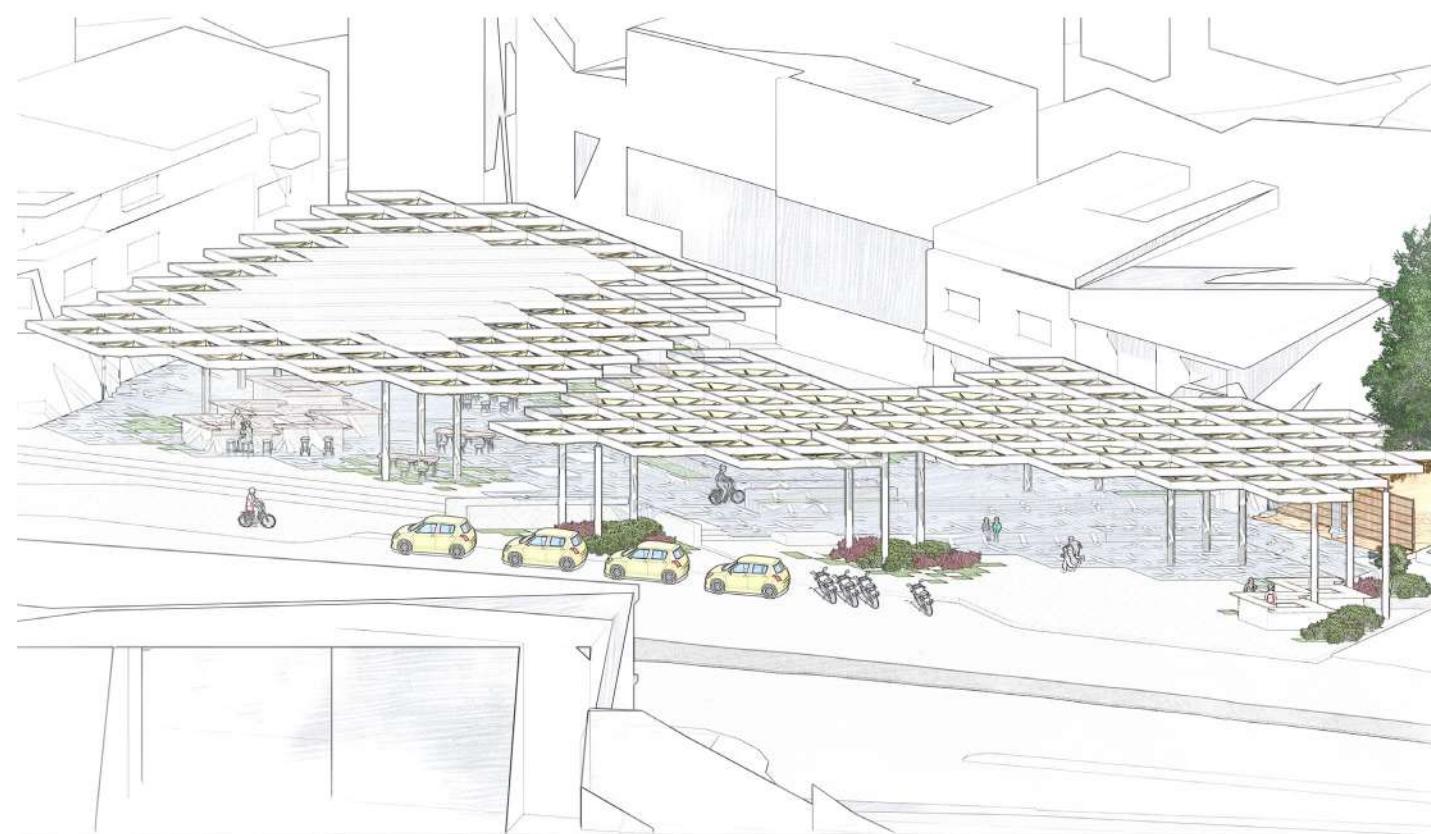
## Creative Project:

The design of a public space covering system is proposed, which, as a system, incorporates traits of replicability, variability, adaptability, and efficiency, while also serving as an architectural element that visually characterizes the location in which it is implemented. The proposal envisions two scenarios in the Siloé sector of Santiago de Cali: the "Galería la Nave" and the "Cancha Canasteros".

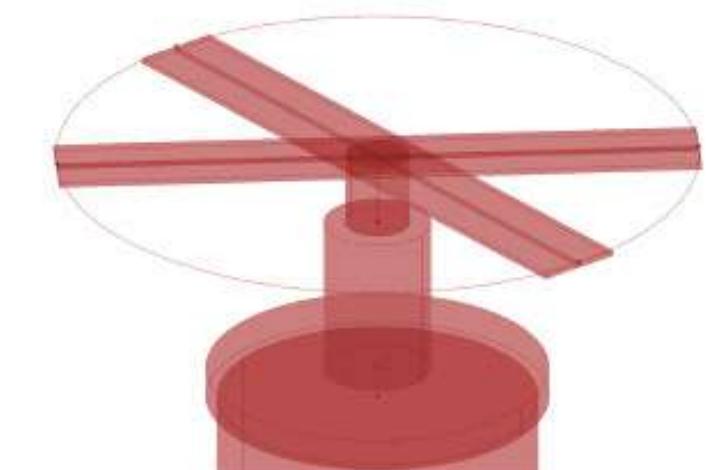
The goal is to actualize the exploration of digital tools and demonstrate the contribution of parametric design processes in relation to variability, adaptability, and efficiency in the development of architectural elements.



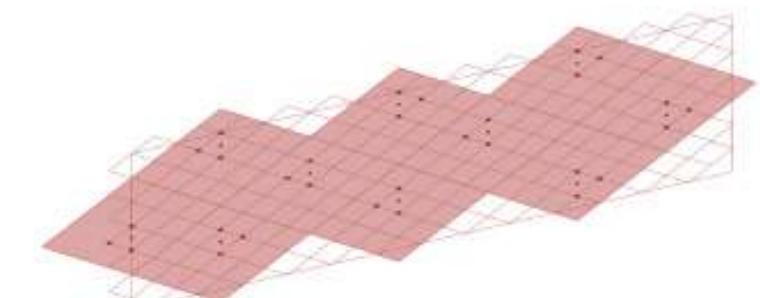
for engaging with the structures.



