



#02



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BAC Barcelona Architecture Center

@BACprogram

BARCELONA ARCHITECTURE CENTER is an educational organization founded in 1998 and chaired by Miguel Roldán. The BAC was created with the aim of developing academic and research collaborations with other universities and higher education institutions across the globe.

BCN Urban project Barcelona Studio “L’Espigó de Ginebra”

Edited by Barcelona Architecture Center in collaboration with Clemson University, Texas A&M University

L’Espigó de Ginebra, Rethinking the waterfront infrastructure, Spring 2021
BAC, Barcelona Architecture Center **02**





BAC

BARCELONA ARCHITECTURE CENTER

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CLEMSON UNIVERSITY | Lauren Alexander , Lauren Bradshaw, Evan Budelmann, Alex Cabe, Maddy Cost, Susan He, Jane Holsten, Lincoln Loeffler, Alex Mckeel, Ria Naab, Brianna Nalley, Aleksandra Riley, Michael Salois, William Scott, Joohyun Shin, Chloe Southmayd, Adrianna Spence, Caitlyn Van de Meulebroecke.

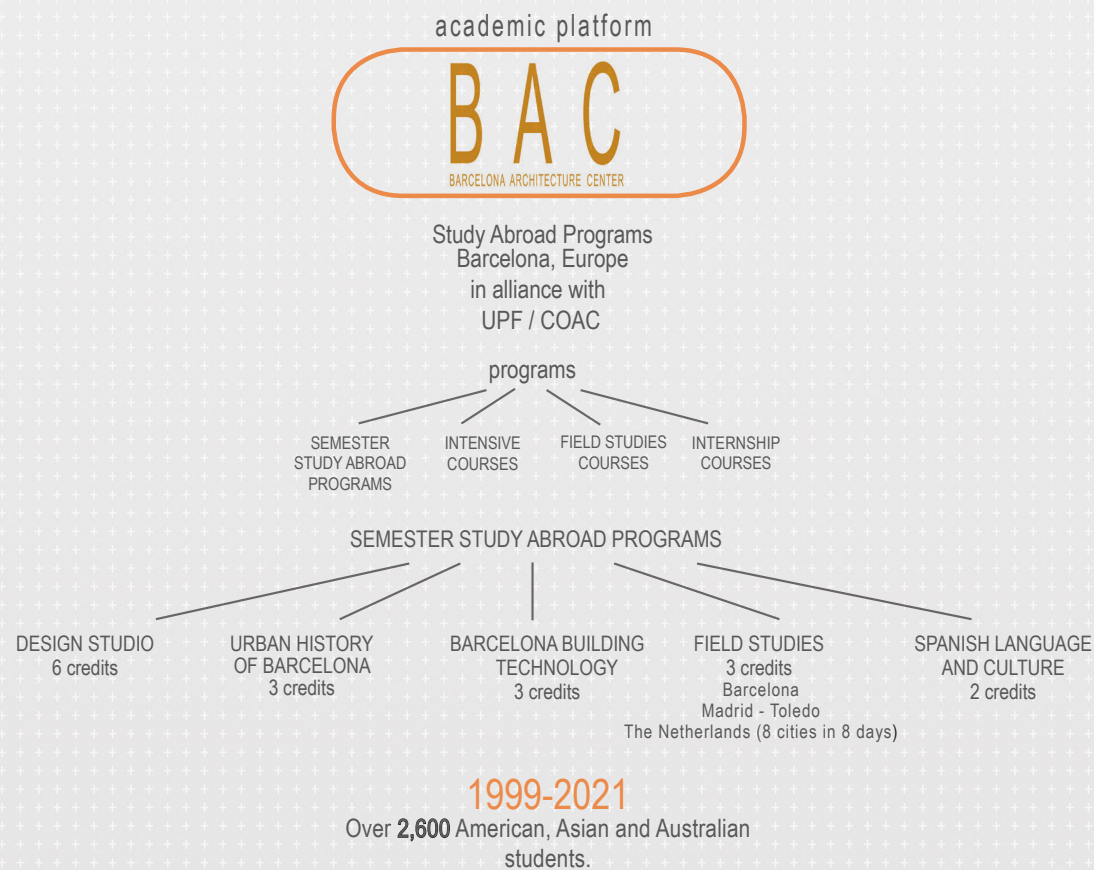
TEXAS A&M UNIVERSITY | Kalle Alice Bentson, Max Edward Binion, Jack Chatelle, Kathryn Emerson, Logan Froebel, Abigail Paige Gleinser, Lucerito Gonzalez Perez, Emmanuel Guerrero, Evan Alexander Kennedy, Maggie Martin, Josue D Pisors, Stefany Rodriguez, Aaron Christopher Sheffield , Abigail Claire Stuedtner, Ashleigh Michele Thoele.

BAC STAFF and PROFESSORS | Director Miguel Roldan, Academic Coordinator Zana Bosnic, Design studio professors: Miguel Roldan, Zana Bosnic, History Research Seminar Professor Jelena Prokopljevic, Building Technology Seminar Professor Pia Wortham, Field Studies seminar and virtual travels Professor Ivan Blasi.

VISITORS & UNIVERSITIES STAFF | Jim Stevens (CU), Ulrike Heine (CU), Gregory Luhan (TAMU), Leslie Feigenbaum (TAMU), Regina Foster (CU), Amaris Vazquez (TAMU)

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FINAL JURY | CLEMSON UNIVERSITY: Ulrike Heine, Dustin Albright , TEXAS A&M UNIVERSITY: Gregory Luhan, Marcel Erminy, Koichiro Aitani Penn State University: James Theodore Kalsbeek, The University of Arizona: Michael Maher, Elena Canovas, Architects from Granada: Juana Sanchez, Vincent Morales Garoffolo, Juan Antonio Sánchez Muñoz, BAC alumni: Celso Rojas, BARCELONA ARCHITECTURE CENTER: Miguel Roldan, Zana Bosnic, Jelena Prokopljevic



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Spring 2021 BCN Urban project “L’Espigó de Ginebra” Rethinking the waterfront infrastructure #2

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Executive
Director



MIGUEL
ROLDAN

BAC PROGRAM

Introduction letter by **Miguel Roldán**, Executive Director of BAC program.

The Barcelona Architecture Center, BAC is an educational organization that was founded in 1999 and is currently chaired by Miguel Roldán. The center offers custom designed architecture and urban design programs in Barcelona to international architecture students and schools.

The BAC was created with the aim of developing academic and research collaborations with other universities and higher education institutions across the globe. We are continually building and international network between universities to develop common architectural research projects. This network includes new partners every year from a variety of geographical areas, as we are especially interested in focusing on local and global points of view. We are optimistic in our pursuits as we design the future of a professional environment in a global context, creating mechanisms to share tasks and to work in a worldwide team.

Having reached over 2,600 students since its foundation, the BAC currently collaborates with our local partners UPF, COAC, Catalan Association of Architects and La Capell. Our international partners include **Texas A&M University, Clemson University, Roger Williams University, Penn State University, CEDIM of Monterrey, Shibaura Institute of Technology** and a number of other Japanese universities.

The **BAC** has been participating in a variety of educational exchanges since 1999. Over the last more than 20 years, our directors have had many different experiences in organizing innovative programs and workshops designed to train architects in the frame of European architecture, urban and landscape design tendencies, as well as participation in teaching exchanges around the world. Over the past decade, the BAC has established a mission and designed its programs and research to this end.

For more information on this program visit our webpage
<http://barcelonaarchitecturecenter.wordpress.com/>



1. Barcelona Design Studio Program

Site description:

The project site for this SPRING 2021 Design studio project will be **L'Espigó del Gas (Gas breakwater)** originally called **L'Espigó de Ginebra**.

The Gas breakwater serves as the boundary between Somorrostro beach to the north; and Barceloneta beach, in the south and on dividing point between Barceloneta neighborhood and Villa Olímpica in the Poblenou neighborhood.

Like many others on the Barcelona litoral, L'Espigó del Gas remain unused as a potential privileged piece of the city thanks to the confluence of legislation, economical or climatic vectors. These sites need to be re-interpreted, re-thought, and re-used into a **new landscape** located in the urban condition on the edge of the city and the Mediterranean Sea.

It's a challenge, in this context not being in Barcelona but online, to replicate the work of a **global architect**, to be able to work in a site that is absolutely contextual, even if there is no context. Site that is not in the city but where the city will be looked from.

This SPRING 2021 project contains a **site condition opportunity**. It is not like any other BAC's Design Studio projects that we have worked in our previous programs. Frequently our design challenges had historical, social and programmatic precedents and that constitute a scenario of enormous complexity to deal with. Our SPRING 2021 confront precisely the opposite urban condition.: the **lack** of such **complexity**.

Therefore, may be architects and landscape architect can join their voice in this **architecture opportunity**.

Site location: La Barceloneta

Barceloneta neighborhood is the classical seafaring district. The narrow and closed streets and the family lifestyle protect it from the big transformation other areas of the city have 'suffered'. The facades darkened by sea salt, the boats that unload at sunset and the unmistakable smell show the

Mediterranean character, very similar to that of any fishing village on the Catalan coast.

This marine neighborhood, has always been linked to the sea. Its history goes back to the 18th century, when it was established as a new, planned neighborhood, with a Baroque grid layout that has been preserved almost intact. At that time, it was a sandy area on the outskirts of the old walled city, which was reached through the Portal del Mar, the gate located approximately where the Museu d'Història de Catalunya is today, in the Palau del Mar.

Notable features from its early days are the long streets and terraced houses open to the sea, as well as the Baroque Sant Miquel church, which presides over the square of the same name, in the center of the neighborhood.

Barceloneta's houses were occupied by sailors, fishermen, tradespeople linked to the sea and others from all over that came looking for cheap rents. Citizens all, who gave a unique character to this neighborhood designed around the sea.

In the mid-19th century, fishermen gave way to workers from the metallurgical trades. The Catalana de Gas tower, an impressive pre-Modernista structure, still remains from this era, as well as Barceloneta market, which has been remodeled by the team of the late architect Enric Miralles, renovating the wrought iron structure and combining it with modern architecture. A place that is destined to become a reference in the neighborhood and the city.

The Barcelona Olympics in 1992 meant another revolution for Barceloneta. The construction of the Olympic Village surrounded the traditional fishermen's quarter with sculptures and modern buildings. Today, flanking the neighborhood's coastline is the El Peix sculpture by Frank Gehry, an enormous golden fish that seems to float above the sea, while on the other side there is the huge sail-like silhouette of Hotel W. Two features that frame tradition with their modernity.

L'Espigó del Gas

The function of a breakwater as L'Espigó del Gas is to protect beaches from erosion by trying to dissipate the wave energy (usually forced breaking waves). These types of structures form barriers trap sand that moves along the coast. They increase the width of the beach upstream and reduce it downstream structure.

Without these artifacts the artificial regeneration of beaches consisting in putting sand on a beach replacing the sediment lost by erosion will be highly inefficient. Today considerable resources are invested in protecting coastlines to offer wide sandy beaches to the urban population.

Nowadays such structures could be completed with submerged dikes or exempt that retain the sand and allow to reduce the periodicity of contribution. Some of the drawbacks are the need for periodic regeneration, if possible environmental impact on the source area and its high cost

These perpendicular breakwaters (espigones) and the like are usually built of many materials including wood, steel, concrete, rock, gabions, geotextiles or tire mattresses and oriented approximately normal the shoreline.

Together with coastline sand movement management, L'Espigó del Gas is part of the wastewater system of the municipality of Barcelona. The Barcelona rain urban collectors converge into the Besos system.

After a plant of biological treatment drainage, raining water goes to a main outfall where the effluent is discharged offshore. This outfall is located on the beach of the Northeast Park of Sant Adrià, in front of the port of Sant Adrià de Besòs.

The system also has an emergency outfall parallel system to the main one which can be put into operation in cases of torrential rains. L'Espigó del Gas is one of the four outlets located in the different breakwaters (Gas, Bogatell, Bac de Roda and Prim).

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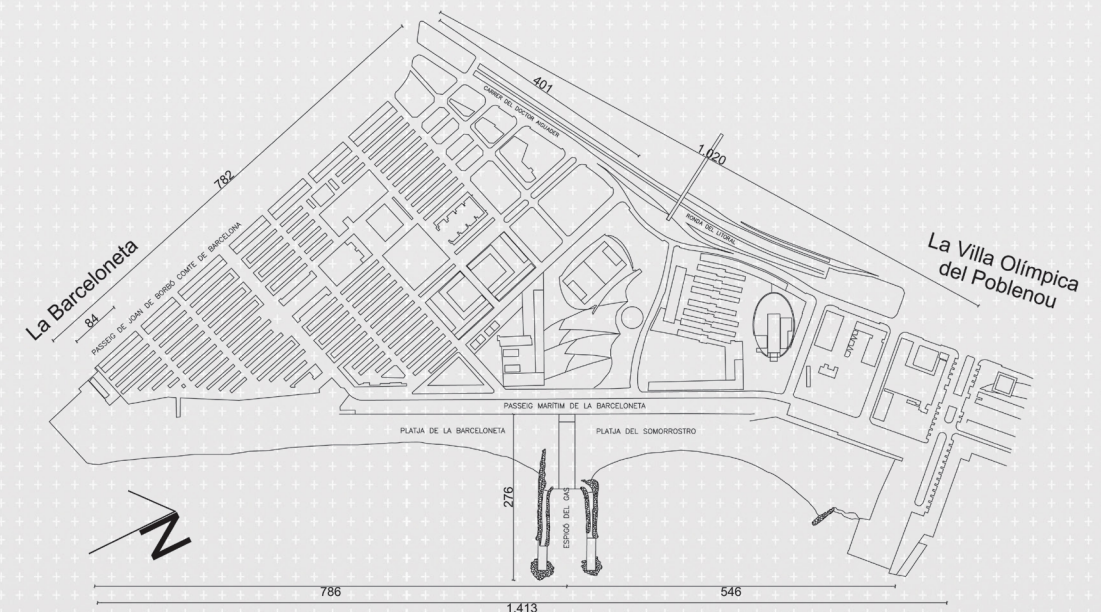
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_google link: <https://goo.gl/maps/ScPkQnQ1jTCLzvVA>
_bcn map link: <https://w33.bcn.cat/planoBCN/en/guia/address/Esp-Gas/zoom/3/angle/44.4/position/432630,4581451/>

Theme description

Following the municipality Coastal Plan and the reactivation of the Barcelona waterfront and its direct connection with the adjacent neighborhoods, BAC proposes to SPRING 2021 students to re-design and re-define once again the Barcelona coastline at one specific point of the waterfront. The point is located on the crossing between 2 axis and opportunities.

The first axis is the **corridor mountain-sea** coming from the connexion future bridge from Ciutadella park. The second is the linear public space from **Forum until the recently extended "Nou Passeig de Trencadons"**, New Breakwater Walkway.

On this spot **the two largest green urban areas in Barcelona**, the green path from Ciutadella park and the beach **will be connected**.

The breakwater is an infrastructure that answers ecological, climatical and economic issues.

Most of the times these essentials artifacts are hidden, remain invisible pieces of the urban scenario and the urban memory. In this specific case, the breakwater, due to its position, out of the strictly condition of the 'urban', became part of the **geography**.

We ask to architects and landscape architects to participate in the debate. The course, within a simulation of a competition, could be a chance to test the role of our professional practice in this regard.

This project theme will be strongly based on the site discussion, at a functional, historical and social components, paradoxically, in a place where it seems that there is no urban footprint.

Students will redesign the structure in terms of a **new landscape with strong ecological component**.

Even though 80% of this landscape should remain public, a 20% of it will be programmed for private use. The future generations of this economic profit should be calculated to reimburse the total construction and maintenance work on the area. This area for private uses program could contain a building small medium in size. The construction with the maximum height of 7m above the sea level.



Design goals.

City scale

1. Which opportunities do you see in this site?
2. Is this area connected to existing Barcelona green / public space system?
3. Can you trace main circulations around our Espigó del Gas?
4. How the accesses and timetable of each work in this site?
5. Would it be possible that your projects had different timetable and accesses?
6. Can our strategy be equally useful for the all three scales involved in this design challenge?

Urban scale

7. Could be consider this piece of the park new viewpoint of the city?
8. Would it be possible to re-interpret the idea of the beach in terms of uses and environmental improvement?
9. What is the role of the public space and landscape in this transformation?
10. Which program should this public structure/building and in order to have social impact on the rest of the city or Barceloneta neighborhood?
11. Can this structure have an energetical impact on the rest of the city or Barceloneta neighborhood?
12. Could we call this balcony of the city? Which is/are the viewing direction/s of this balcony?

Architecture scale

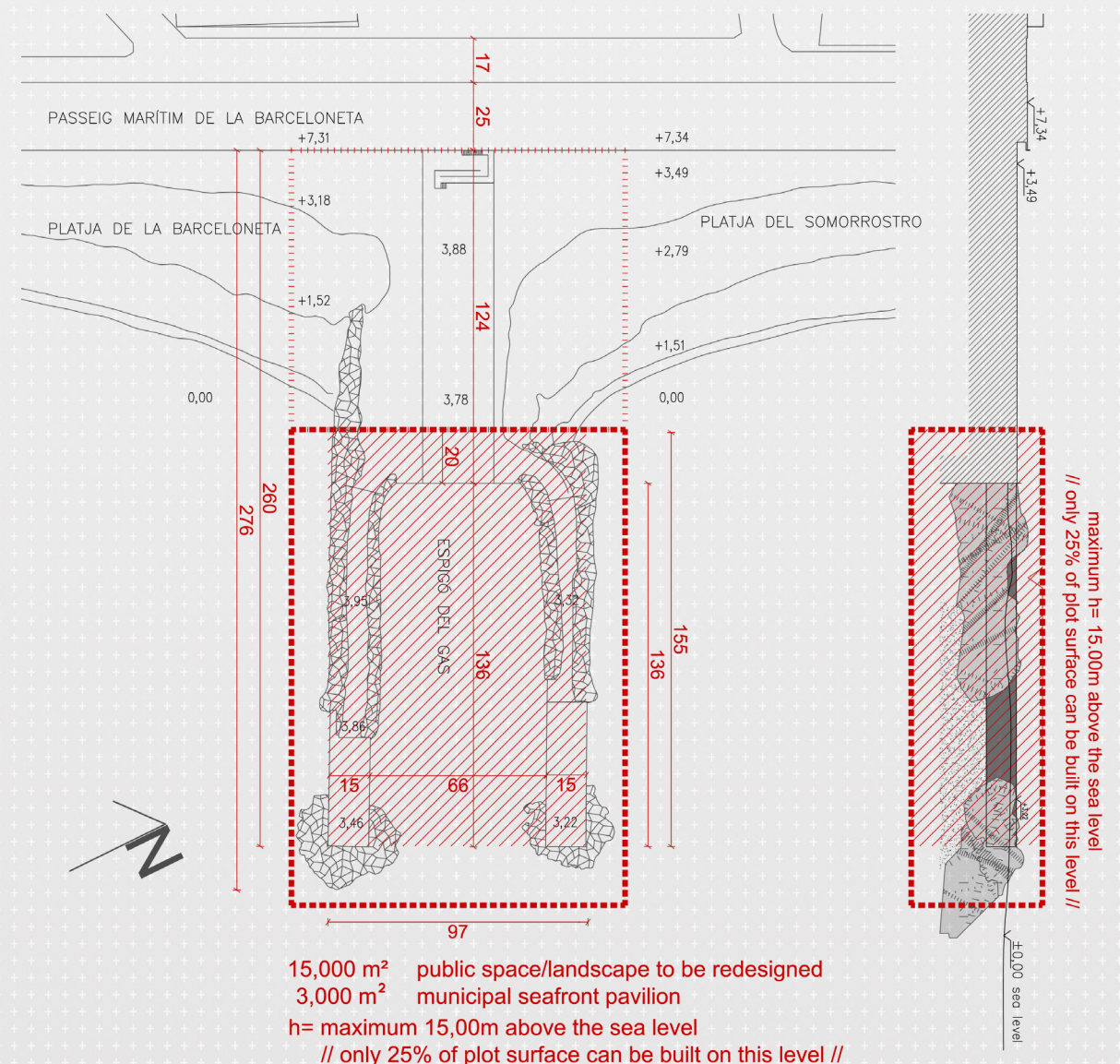
13. Are we able to add new layer to Barcelona waterfront that has been in continued change during the history of Barcelona and that is contemporary and specific for this place and time?
14. What does it mean that this structure needs to be Mediterranean?
15. Why do we need to understand the layers of transformation of Barcelona waterfront in order to design this structure?
16. Which program should this structure have?
17. Which materials would you add to this new architecture and to be in symbiosis with maritime palette of the existing structure?
18. Can we add in our design the complexity of a renovated discourse about energy, water, biological cycles, fauna and materials?

Program

. Public space (program activities to be defined by students)	15,000 m²
. Municipal sea pavilion	
- Entrance área – atrium + services+ kitchenette etc..	500 m ²
- Multipurposed space for receptions and events	
INTERIOR	1500 m ²
EXTERIOR	500 m ²
- Exhibition area	500 m ²
maximum surface of the pavilion	3,000 m²

. Volume limitations: none

. Maximum high 15,00m above the sea level (only 25% of plot surface can be built on this level)



ANNEX Historical background

Barcelona waterfront: area in permanent transformation

Since its beginning, the history of Barcelona has been closely linked to the sea. The coastline it has been transformed over time from a landscape of lagoons and marshes to one of heavily anthropized, with a predominance of industrial facilities in the 19th century, up to the front consolidated urban we know today. Opening Barcelona to the sea has been, without any kind of undoubtedly one of the great challenges and achievements of municipal policies of the last 40 years.

Barcelona's contemporary, vibrant waterfront was largely influenced by the 1992 Olympics and changing economic activities. This worldwide event provided the momentum and resources the city needed to revitalize the distressed industrial waterfront. Old warehouses were demolished for commercial uses and tourism.

Barcelona was cut off from the waterfront by a medieval wall that surrounded the city up until its demolition in the 1870s. In the 18th century, industrialization, fundamentally in the textile sector, began in Barcelona. As from the second half of the 19th century, this development received a strong and renovating boost.

The availability of water and the city's condition as a port, among other strictly economic and social reasons, facilitated industrial development and diversification, with a large part of the industry concentrated near to the port. Industrial infrastructure, such as docks and warehouses, were built along the waterfront to accommodate the increasing amount of sea trade happening in and out of Barcelona.

During the course of the 19th century and the first half of the 20th century, between the railway line and the sea, an isolated area was created which soon reached levels of extreme degradation. Later, industrial activity in the area began to decrease until the majority of the large installations were abandoned and the coastal strip of the districts of Poble Nou and St. Martí de Provençals became an uncontrolled tip, and large quantities of urban and industrial waste waters were poured into the sea.

The current relationship between the city and the sea began to develop in the early eighties with the advent of the first democratic councils. The port reform was seen as an important element in the reform of the adjacent Old Town, but also for the entire city. The sea was behind the wall and had to recover as indicated, the Olympic times Barcelona mayor Pasqual Maragall. In 1986, in the occasion of the preparation of the bid for the 1992 Olympics boosted the need for comprehensive reform of the port and also its connection with the area of the Olympic Village through the Coastal belt.

From the urban project linked with the 1992 Olympic Games, until the Forum in 2004 has been built a completely new waterfront with different elements and structures but with a decisive goal: to link definitively the cost to the people and to the city neighborhoods. One of the main elements that have facilitate to achieve this objective, have been the recovery of the beaches.

Barcelona transformed in order to prepare for the influx of spectators, athletes, and tourists for the 1992 Olympics. The Olympic Village was constructed along the waterfront and was located north of the center city. The waterfront was further developed into a walkable park system for access between the Olympic Village and the district of Ciutat Vella. Port Vell was redeveloped from industrial uses to a commercial and tourist hub.

ANNEX Municipality agenda

A significant volume of problems has been detected in relation not so much to transformations urban areas that had coastal spaces during the 80s and 90s, but with the management that has been done since.

The city opened to the sea and reclaimed areas of the port and beaches by removing coastal huts and regenerating obsolete industrial areas to create new public spaces, all while betting on tourism as to key economic activity. But this model of coastal transformation has become obsolete and now it is unable to respond to the set of problems and conflict situations that have gone on appearing in areas adjacent to the port, beaches and coastal neighborhoods that are difficult to manage with the classical mechanisms. f urban and industrial waste waters were poured into the sea.