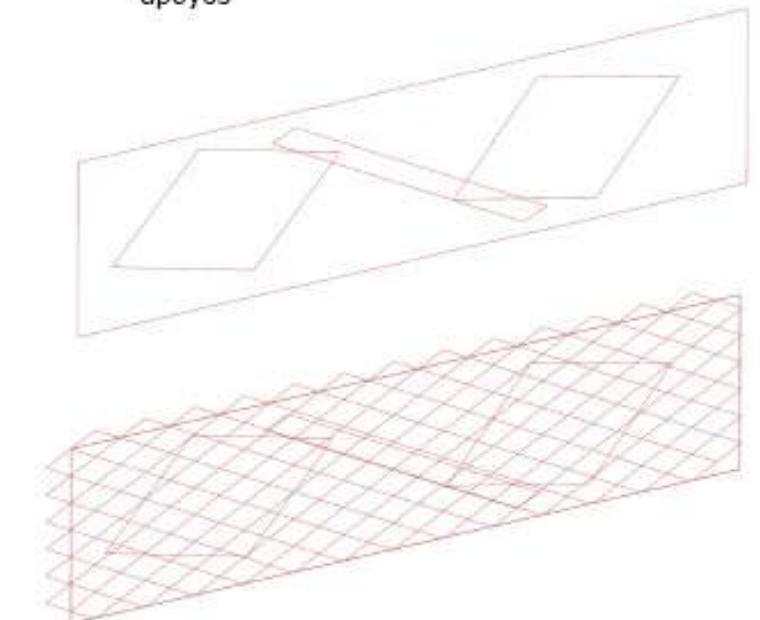
Panel



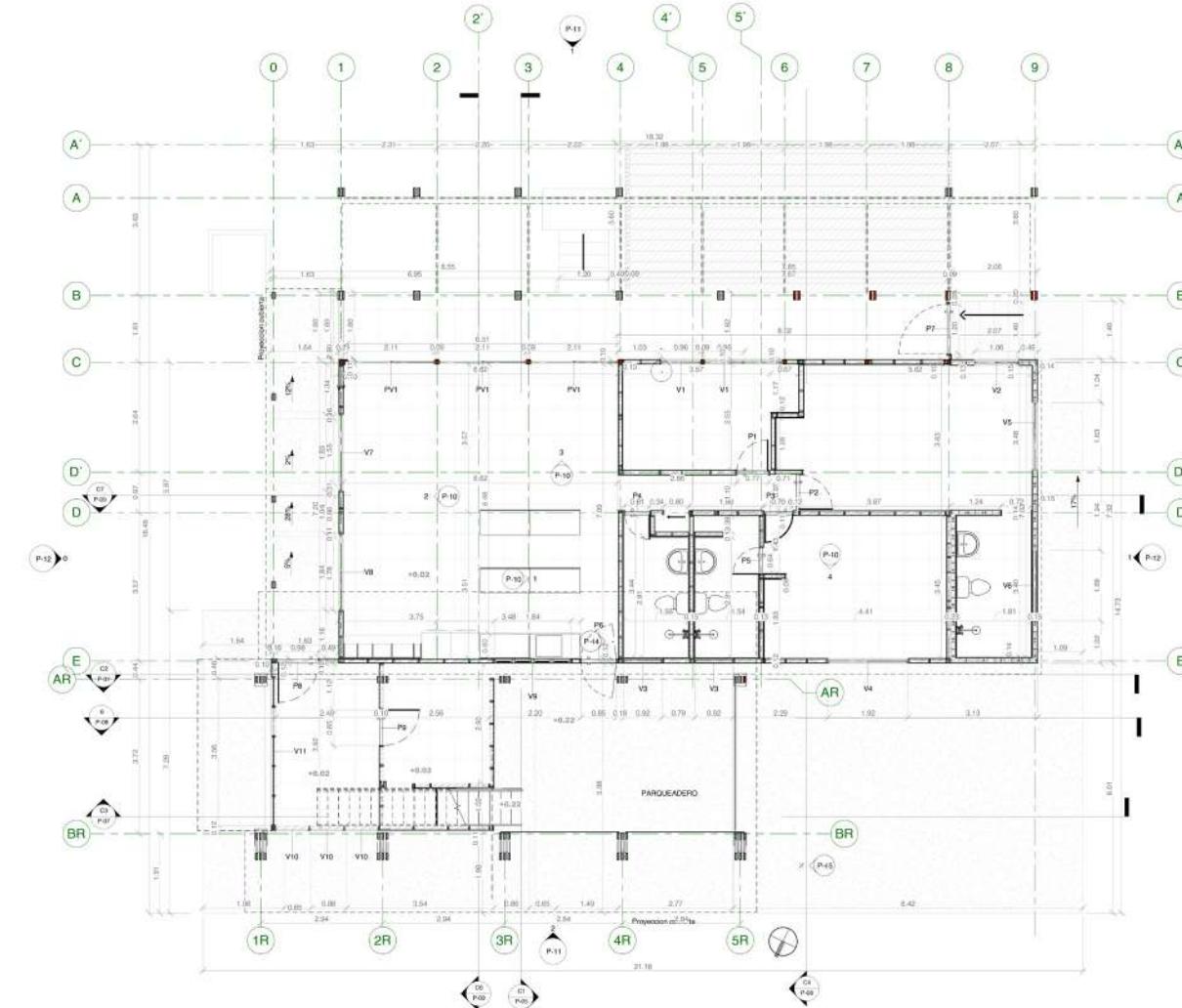
Detalle unión columna-viga



Algoritmo ubicación de puntos para grupos de apoyos



Línea de zonificación de módulos



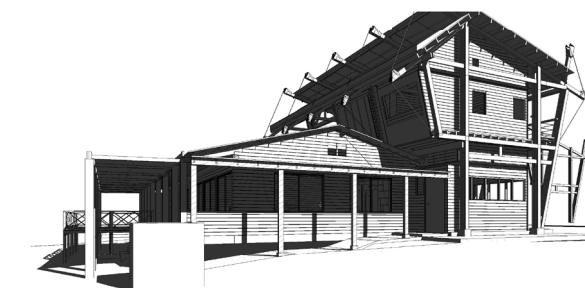
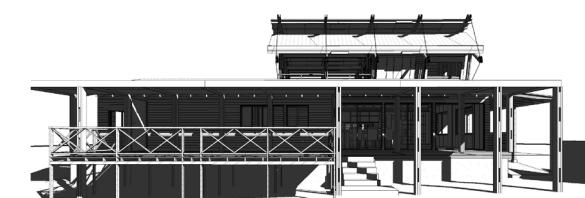
2020-2021

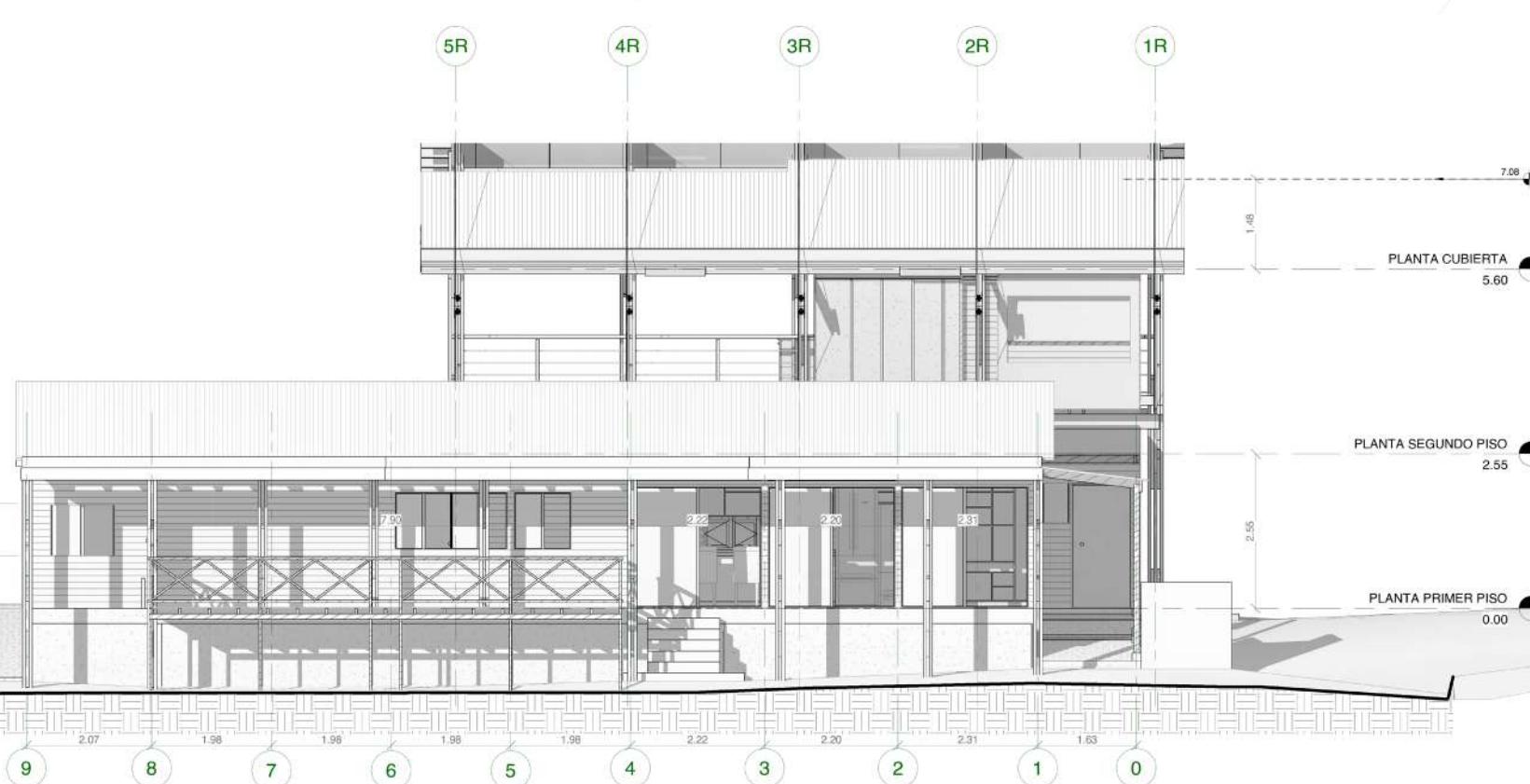
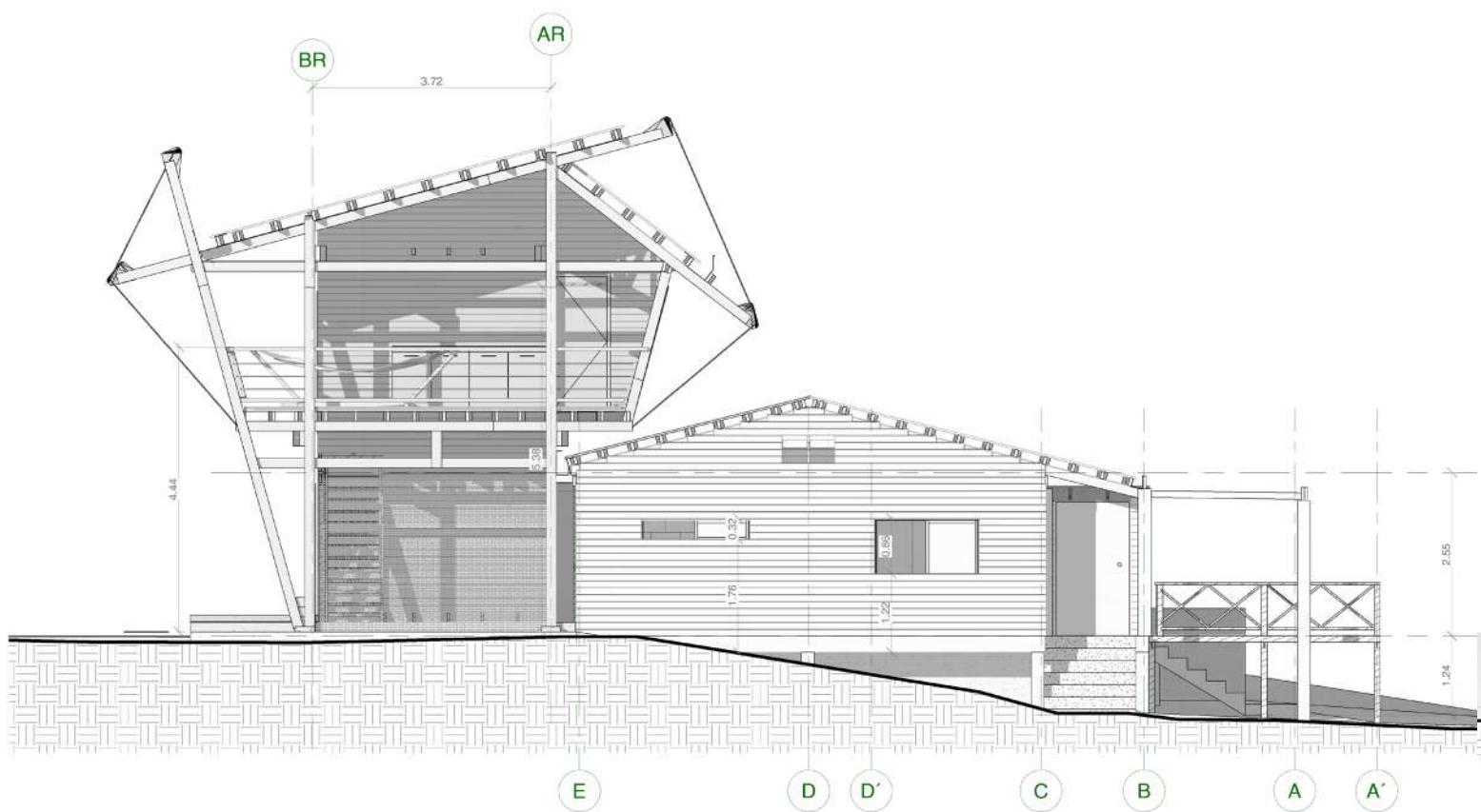
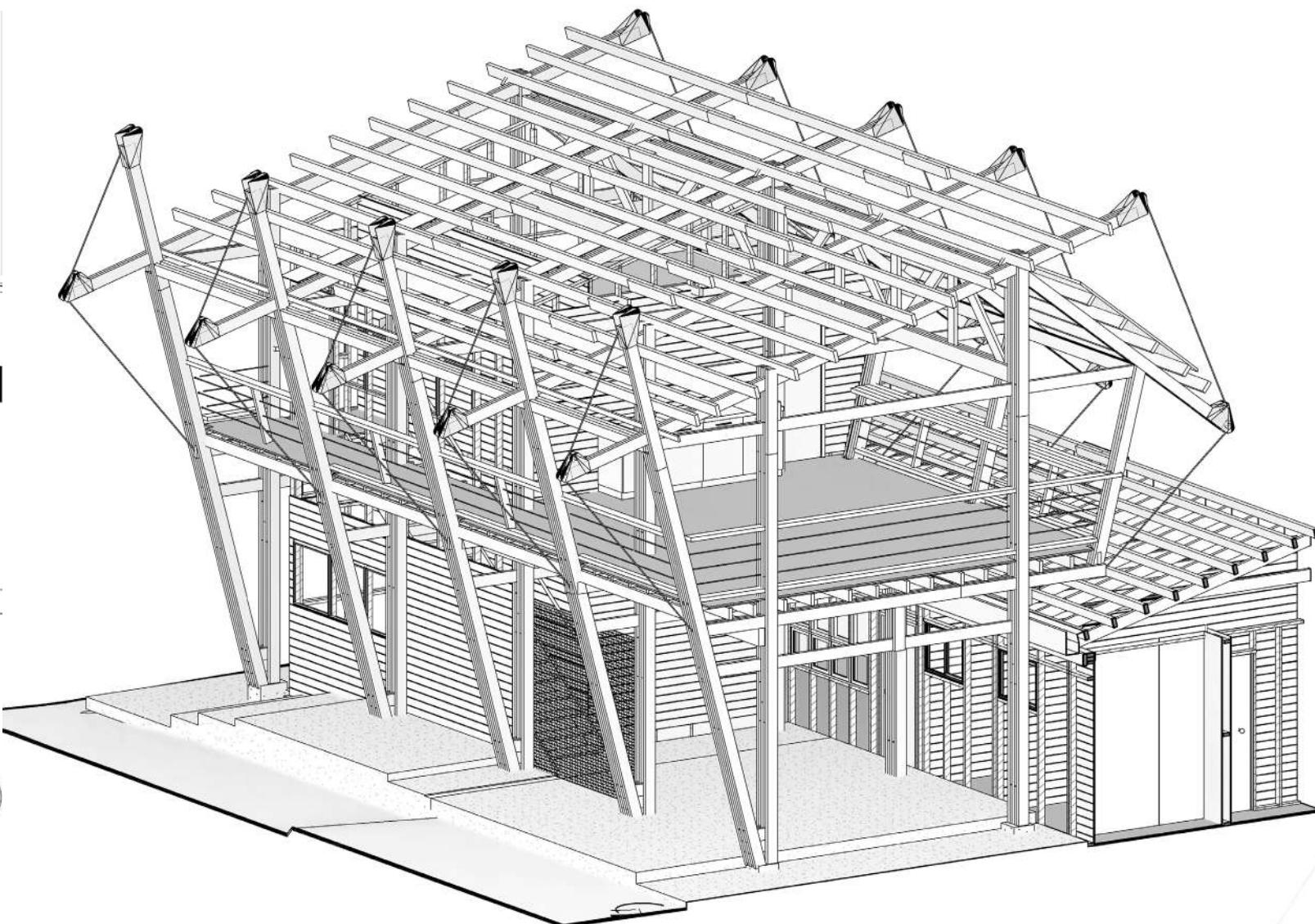
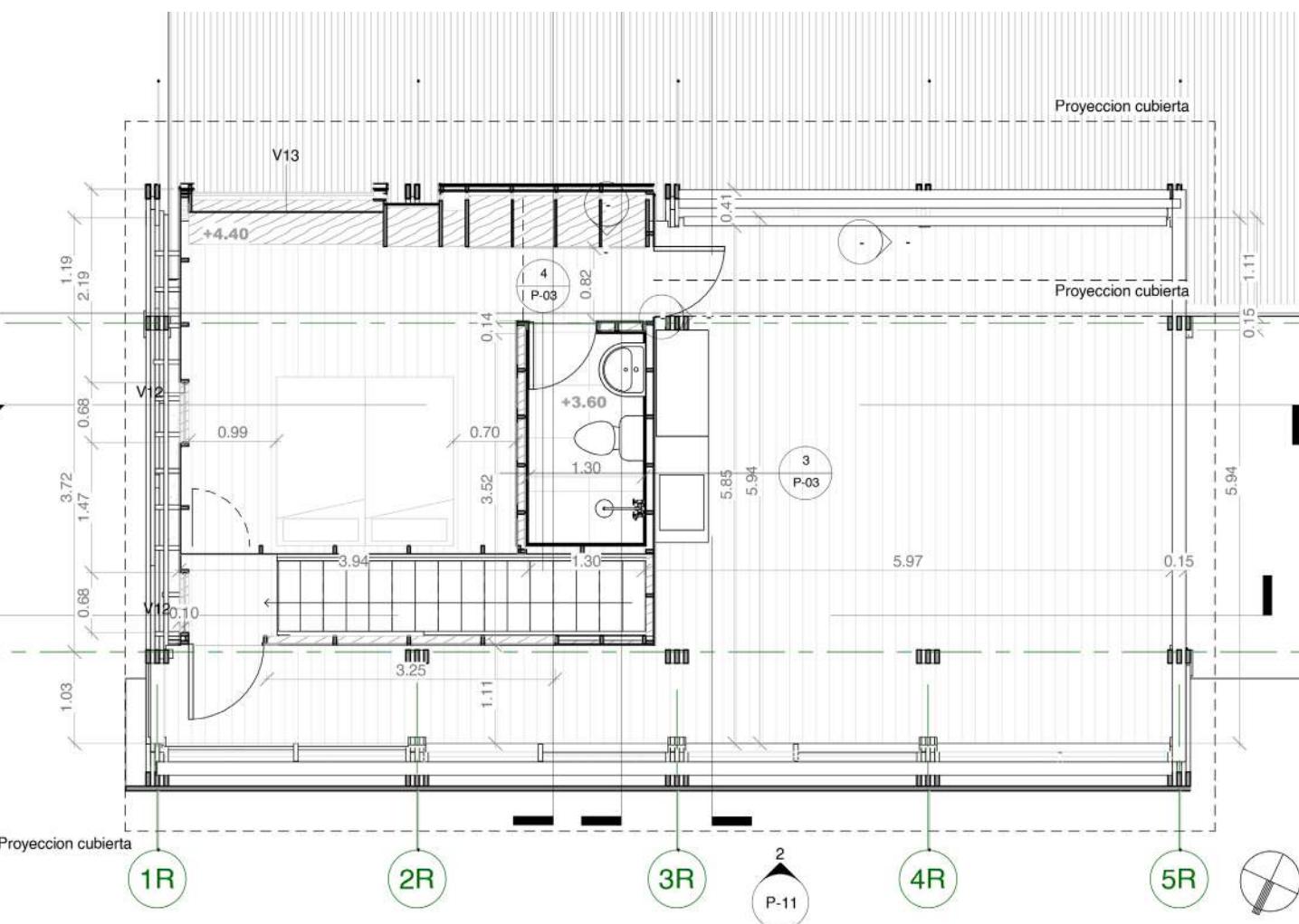
## Rec Residence

Type      Design Visualisation  
 Team     Diego Serna  
           Joaquin molina, Avril Figueroa

Rec Residence, deeply intertwined with Providencia Island's history, emerges as a resilient response to Hurricane Julian's destruction. It embodies a dual purpose, serving not only as a functional home but also carrying a message of commitment to the environment and local community.