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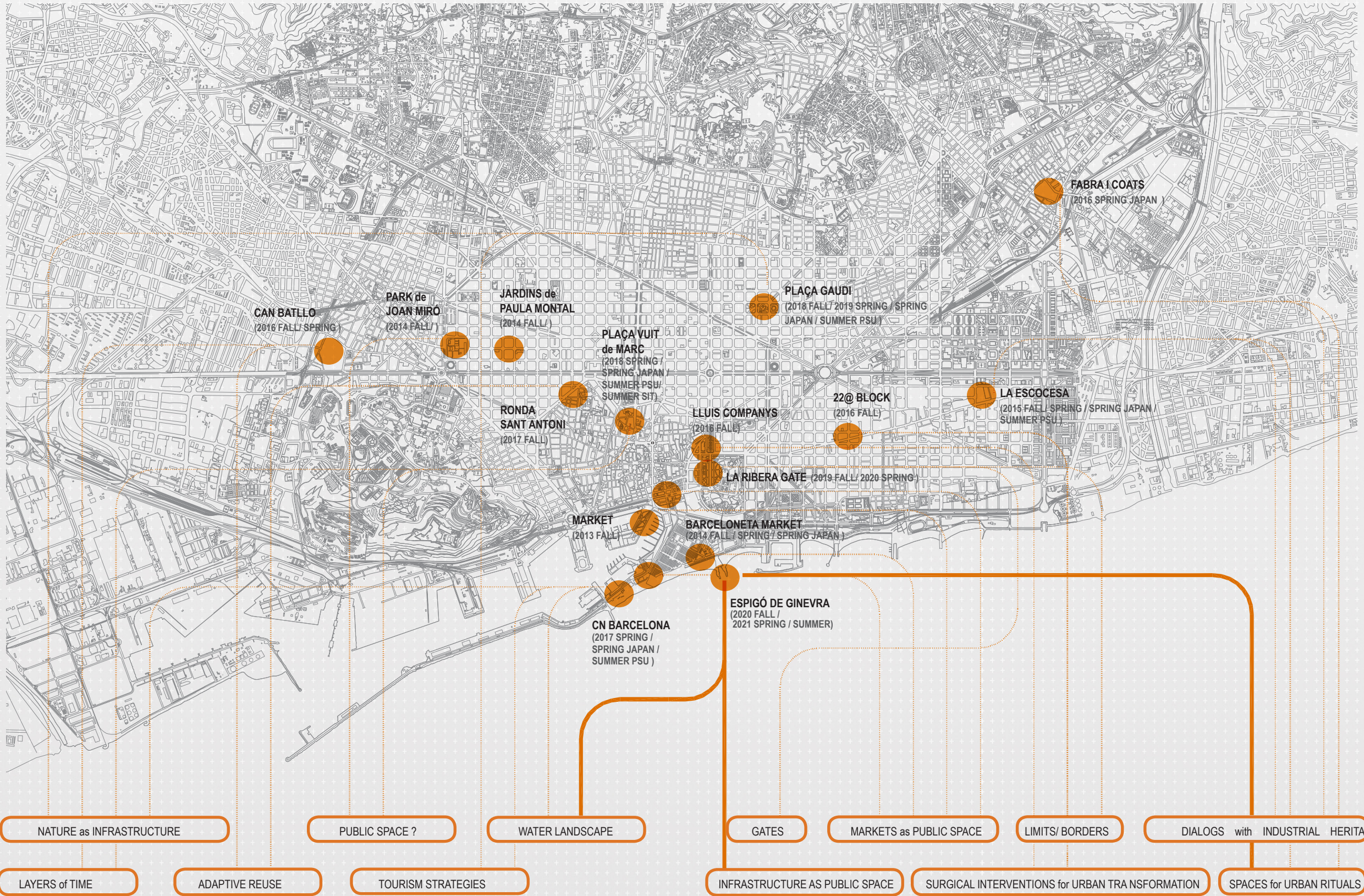
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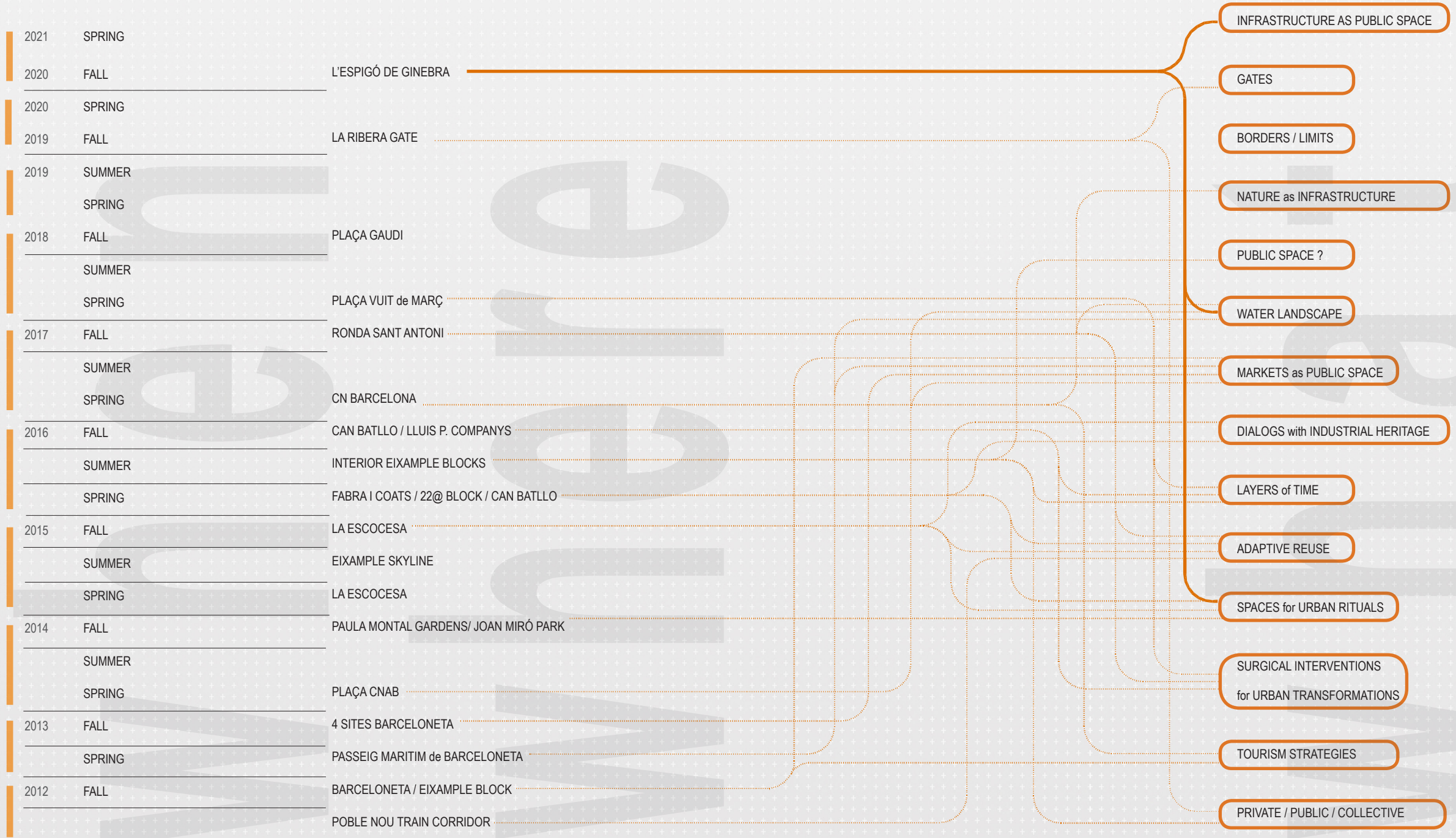
The list of problems and needs of the coastal area is long, and to remedy it is necessary to glimpse a new model as concerted as possible with all the agents involved in the coast. Like this, the Barcelona Municipality Strategic Plan for the city's coastal areas (the Coastal Plan) is to achieve a "reconquest" of the coastal front as a quality public sphere, open and enjoyed by to everyone and a pact around the new coastal model of the city with all the agents concerned.

It is therefore a planning tool that aims to order and manage all spaces urban areas of the city's seafont, and therefore covers coastal neighborhoods, ports, beaches, equipment and open spaces. So far no one was able to send in the perfect solution, which is not strange which encompassed all these areas of the city's coastline.


















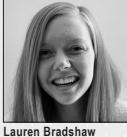















The Municipality Coastal Plan is specified in a set of projects and strategic actions in the field of the coast from the city. By their very nature, some of these actions can be controversial different actors involved (institutional administrations, citizens, companies, etc.) for in many cases there are different views and even conflicting interests.







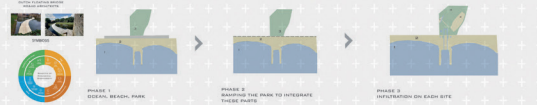
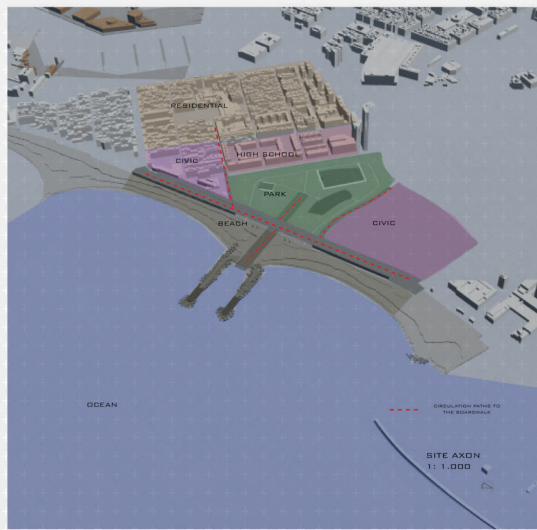
Design Studio: Student Teams

team 1	 Ashleigh Michele Thoele CLEMSON UNIVERSITY ARCH GRAD -TA	team 7	 Lincoln Loeffler CLEMSON UNIVERSITY ARCH UNDERGRAD	 Evan Budelmann CLEMSON UNIVERSITY ARCH UNDERGRAD	team 13	 Jane Holsten CLEMSON UNIVERSITY ARCH UNDERGRAD	 William Scott CLEMSON UNIVERSITY ARCH UNDERGRAD	
team 2	 Joohyun Shin (Jack) CLEMSON UNIVERSITY ARCH UNDERGRAD	 Alex Cabe CLEMSON UNIVERSITY LANDSCAPE UNDERGRAD	team 8	 Josue D Pisors TEXAS A&M UNIVERSITY ARCH UNDERGRAD	 Maggie A Martin TEXAS A&M UNIVERSITY ARCH UNDERGRAD	team 14	 Caitlyn Van de Meulebroecke CLEMSON UNIVERSITY LANDSCAPE UNDERGRAD	 Ria Naab CLEMSON UNIVERSITY ARCH UNDERGRAD
team 3	 Jack M Chatelle TEXAS A&M UNIVERSITY ARCH UNDERGRAD	 Emmanuel Guerrero TEXAS A&M UNIVERSITY ARCH UNDERGRAD	team 9	 Abigail Paige Gleinser (Abby) TEXAS A&M UNIVERSITY ARCH UNDERGRAD	 Logan N Froebel TEXAS A&M UNIVERSITY ARCH UNDERGRAD	team 15	 Abigail Claire Stuedtner (Abby) TEXAS A&M UNIVERSITY ARCH UNDERGRAD	 Kathryn G Emerson TEXAS A&M UNIVERSITY ARCH UNDERGRAD
team 4	 Lauren Bradshaw CLEMSON UNIVERSITY ARCH UNDERGRAD	 Madeline Cost (Maddy) CLEMSON UNIVERSITY ARCH UNDERGRAD	team 10	 Evan Alexander Kennedy TEXAS A&M UNIVERSITY ARCH UNDERGRAD	 Aaron Christopher Sheffield TEXAS A&M UNIVERSITY ARCH UNDERGRAD	team 16	 Michael Salois (Mike) CLEMSON UNIVERSITY ARCH UNDERGRAD	 Alex Mckee CLEMSON UNIVERSITY ARCH UNDERGRAD
team 5	 Susan He CLEMSON UNIVERSITY ARCH UNDERGRAD	 Lauren Alexander CLEMSON UNIVERSITY LANDSCAPE UNDERGRAD	team 11	 Chloe Southmayd CLEMSON UNIVERSITY LANDSCAPE UNDERGRAD	 Aleksandra Riley (Sasha) CLEMSON UNIVERSITY ARCH UNDERGRAD	team 17	 Adrianna Spence CLEMSON UNIVERSITY ARCH GRAD -TA	
team 6	 Max Edward Binion TEXAS A&M UNIVERSITY ARCH UNDERGRAD	 Kalle Alice Bentson TEXAS A&M UNIVERSITY ARCH UNDERGRAD	team 12	 Lucerito Gonzalez Perez TEXAS A&M UNIVERSITY ARCH UNDERGRAD	 Stefany Rodriguez TEXAS A&M UNIVERSITY ARCH UNDERGRAD	 Brianna Nalley CLEMSON UNIVERSITY LANDSCAPE UNDERGRAD		

TEAM 1

Ashleigh Michele Thoele, Texas A&M University, Architecture Graduate

INFILTRATION



"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Rosón



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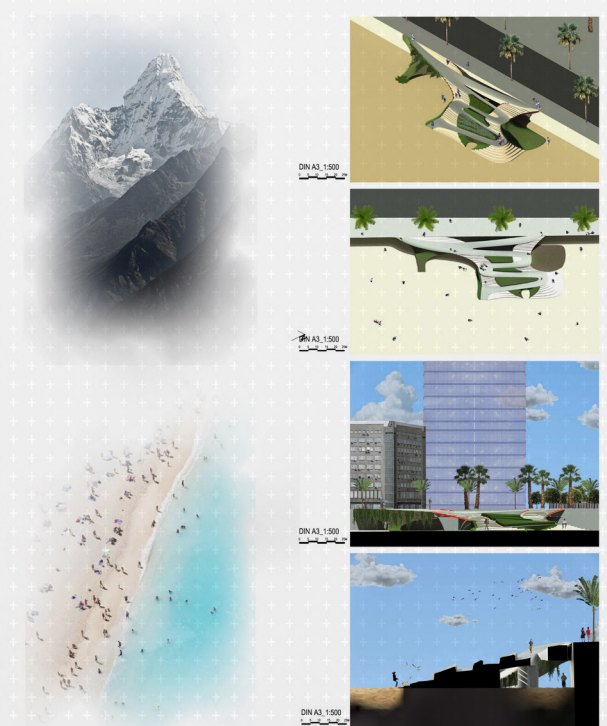
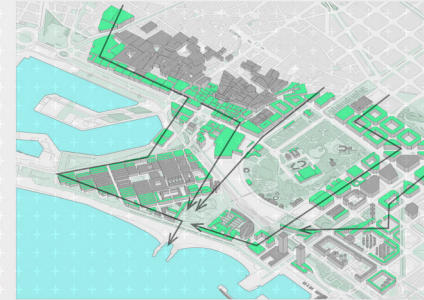
TEAM 3

Jack M Chatelle, Texas A&M University, Architecture Undergraduate
Emmanuel Guerrero, Texas A&M University, Architecture Undergraduate

The City: From the Mountain to the Sea



The Site: Emblematic of the City



"L'Espigó del Gas, Espigó de Ginebra", Bac to the Roots
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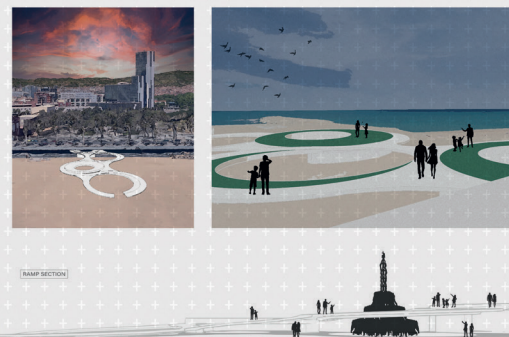
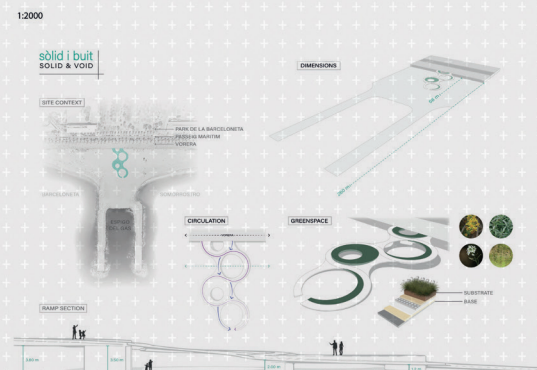
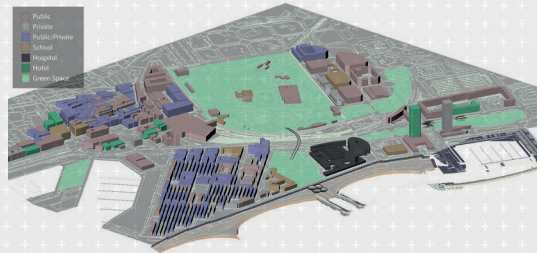
The Connection Phase 1 01
Emmanuel Guerrero & Jack Chatelle | TAMU | Undergraduate

"L'Espigó del Gas, Espigó de Ginebra", Bac to the Roots
Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Rosón

The Connection Phase 1 02
Emmanuel Guerrero & Jack Chatelle | TAMU | Undergraduate

TEAM 2

Joohyun Shin, Clemson University, Architecture Undergraduate
Alex Cabe, Clemson University, Landscape Undergraduate



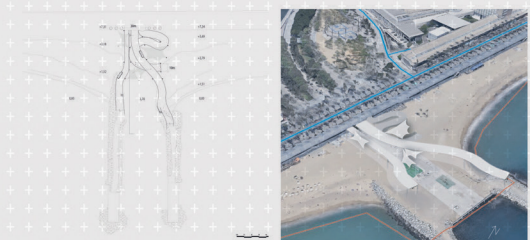
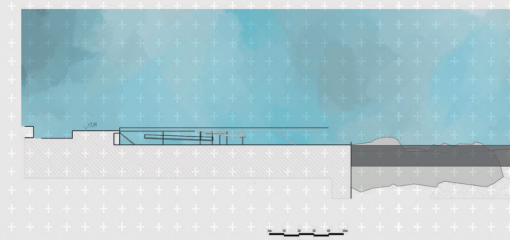
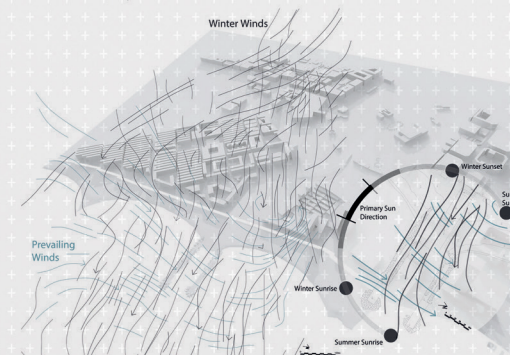
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TEAM 4

Maddy Cost, Clemson University, Architecture Undergraduate
Lauren Bradshaw, Clemson University, Architecture Undergraduate

Site Identity | Study of Patterns and Materiality on Barcelona Coast



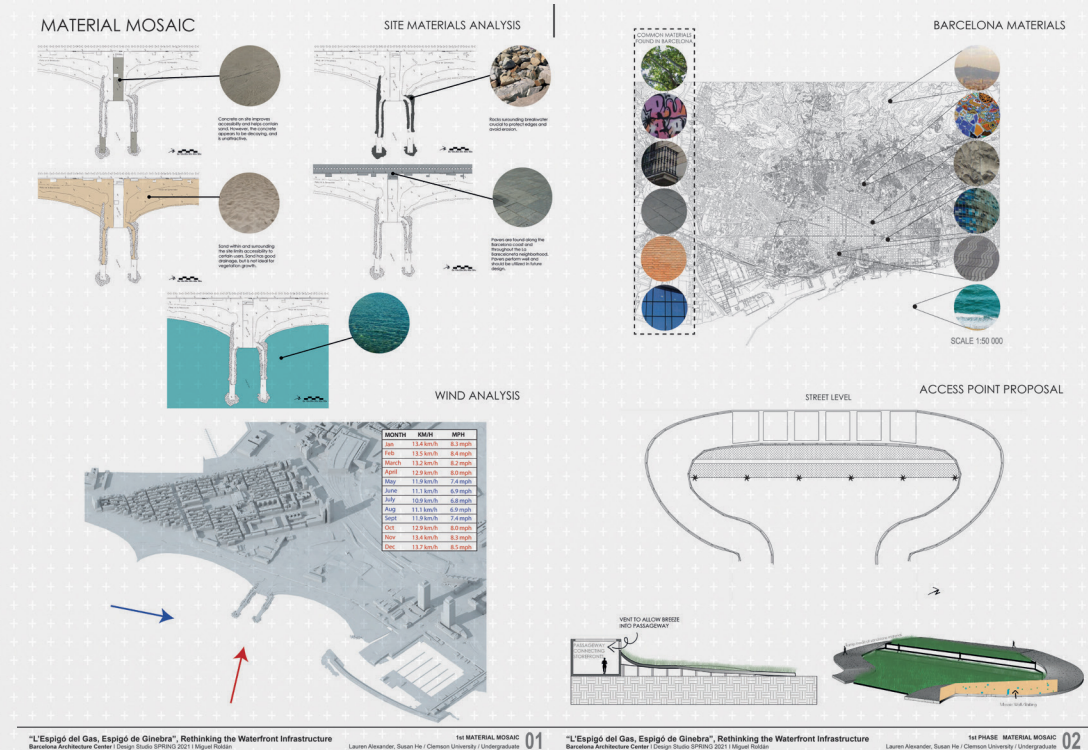
"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Rosón

Site Identity 01
Lauren Bradshaw & Maddy Cost | Clemson University | Undergraduate

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Site Identity 02
Lauren Bradshaw & Maddy Cost | Clemson University | Undergraduate

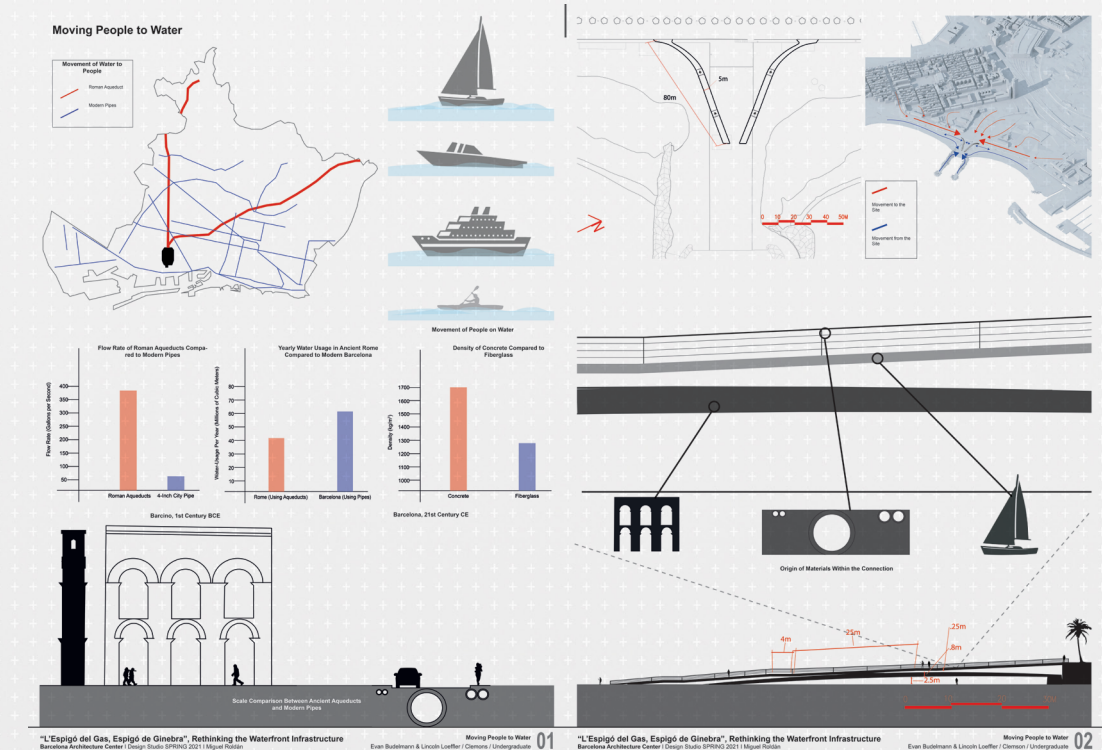
TEAM 5
 Susan He, Clemson University, Architecture Undergraduate
 Lauren Alexander, Clemson University, Landscape Undergraduate



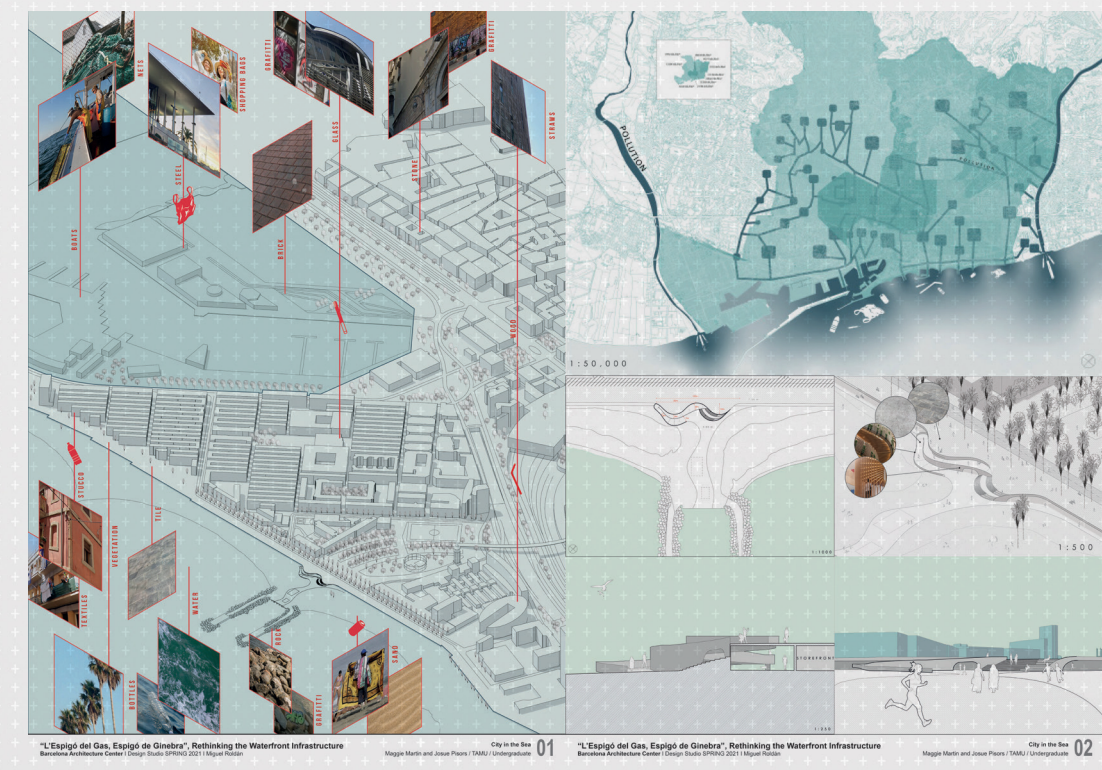
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 Kalle Alice Bentson, Texas A&M University, Architecture Undergraduate



TEAM 7
 Lincoln Loeffler, Clemson University, Architecture Undergraduate
 Evan Budelmann, Clemson University, Architecture Undergraduate