Structurally, Rec Residence stands out with its innovative use of materials. Its framework blends steel tensioners and wooden elements, not only providing stability but also bridging the gap between tradition and modernity. Precisely executed connections and details fuse technical resilience with visual aesthetics, harmonizing function and artistry. Of note is the integration of the new structure with existing foundations, respecting history and preserving a dialogue between past and innovation. The expansive sea view establishes an unbroken link with nature, underlining the relationship between architecture and the maritime surroundings. This panoramic vista enriches the living experience while highlighting sustainability and harmonious coexistence with nature—core values encapsulated in Rec Residence's professional commitment.





December 2021T

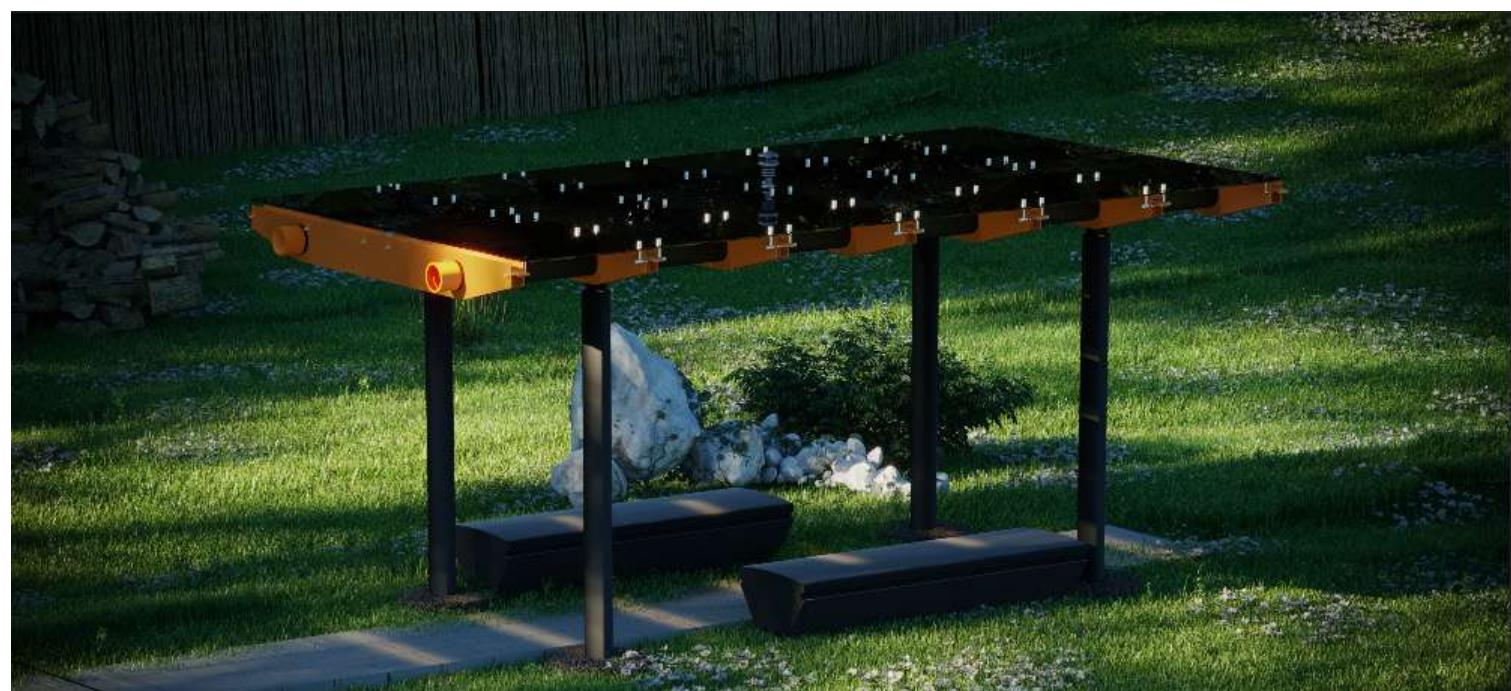
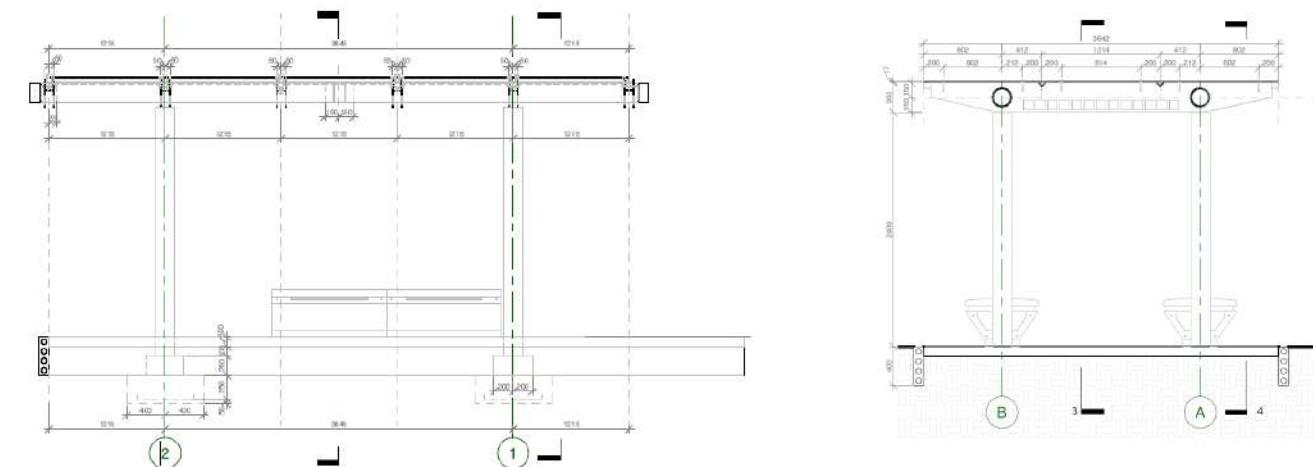
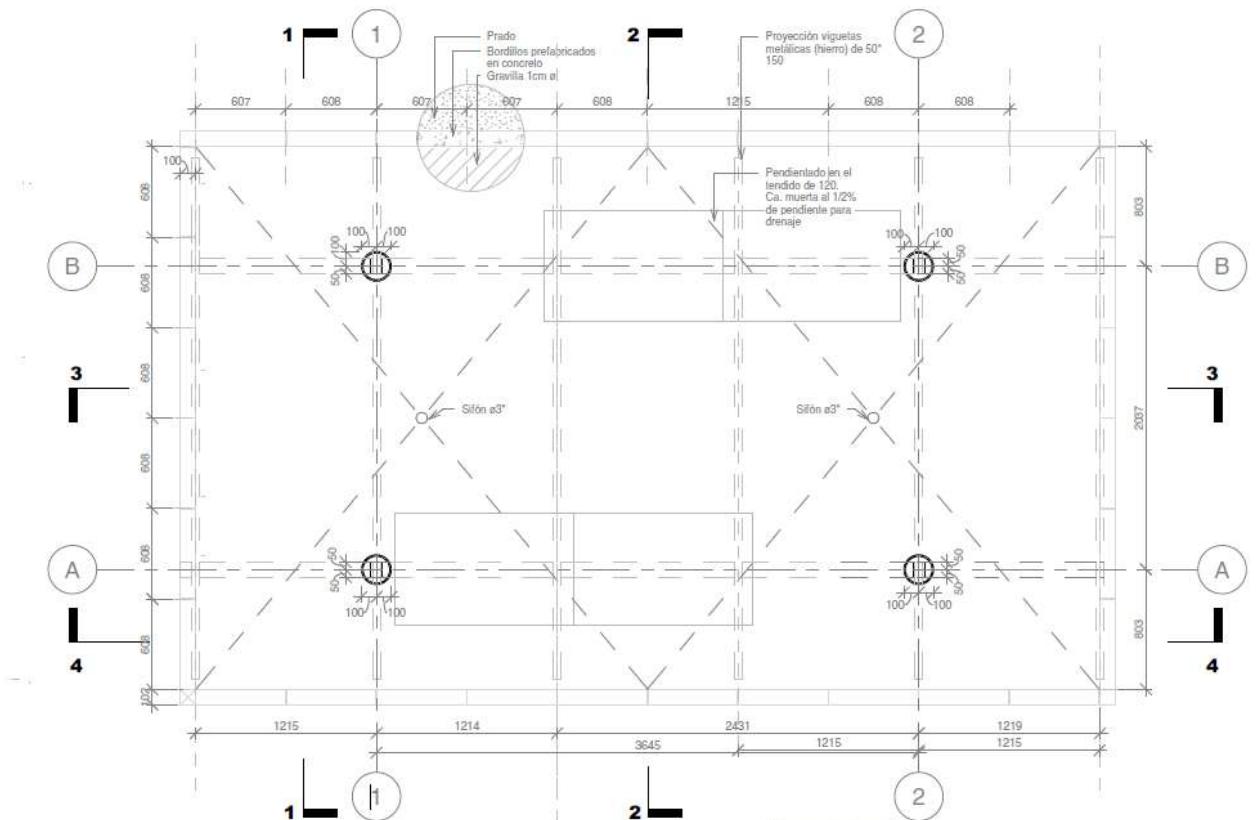
# Roof / UV