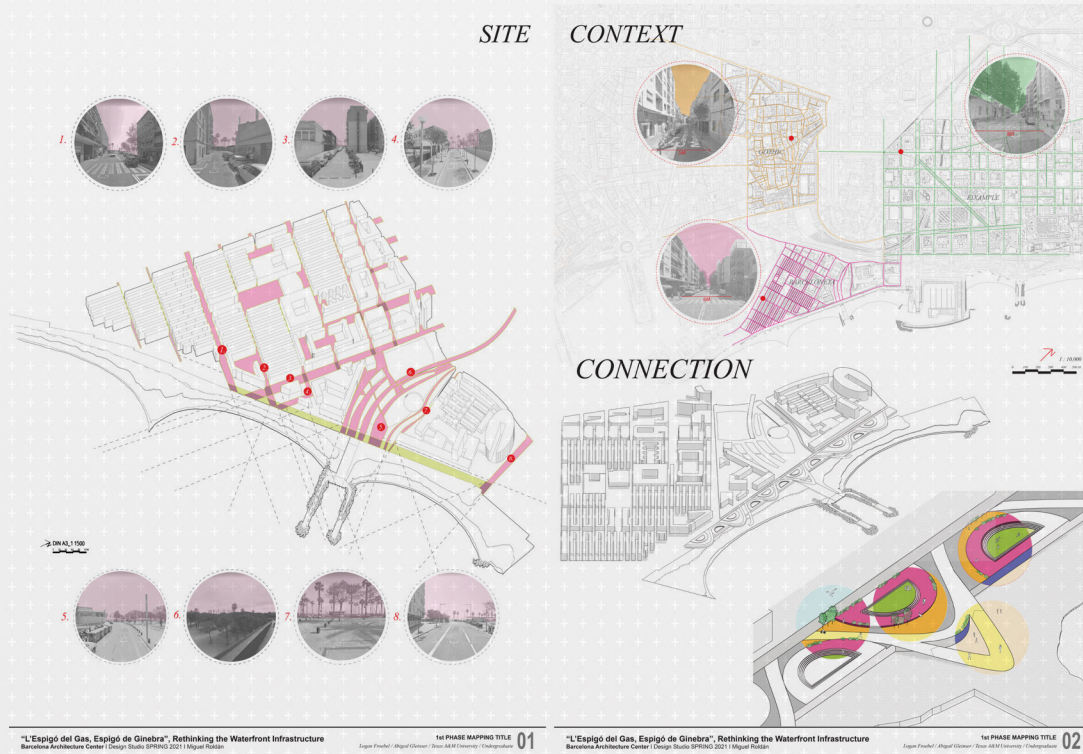


TEAM 8
 Josue D Pisors, Texas A&M University, Architecture Undergraduate
 Maggie A Martin, Texas A&M University, Architecture Undergraduate



TEAM 9

Abigail Paige Gleinser (Abby), Texas A&M University, Architecture Undergraduate
 Logan N Froebel, Texas A&M University, Architecture Undergraduate

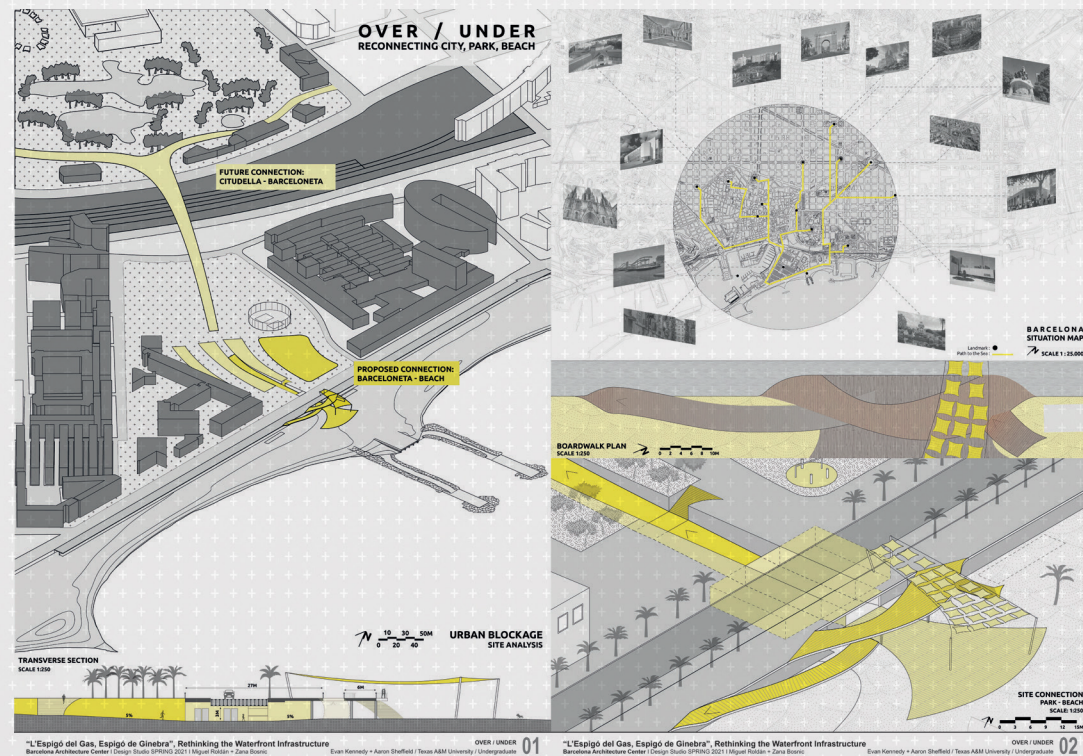


"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
 Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Rodón
 1st Phase Mapping Title
 Abigail Paige Gleinser / Texas A&M University / Undergraduate 01

"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
 Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Rodón
 1st Phase Mapping Title
 Logan N Froebel / Texas A&M University / Undergraduate 02

TEAM 10

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 Aaron Christopher Sheffield, Texas A&M University, Architecture Undergraduate

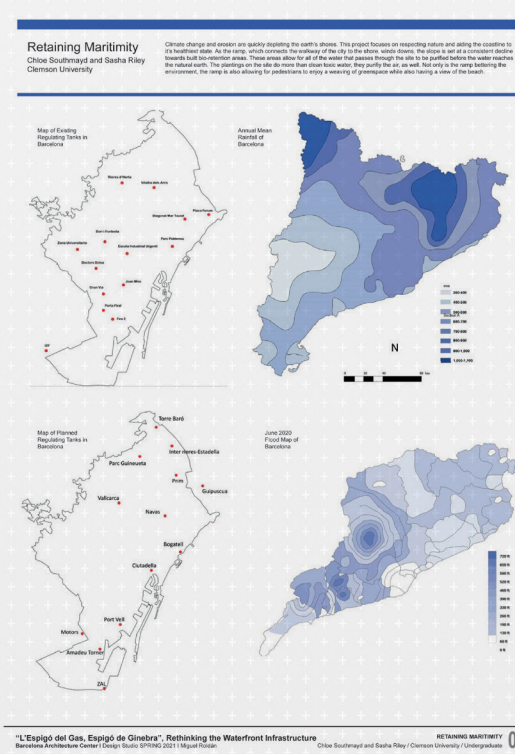


"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
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 OVER / UNDER
 Evan Kennedy / Aaron Sheffield / Texas A&M University / Undergraduate 01

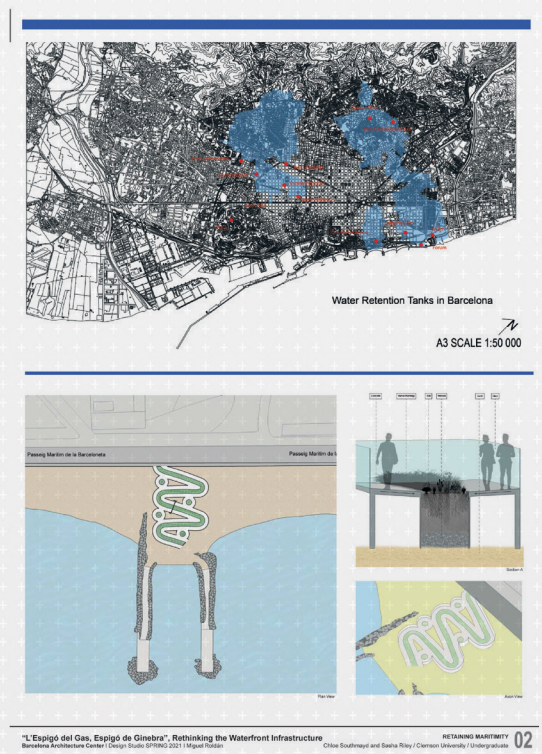
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 OVER / UNDER
 Evan Kennedy / Aaron Sheffield / Texas A&M University / Undergraduate 02

TEAM 11

Chloe Southmayd, Clemson University, Landscape Undergraduate
 Aleksandra Riley (Sasha), Clemson University, Architecture Undergraduate



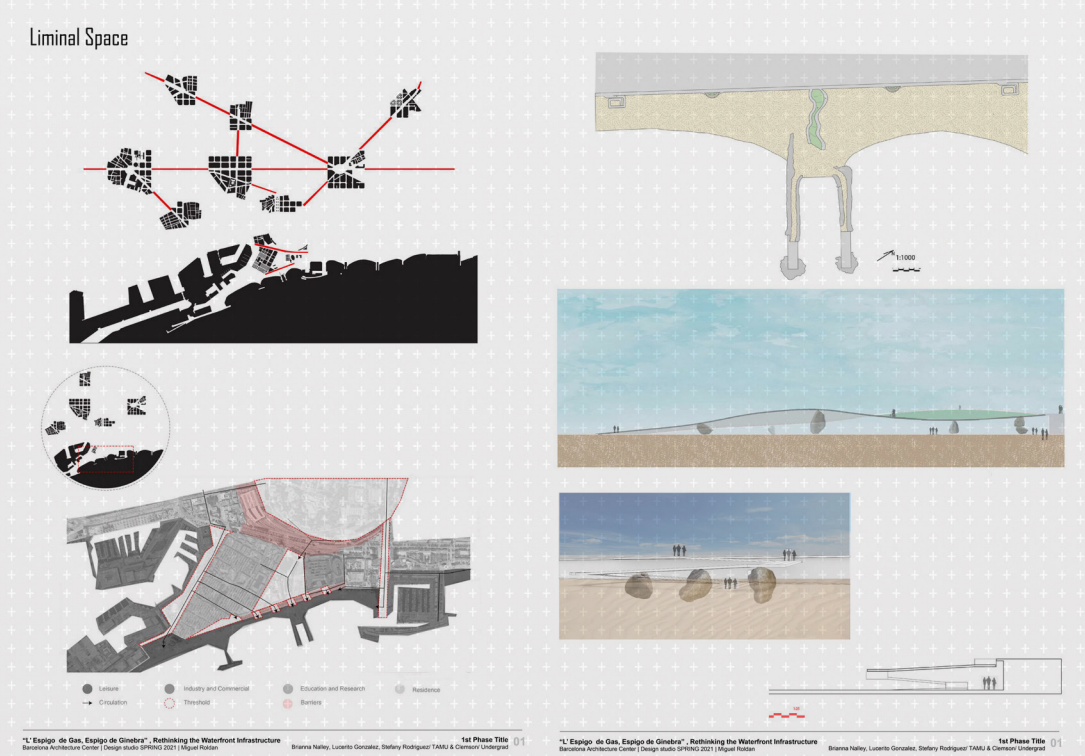
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 RETAINING MARITIMTY
 Chloe Southmayd and Sasha Riley / Clemson University / Undergraduate 01



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 RETAINING MARITIMTY
 Chloe Southmayd and Sasha Riley / Clemson University / Undergraduate 02

TEAM 12

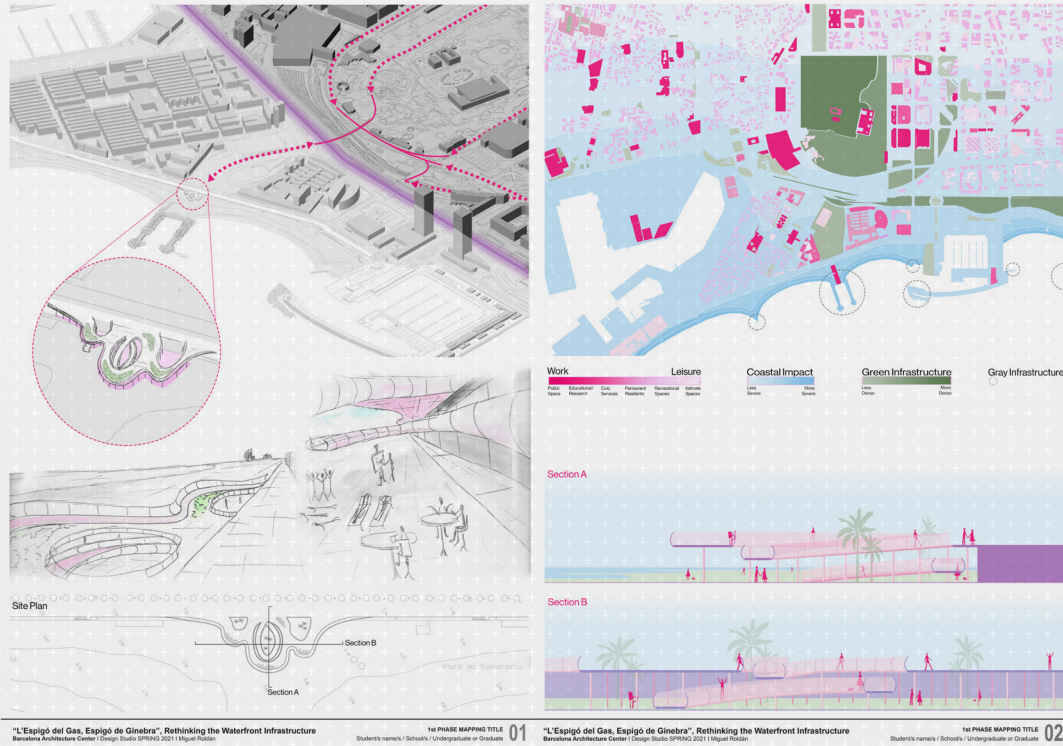
Lucerito Gonzalez Perez, Texas A&M University, Architecture Undergraduate
 Stefany Rodriguez, Texas A&M University, Architecture Undergraduate
 Brianna Nalley, Clemson University, Landscape Undergraduate



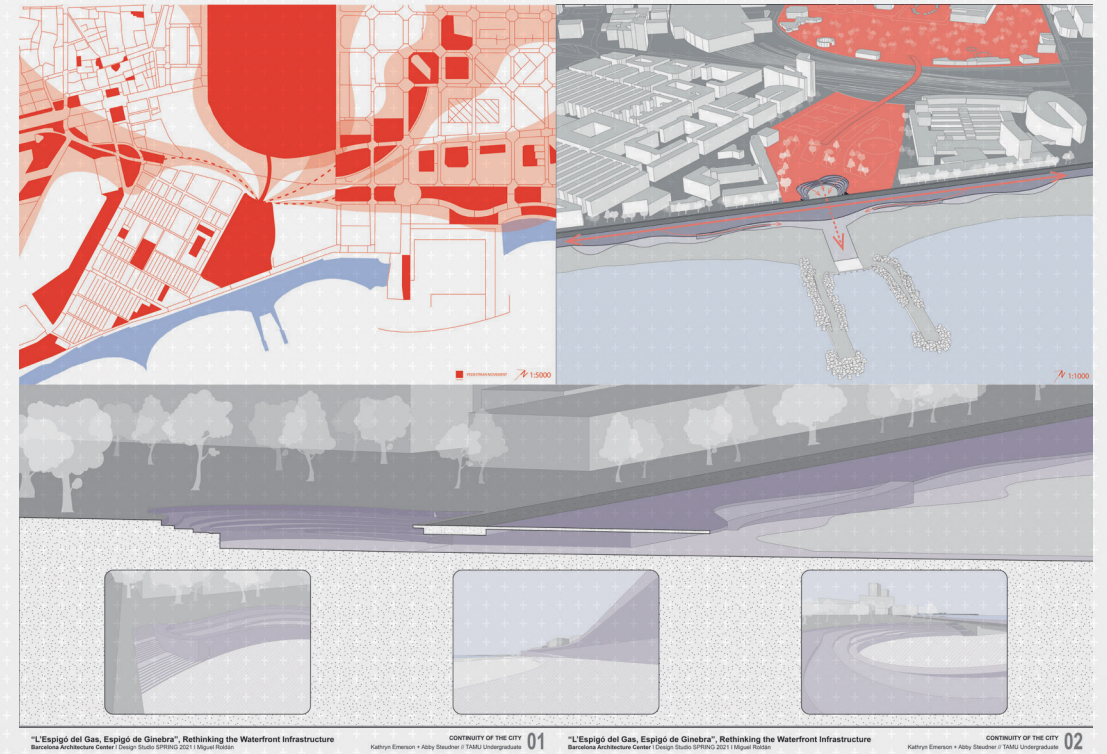
"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
 Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Rodón
 1st Phase Title
 Brianna Nalley, Lucerito Gonzalez, Stefany Rodriguez / TAMU & Clemson Undergrad 01

"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
 Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Rodón
 1st Phase Title
 Brianna Nalley, Lucerito Gonzalez, Stefany Rodriguez / TAMU & Clemson Undergrad 02

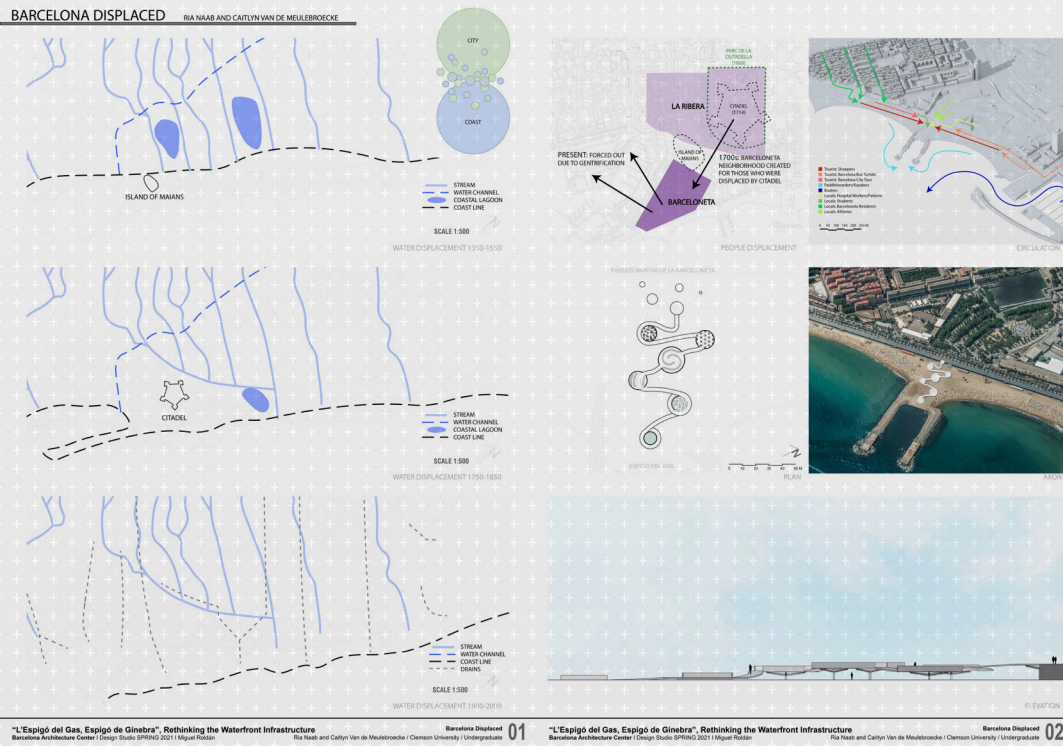
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William Scott, Clemson University, Architecture Undergraduate



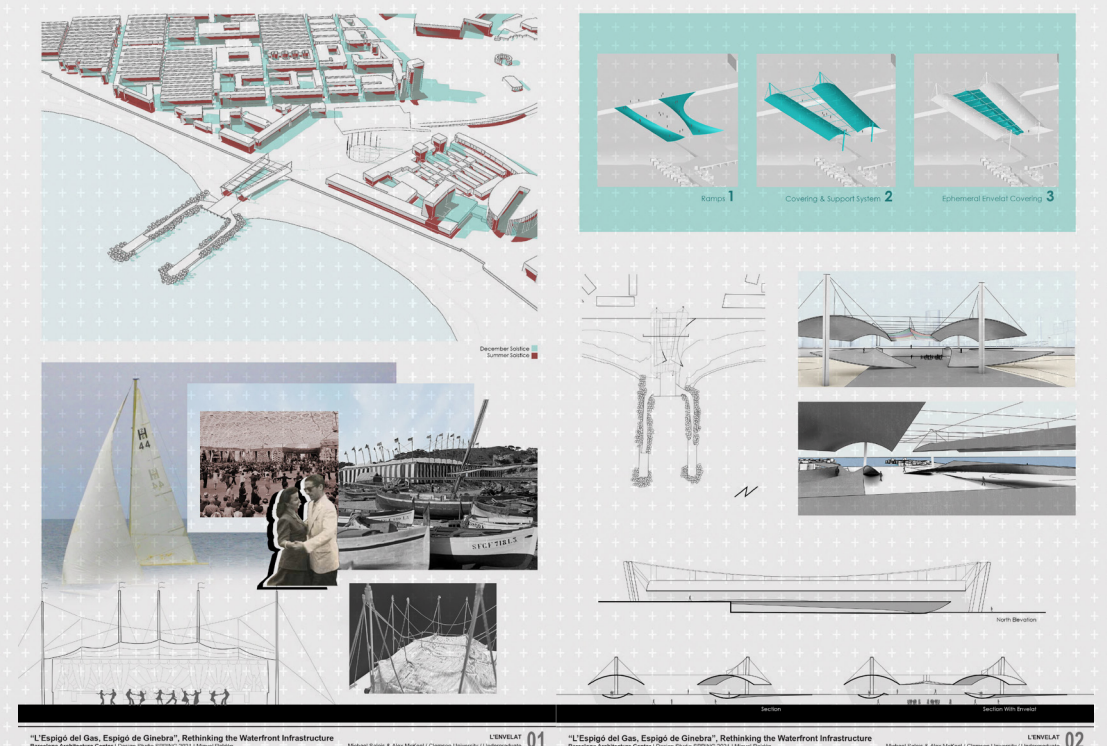
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Kathryn G Emerson, Texas A&M University, Architecture Undergraduate



TEAM 14
Caitlyn Van de Meulebroecke, Clemson University, Landscape Undergraduate
Ria Naab, Clemson University, Architecture Undergraduate