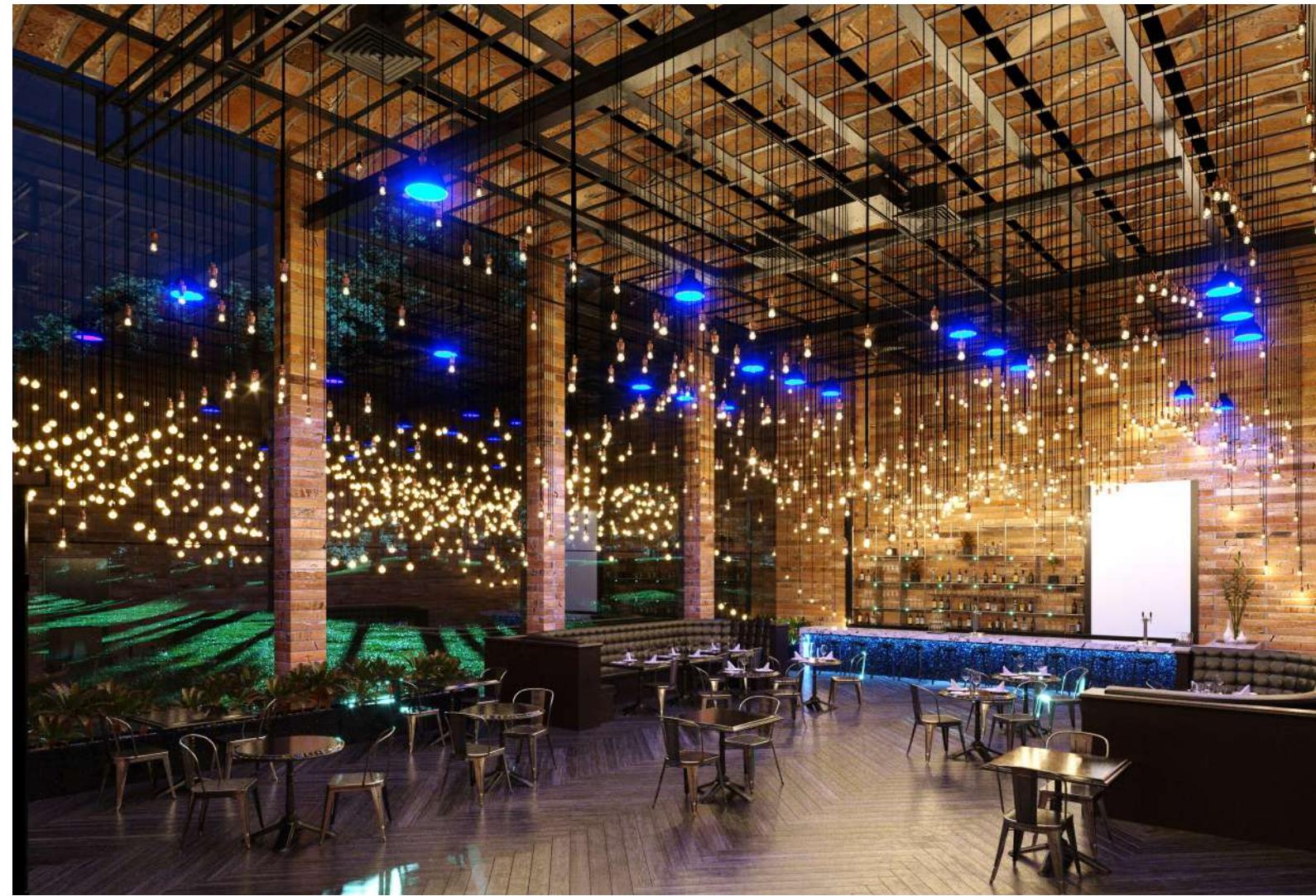
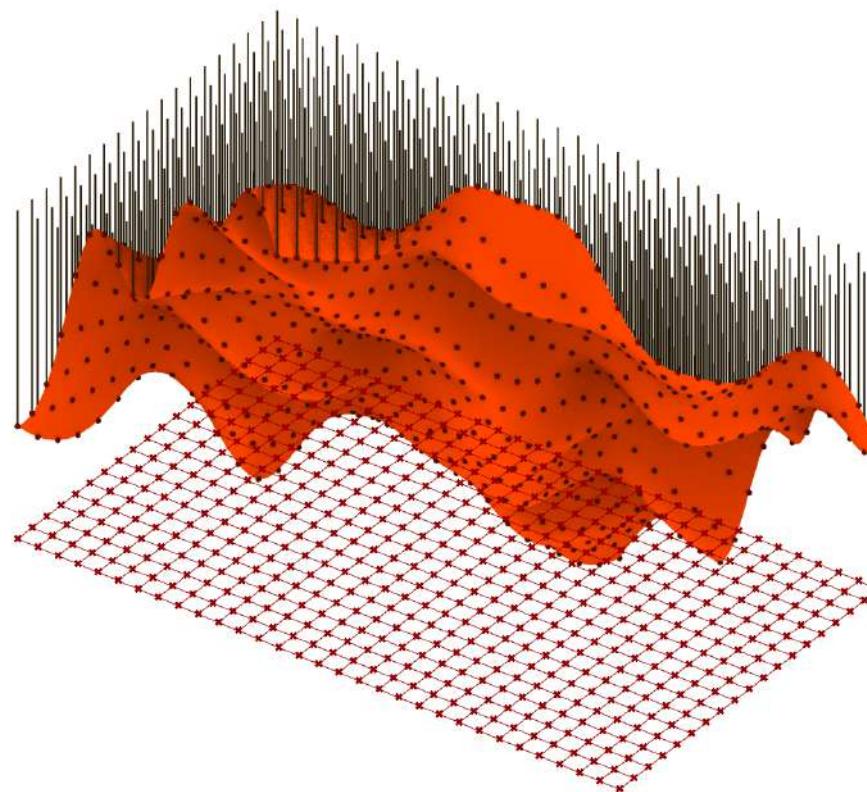
Type  
Team

Desing, Infrastruture  
Diego Serna  
Jimmy Gutierrez - Francisco Ramirez  
Avril Figueroa

This urban furniture is a pergola equipped with an intelligent electronic system that provides artificial light, USB charging, and environmental measurements. The electronic system includes intelligent functionalities such as activating LED lights when ambient light is insufficient. It also interacts with users by detecting their presence and adjusting the LED lights accordingly. The pergola allows for the charging of wired and wireless devices, and it incorporates sensors to measure temperature, humidity, solar radiation, UV intensity, airborne particles, and air quality. The system can be reprogrammed, and its energy is primarily sourced from unconventional renewable energy, with an energy storage backup. If needed, it can utilize the public power grid. The pergola can also provide power to adjacent furniture. While solar pergola products are not widely available, some solutions with photovoltaic panels exist, offering energy generation and weather protection.