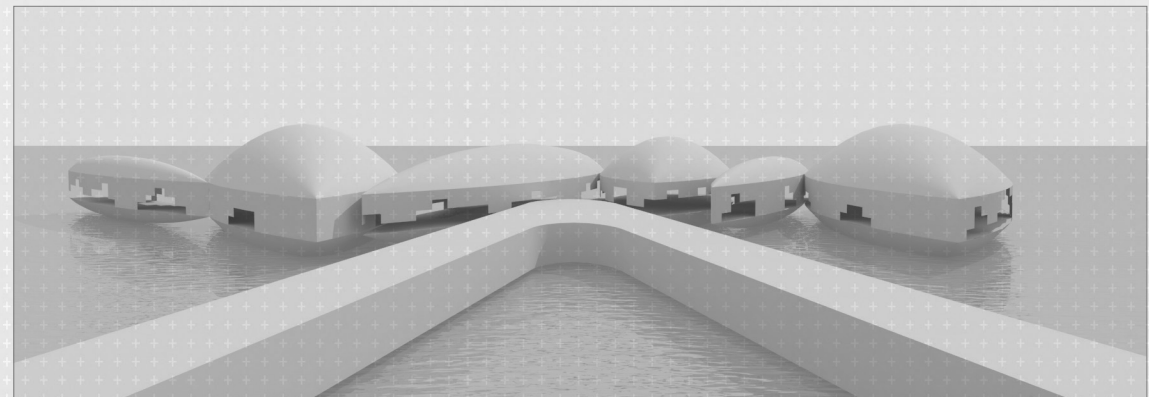
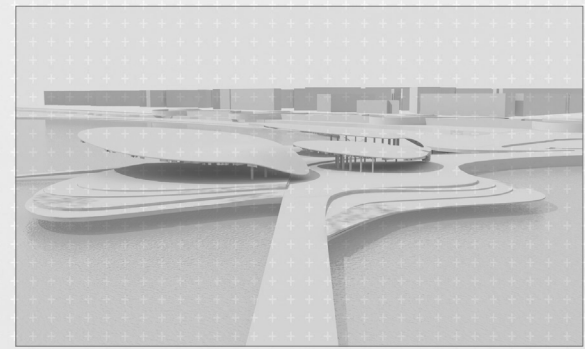
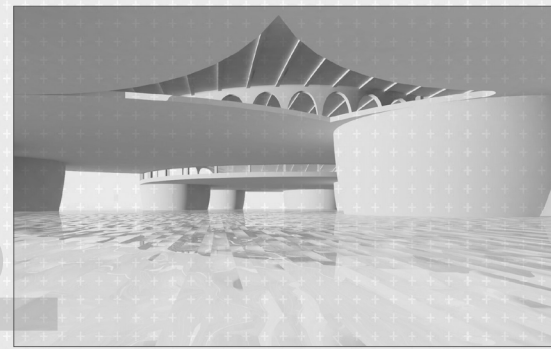
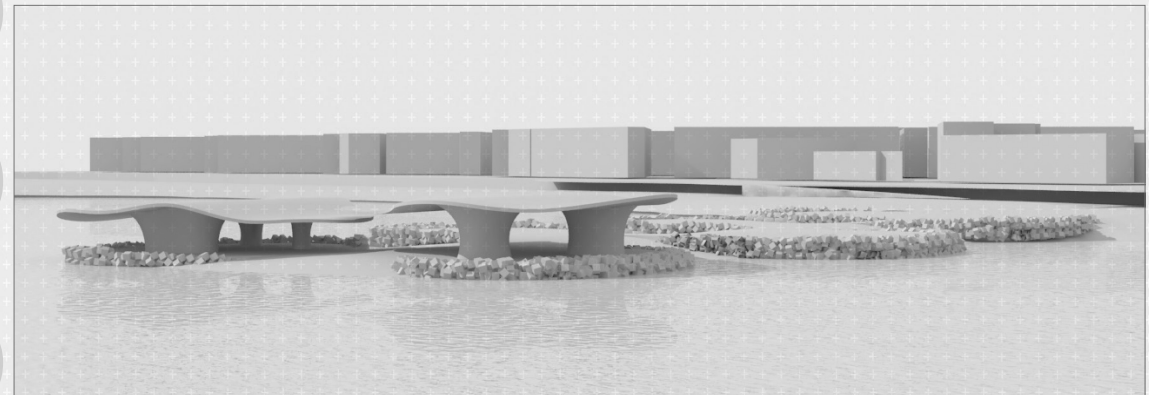
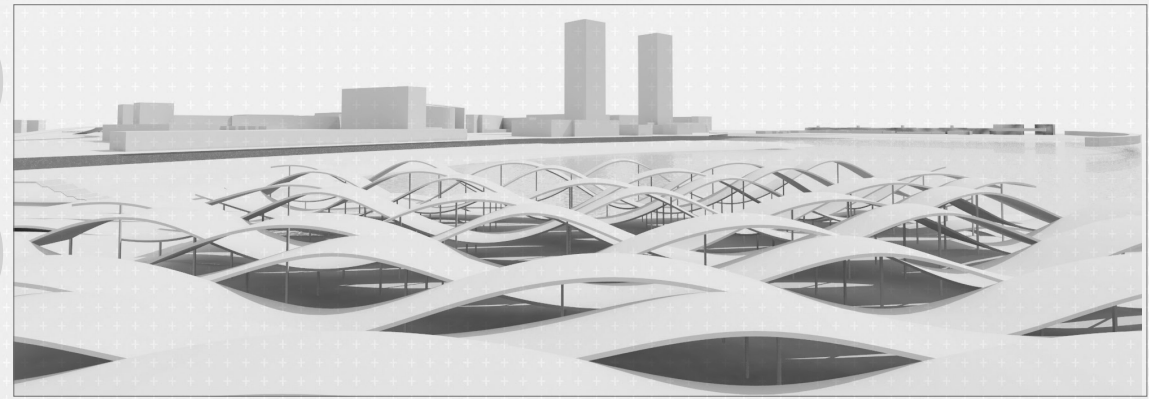
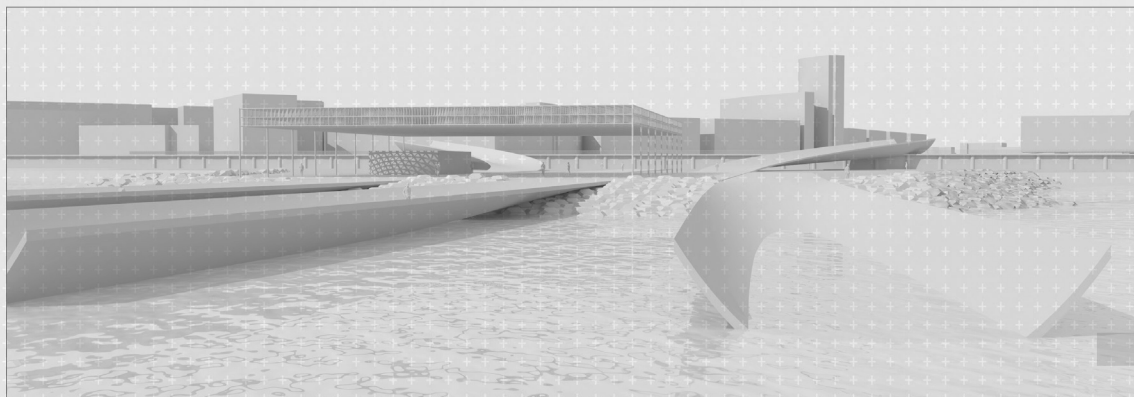
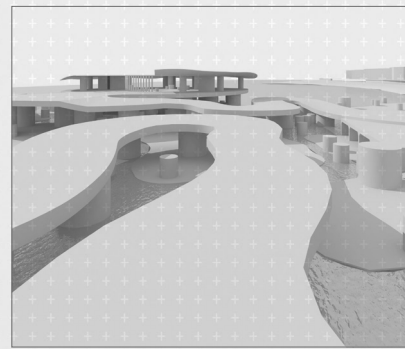
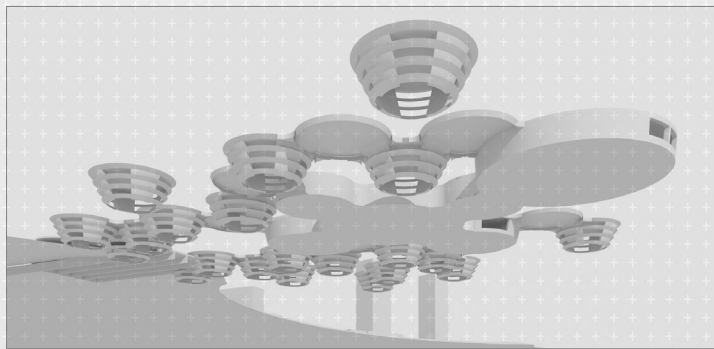
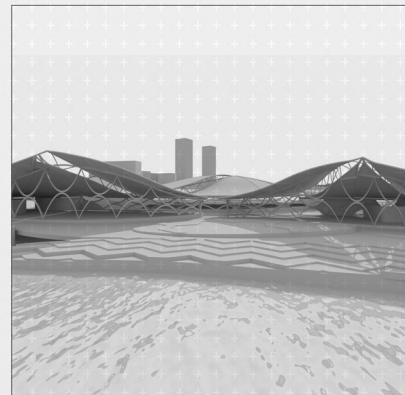
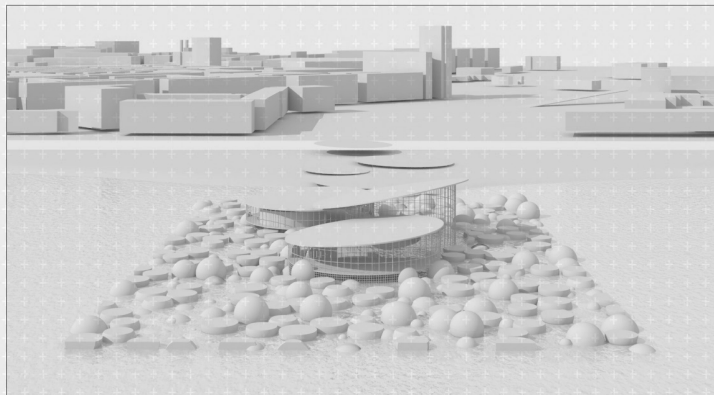
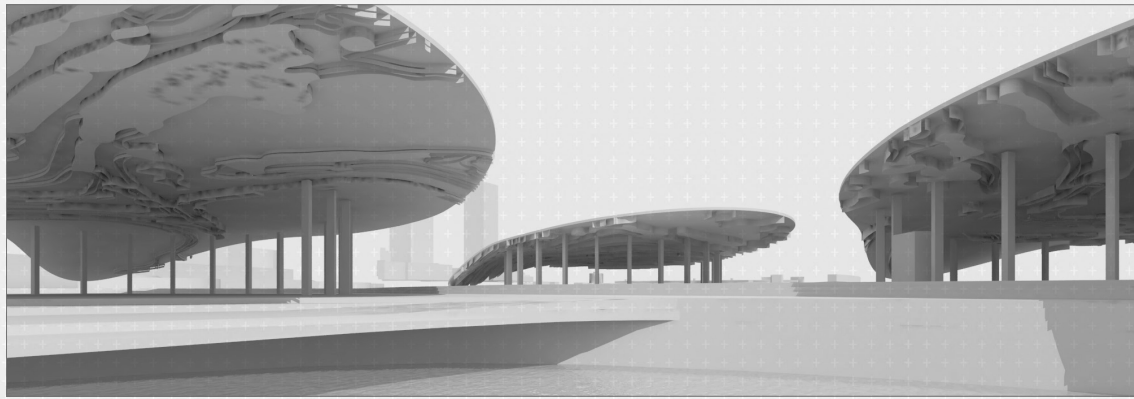


TEAM 16
Michael Salois (Mike), Clemson University, Architecture Undergraduate
Alex Mckee, Clemson University, Architecture Undergraduate

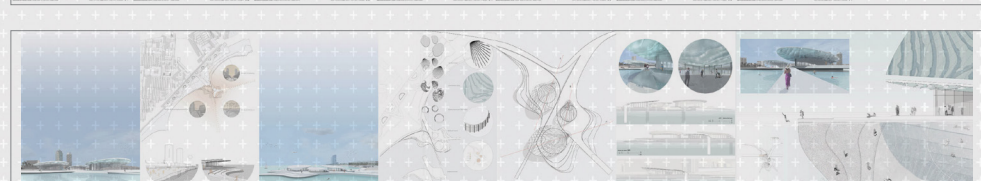
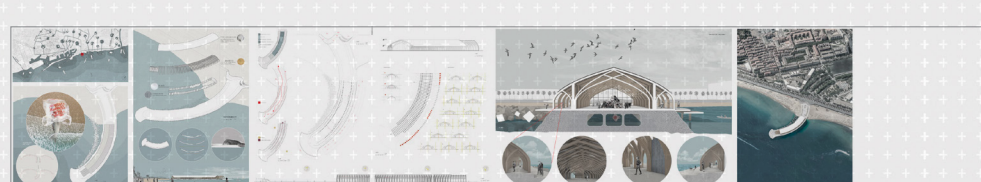
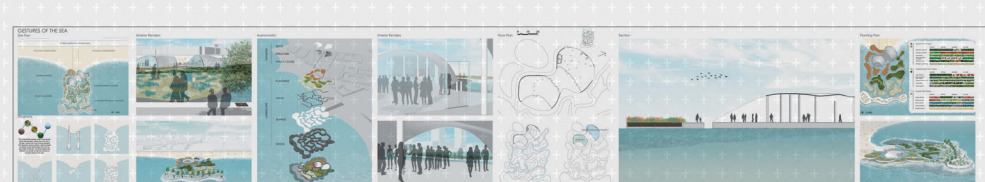
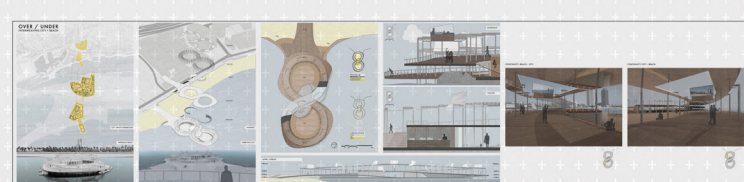
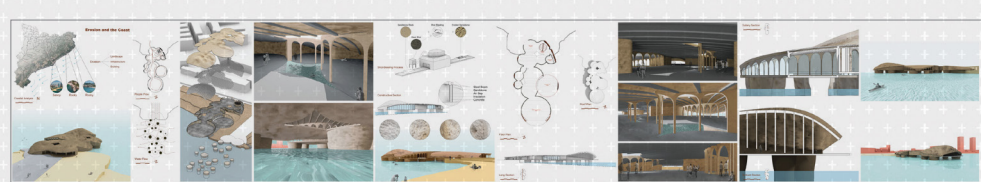
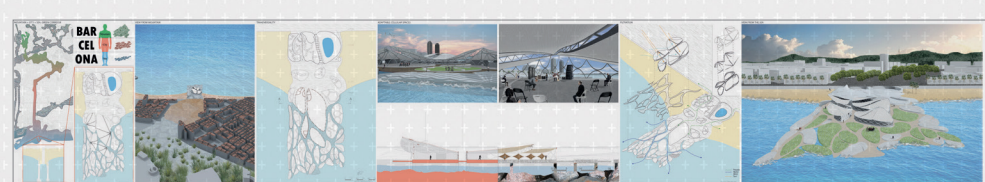
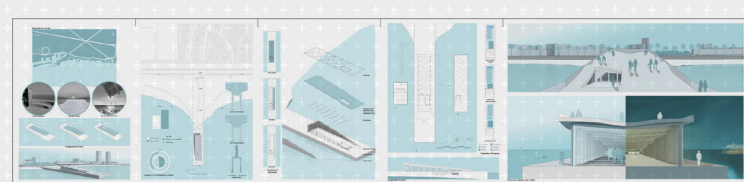
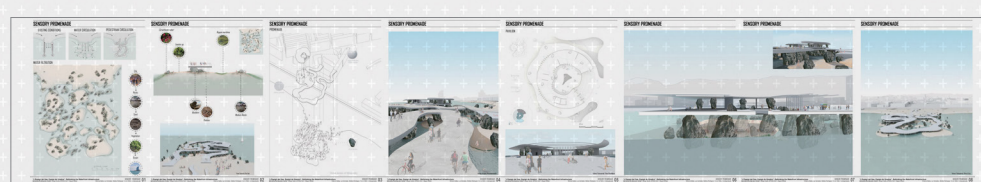
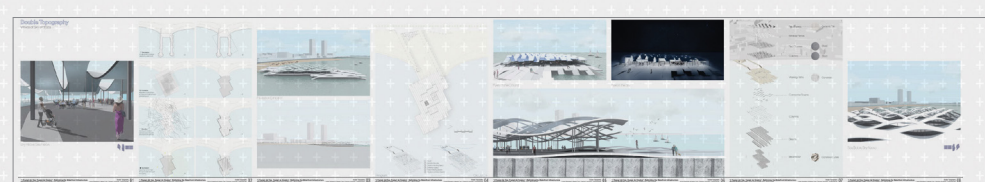
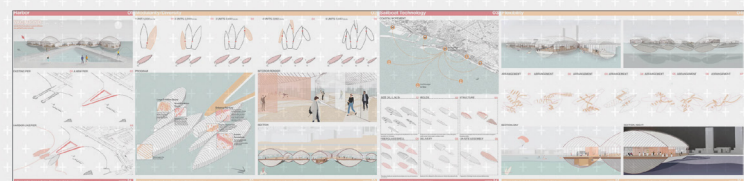
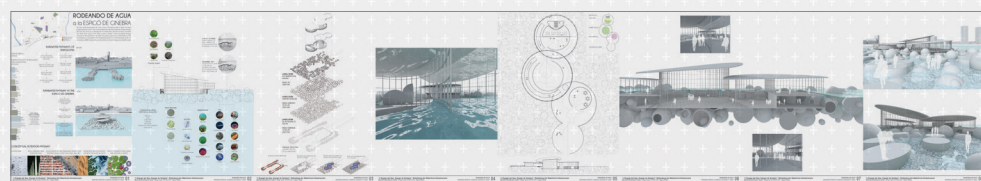
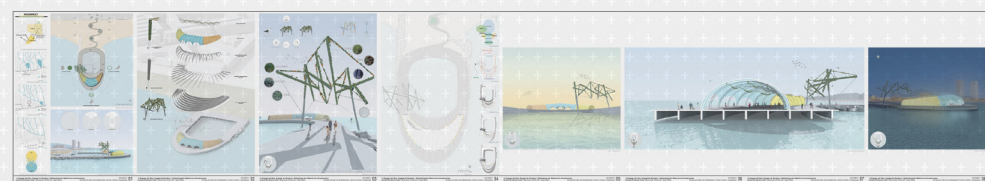
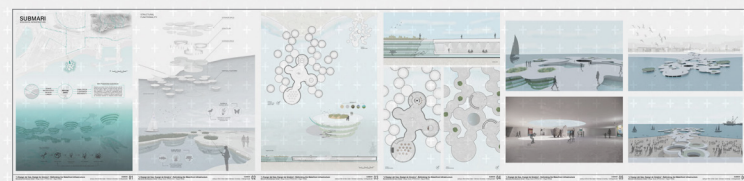
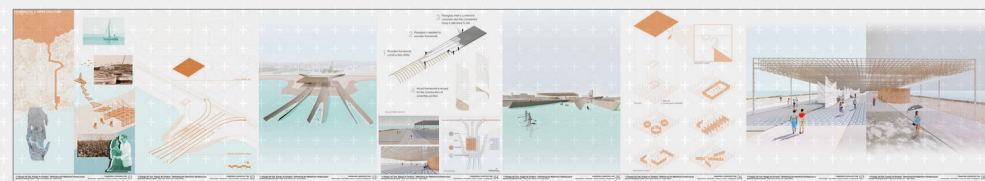