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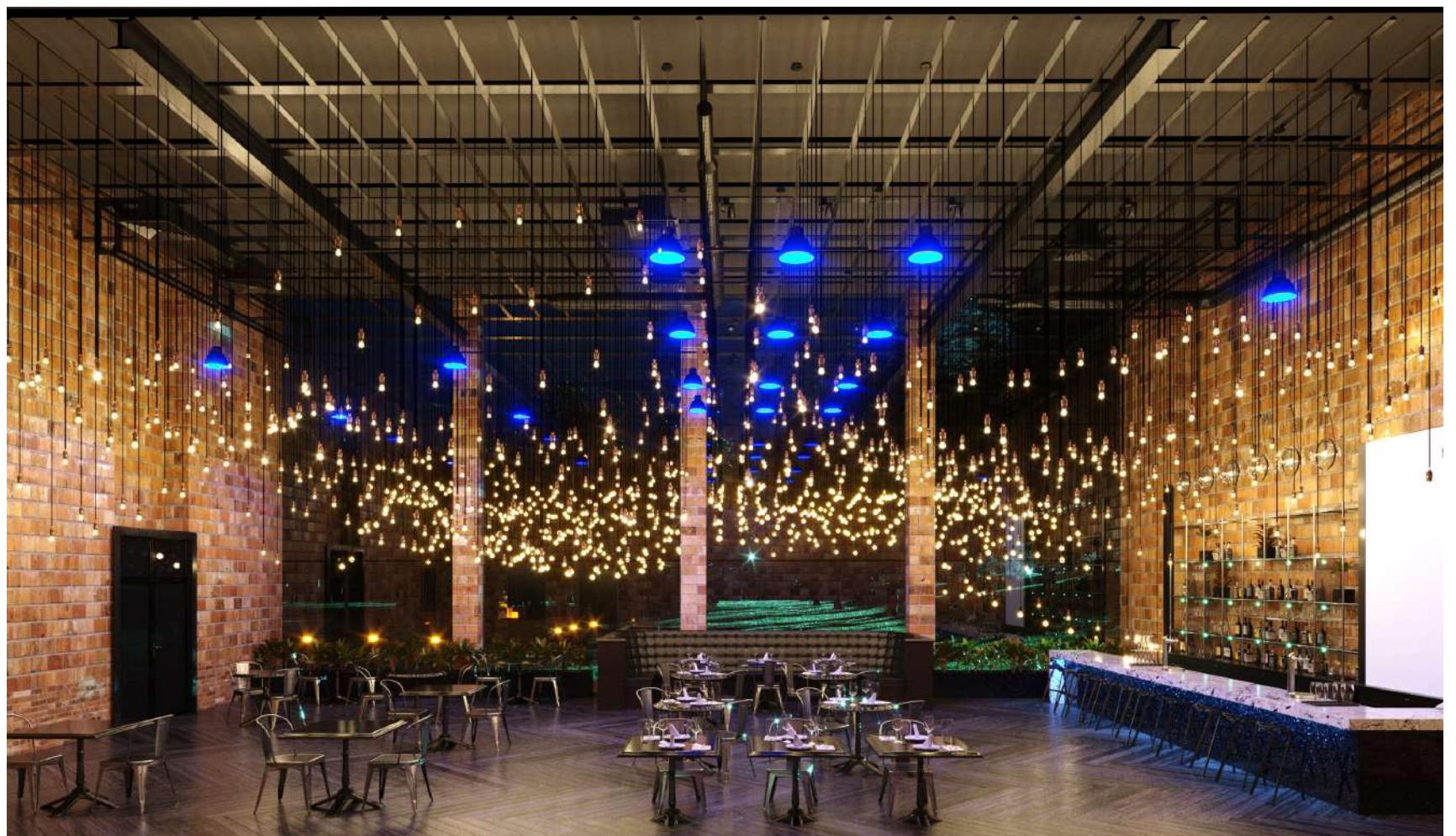


April 2023  
**Surface Restaurant**

Type      Design - Visualisation  
 Diego Serna

The "Surface Restaurant" project emerges from an innovative parametric concept of an irregular surface. The central premise is to utilize this surface as both an artistic and functional medium for illumination. By suspending light bulbs, a surface is generated that provides light and personality to the space. The idea revolves around materializing design concepts through this structure, where the interplay of light and form comes to life. The exploration of this combination gives rise to a highly personal project, aimed at materializing design and rendering ideas, resulting in a captivating and unique environment.

The project's focus extends to meticulous 3D modeling and detailing. Through advanced digital tools, the irregular surface is translated into an intricate and visually engaging structure. The precise modeling captures the interplay of light and shadow, elevating the sensory experience within the space.



February 2023

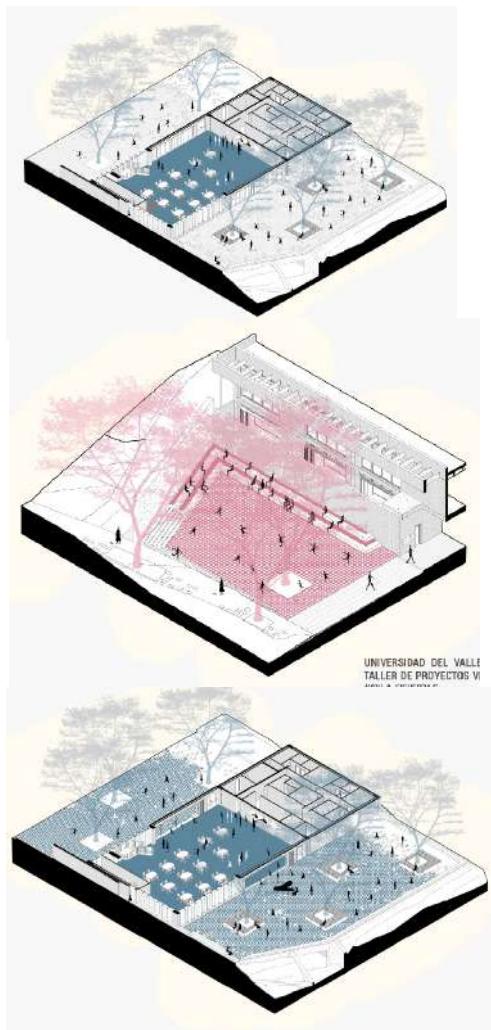
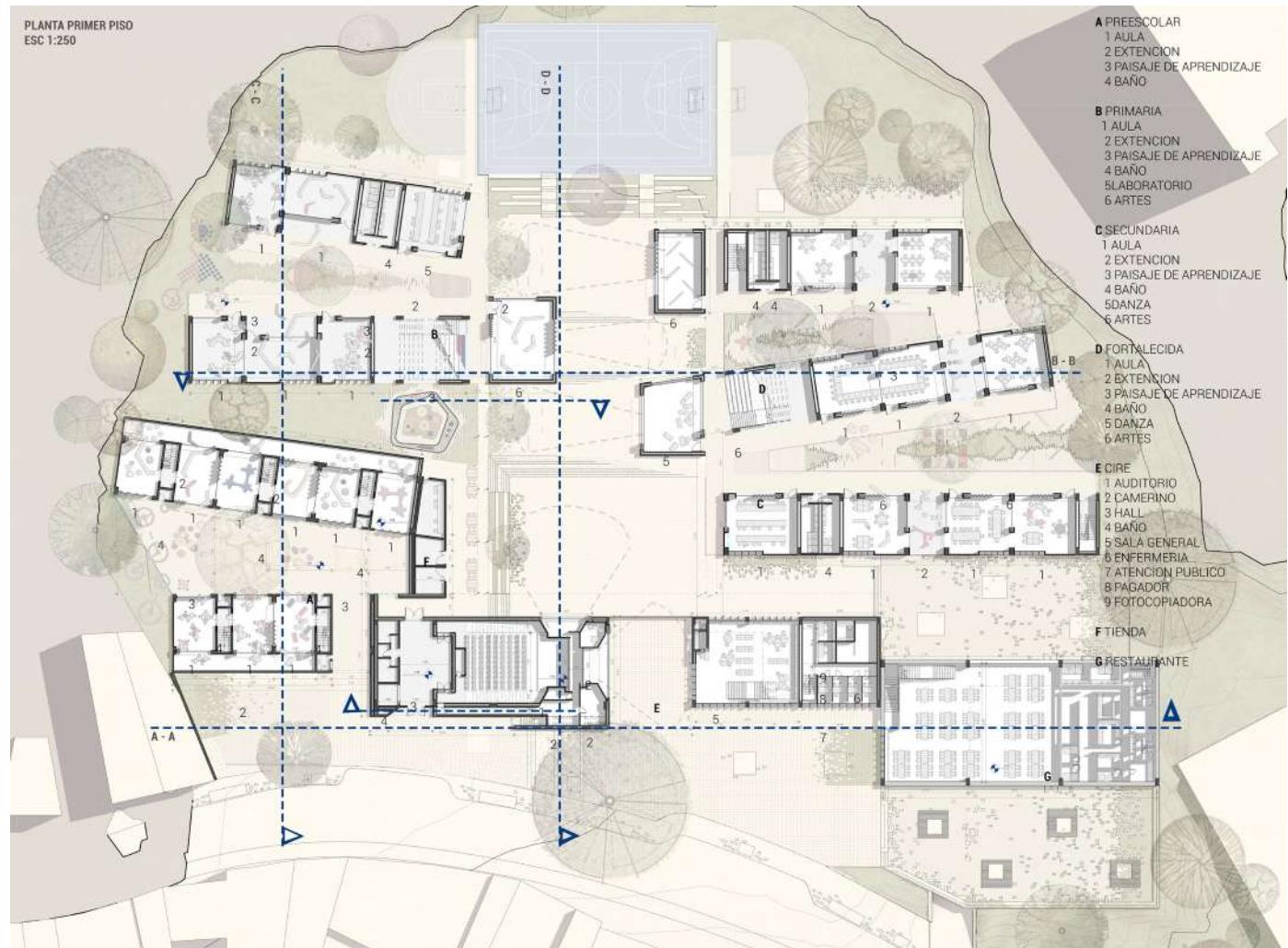
# D House

|      |                            |
|------|----------------------------|
| Type | Visualisation              |
| Team | Diego Serna                |
|      | Gustavo Correa, Instructor |

The results obtained from a professional visualization course demonstrate my mastery of the 3ds Max software, starting from the fundamentals and progressing to intricate modeling techniques. I meticulously optimized geometries and acquired the skills to create physically accurate materials suitable for a wide range of lighting conditions. Integrating my artistic comprehension and discernment, this culminated in a series of images that exhibit an exceptional level of realism. The meticulous attention to detail in the modeling process, coupled with the precise implementation of physically accurate materials and carefully calibrated lighting, yielded impactful and persuasive architectural visualizations. Proficiency in 3ds Max and the proficient application of acquired knowledge in the course enabled the attainment of highly professional outcomes in architectural representation.







December 2015

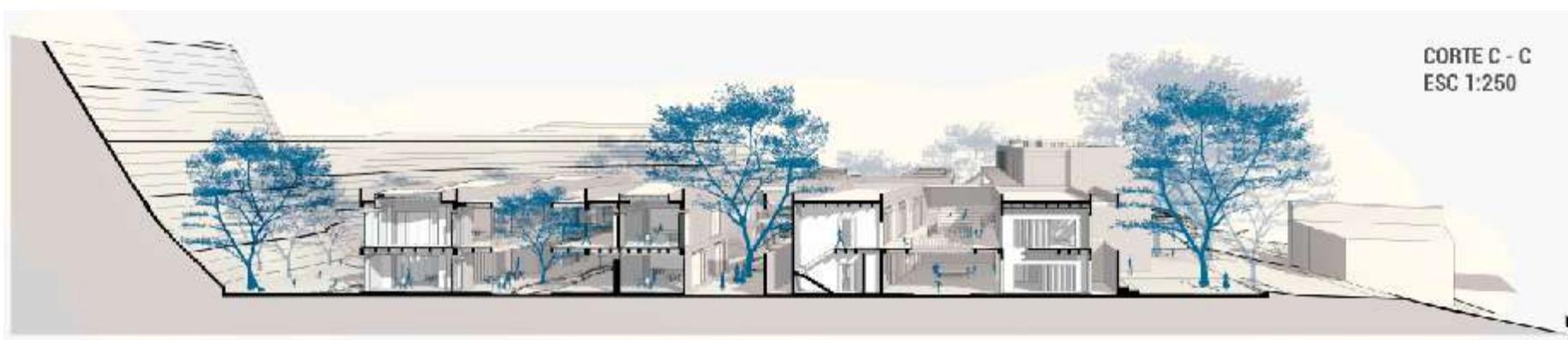
## Terron School

Type      Design Visualisation  
 Team      Diego Serna  
             Avril Figueroa

This project is based on understanding the vision of the development of education under the concept of active methodology, and the value of the community character of the equipment for the neighbourhood.

The development of the project is defined by two main axes, the first is a built axis that defines the facade of the property and provides the community with a socio-cultural programme. The second axis, perpendicular to the first is an empty axis, this empty space composes a pattern that articulates all the activities and programmes within the school.

The academic programme is divided into cycles, each of which represents a volume. Each volume opens up to the mountain creating within it an extension space that acts as a learning landscape for the students of each academic cycle. Within each cycle, spaces of flexibility and versatility are promoted, allowing for the autonomous and collective growth of the students.





November 2020

# TREE OF LIBERTY

Type

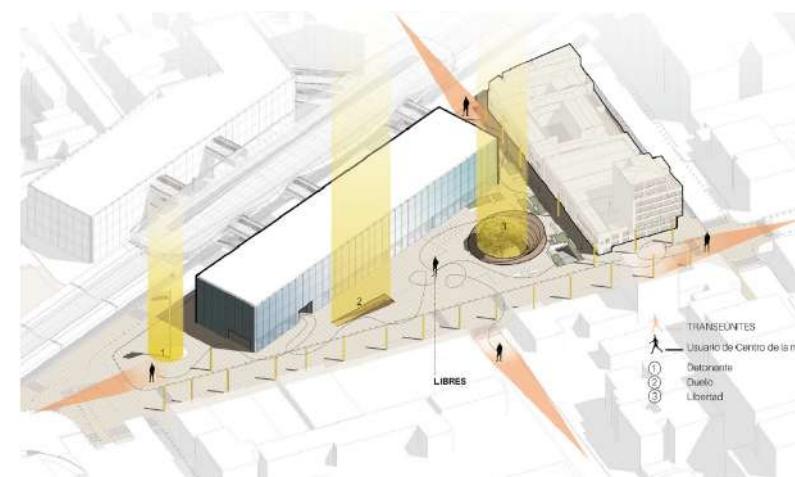
Competition

Team

Diego serna

Paulo Escruceria, Fredy Pantoja, Al2Arquitectos, Sebastián Gonzales, Karen Rojas, Victor Barrero, Avril Figueroa, Julian Cuervo, Army One, Mathew Burbano, Germán López, Linda Salazar, Katherine Muñoz.

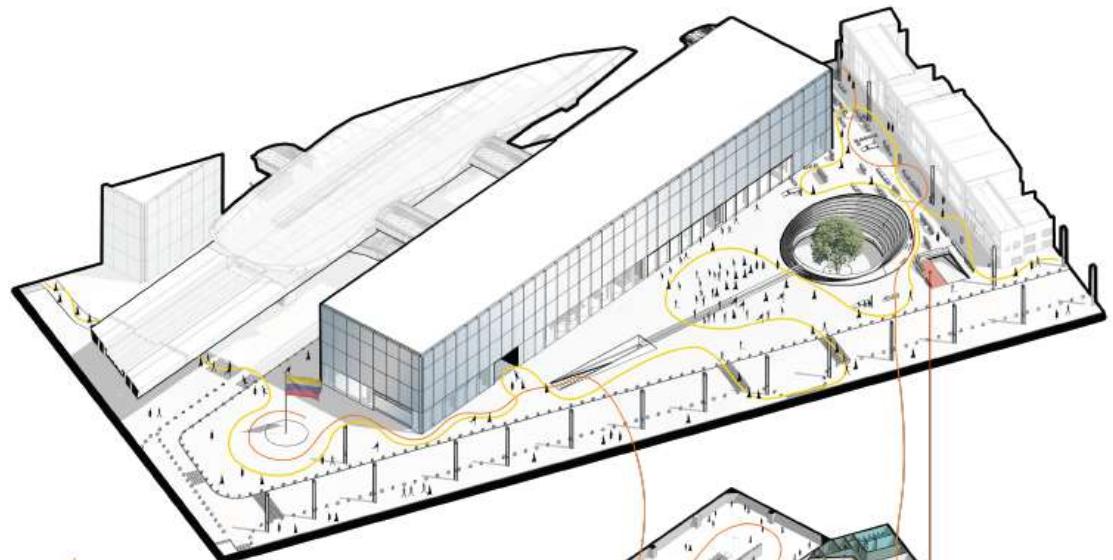
The Árbol de la Libertad project is a memorial to Colombian independence that uses the Arrayán tree as a historical symbol to create spaces in response to the urban transformations brought about by the construction of the Bogotá metro. Located at the intersection of Caracas Avenue and Chile Avenue, at the 16th metro station, this memorial stands out for its large scale on the western edge of the development area. With the public square as its main necessity, the architectural interpretation center is located beneath the square to create a complementary civic space to the station and the existing public facilities. The "Patio" and the "Teatrino" frame the architectural void, highlighting the "Árbol de la Libertad" and honoring peace, freedom, memory, and environmental consciousness. The architectural program includes the Gate system, Entrance Hall, Patio, and Alameda, representing the Portal, the Path of Heroes, Independence, and the Path of New Heroes, respectively.



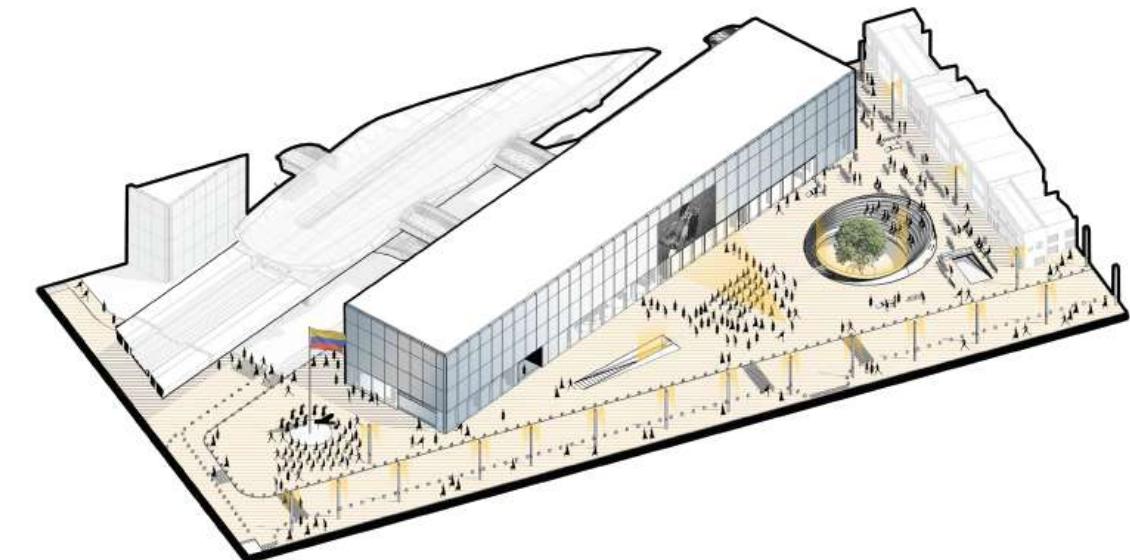
ESQUEMA DE ZONIFICACIÓN Y CIRCULACIÓN



ESQUEMAS ESPACIALES.

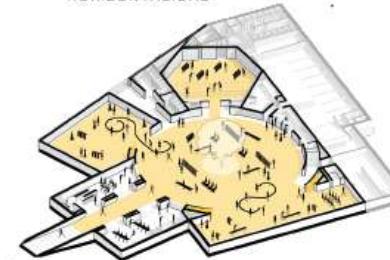


- Peatón
- Usuario de Centro de la memoria
- Librería y Tienda
- Centro de documentación
- Sala múltiple
- Cuartos técnicos
- Plataforma de descarga
- Zona auxiliar de auditorio
- Baños y vestir
- Atención al usuario
- Cafetería
- Auditorio
- Bancos públicos
- Sala permanente

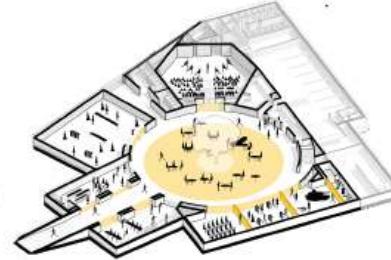


## Estrategias de Flexibilidad y Libertad Espacial y Funcional

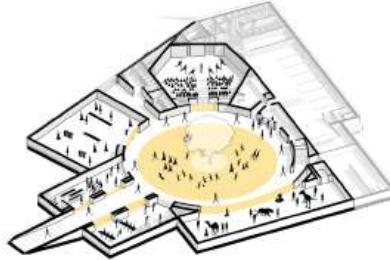
① HORIZONTALIDAD



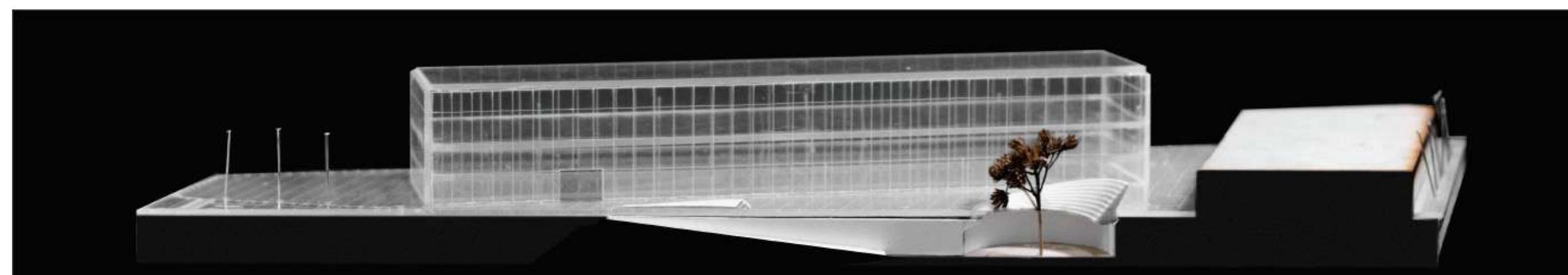
② Flexibilidad en la Zona de Exhibición.

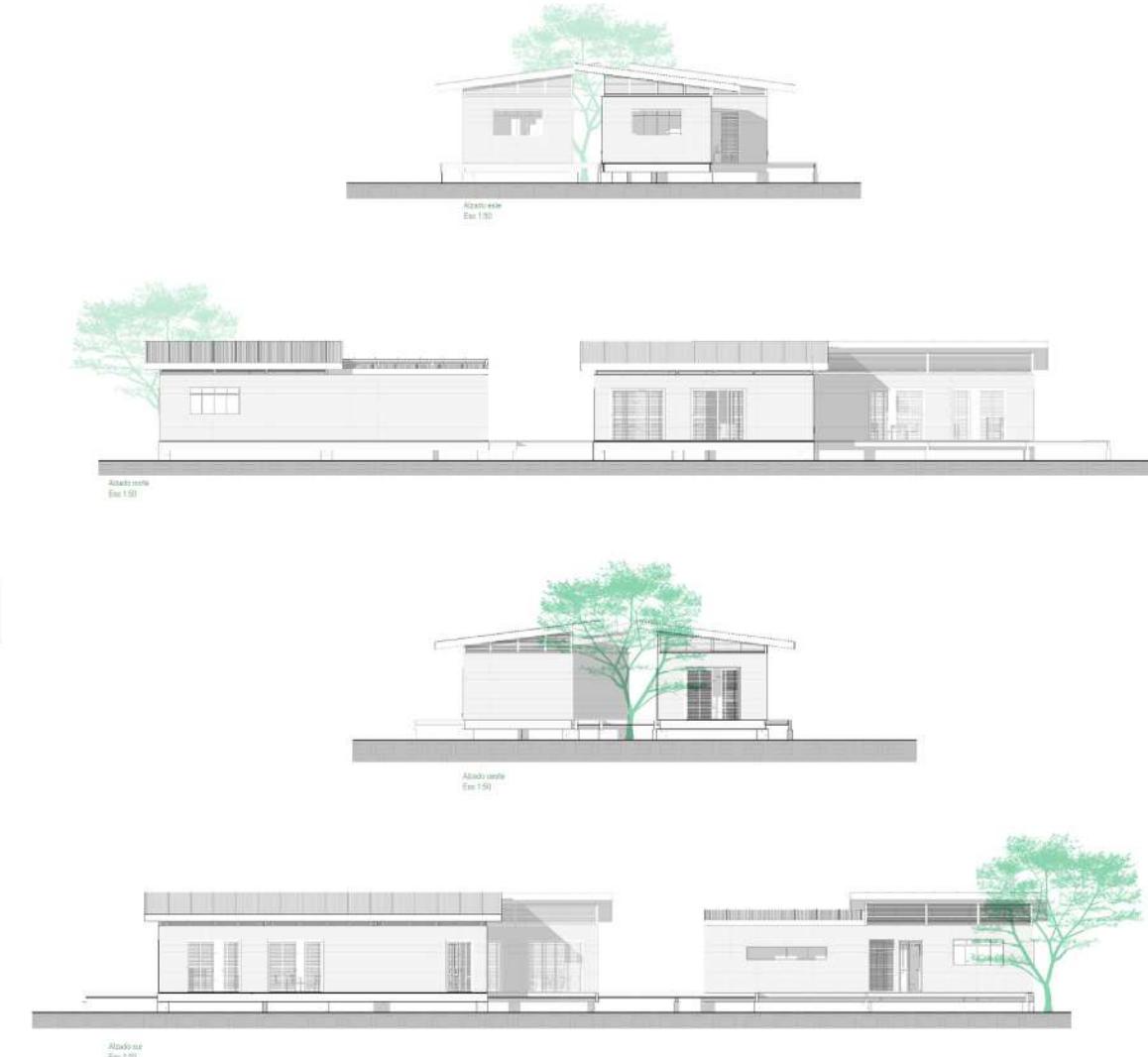


② Flexibilidad en la Zona de Exhibición.



③ Espacios liberados que fomentan la libertad de expresión.





## TT House

|      |                               |
|------|-------------------------------|
| Type | Design Visualisation          |
| Team | Diego Serna<br>Avril Figueroa |

The collaborative project with the University of Valle's Department of Biology aims to design the Architectural Project for the Biological and Research Station on the Meléndez campus. This institution centers on research, instruction, and expanded studies, enriching knowledge of ecosystems and life-sustaining resources. Its goal is to inspire conservation, environmental research, and biosphere connections among researchers, professionals, students, and nature enthusiasts.

Emphasizing unconventional education, the Biological Station highlights the preservation and appreciation of natural and cultural contexts. Through engaging, sustainable activities, it boosts public awareness. The project incorporates these principles, facilitating research, education, recreation, and interactivity. It offers an effective approach to cultivating knowledge and ethical resource usage while safeguarding local flora, fauna, and cultural heritage.

The architectural program includes administrative and technical spaces, a collections museum, sample-processing labs, education zones, an observatory, outdoor auditoriums, recreation areas, endemic species nurseries, reinterpretation trails, and technical facilities. Ultimately, the project envisions a harmonious blend of research, recreation, and sustainability, enhancing local conditions and minimizing environmental impact.