processes







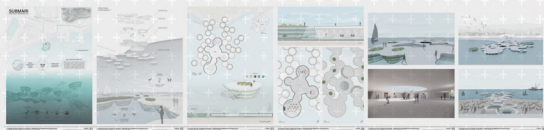
SUBMARI

Joohyun Shin, Clemson University, Architecture Undergraduate
 Alex Cabe, Clemson University, Landscape Undergraduate

The primary goals of the project were creating a multifunctional social space that allows visitors the opportunity to interact with nature, while also implementing ecological strategies to mitigate erosion and improve the environmental quality of the sea. The proposal is aimed at preserving and enhancing the fundamental objective of the breakwater with an abstract and sustainable approach. The alleviation of water pollution in the region was another consideration throughout the design process.

The presence of microplastics, bacteria, and chemicals found into the water supply poses a risk for humans and organisms found in the Mediterranean, especially when unaddressed runoff flows beneath the existing breakwater through pipes after heavy rains.

Superimposed circular forms vertically planted with Neptune grass are aimed at diminishing the rate that polluted matter flows through the breakwater and cleansing any particulates that may exit into the sea. Posidonia oceanica plays a vital role in improving water quality, absorbing carbon dioxide, producing oxygen, and creating habitat for hundreds of species of Mediterranean fish. It also has the ability to collect and bundle microplastics; an estimated 900 million particles per year in the Mediterranean alone. Planting beds that mimic natural dunes along the top of the structure provide an ecosystem for birds and other organisms, while also capturing and purifying rainwater prior to joining the water supply. Planting beds that mimic natural dunes along the top of the structure provide an ecosystem for birds and other organisms, while also capturing and purifying rainwater prior to joining the water supply.



After the initial concept was established, the plan for the programmatic elements was developed to reflect the overarching goals of the proposal. The idea was to create somewhat of a natural aquarium beneath the surface that would reveal the fabricated ecosystem and serve the purpose of a pavilion.

A series of ramps leading down into this space preserves views in every direction from the upper level of the breakwater and promotes a free-flowing circulation with a multitude of opportunities for exploration and immersion. While the concrete materiality of the structure creates juxtaposition against the landscape, the utilization of native grasses and sand dunes within planting beds found along the surface generates unification and microclimates for visitors to enjoy. The varying diameters of the layered circles create a series of solids and voids beneath the water that serve as constructed reefs, bridges, and interior space. They are also vital in determining the primary function of public space on the upper level.

FINAL JURY

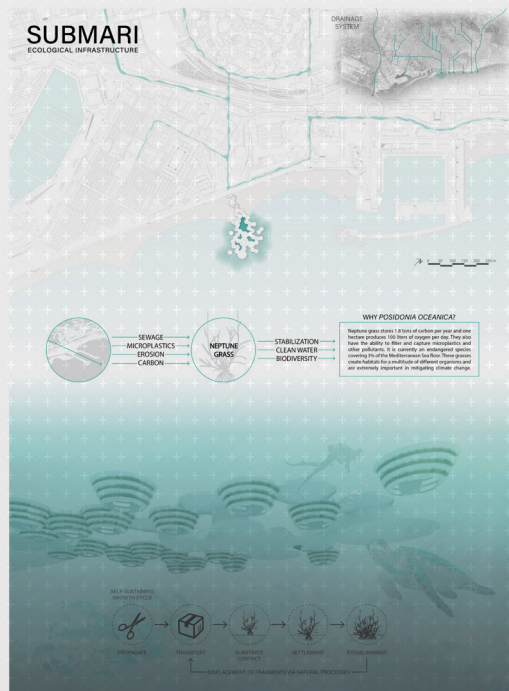
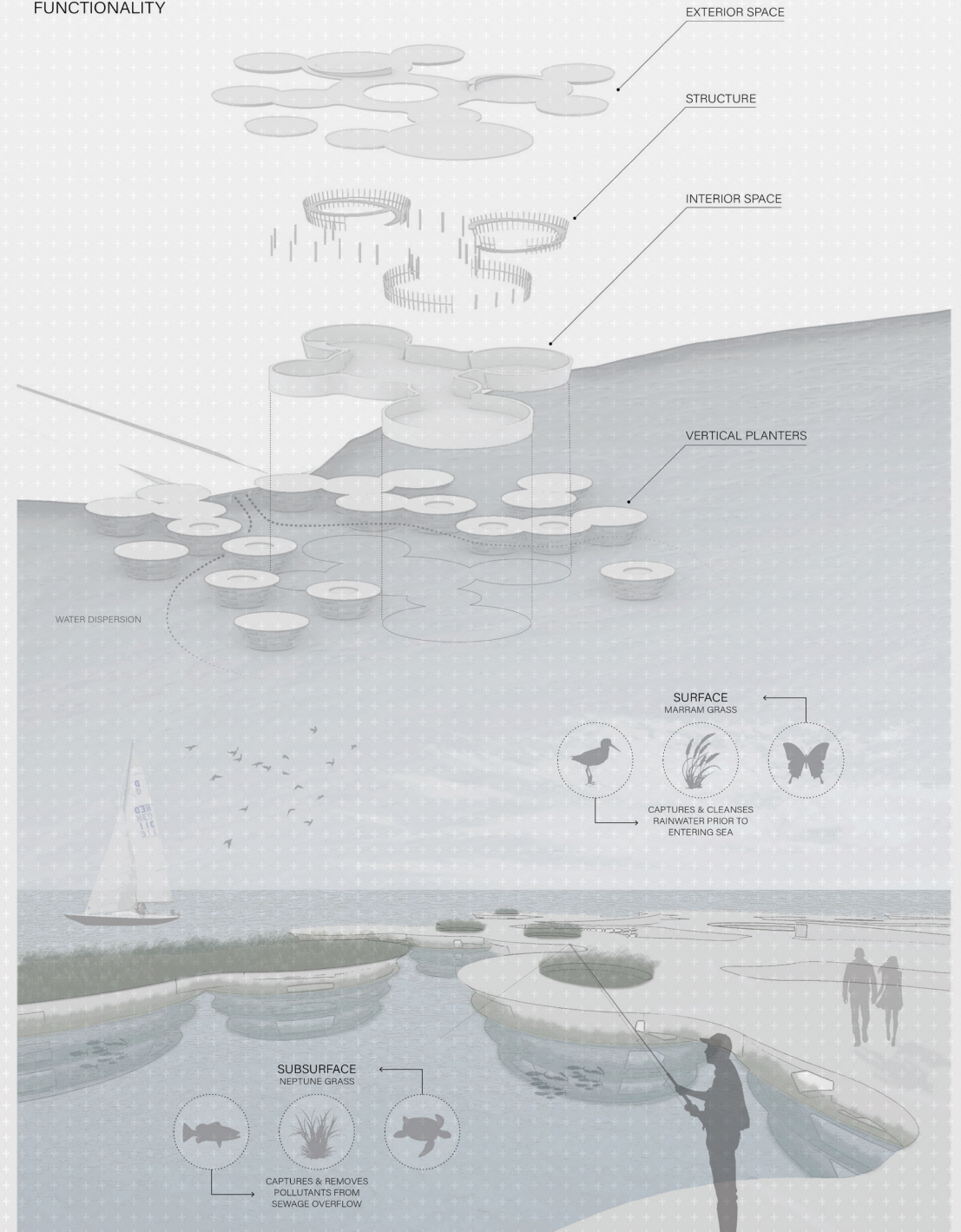
Vincent Morales Garoffolo:
I'm enthusiastic how comprehensive approach you've taken to this design proposal touching all different scales and also incorporating the presence of water into your project. Also for giving the agency to wild life as part of your architecture. It is very interesting to see how from macro to micro-organisms from the city come together here.

Ulrike Heine CU:
I think it is fantastic that you're thinking about cleansing and filtration of water and how to make through the architecture actually to the environment better. I would like to see that you work more with natural lighting here. I wish we had more of the windows that you are designing in the water. We need to think about light control in your skylight openings. I wish you showed your project also from experience of the eye level.

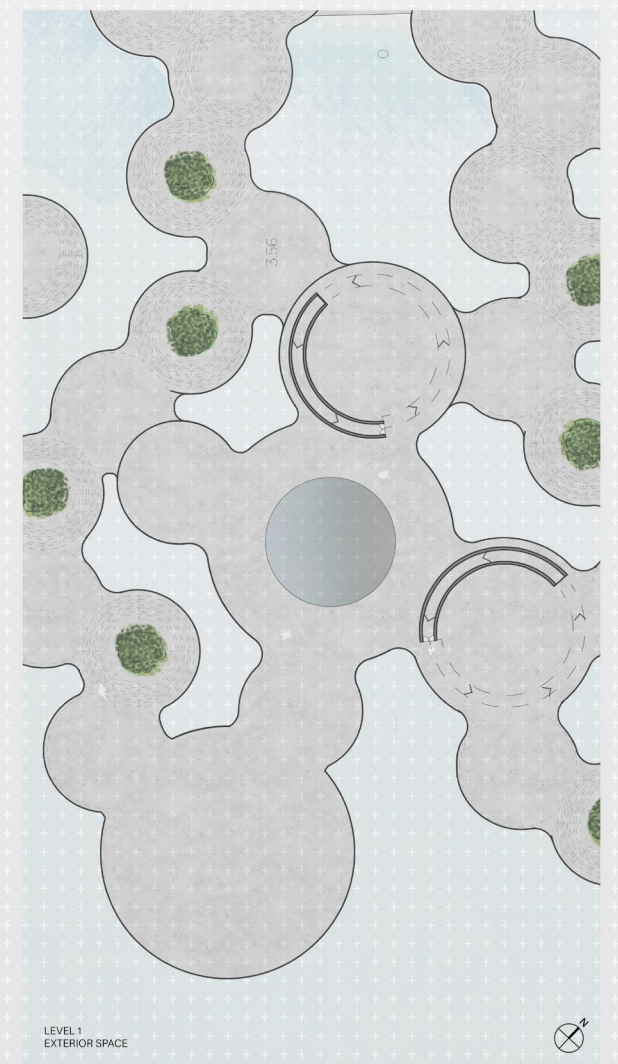
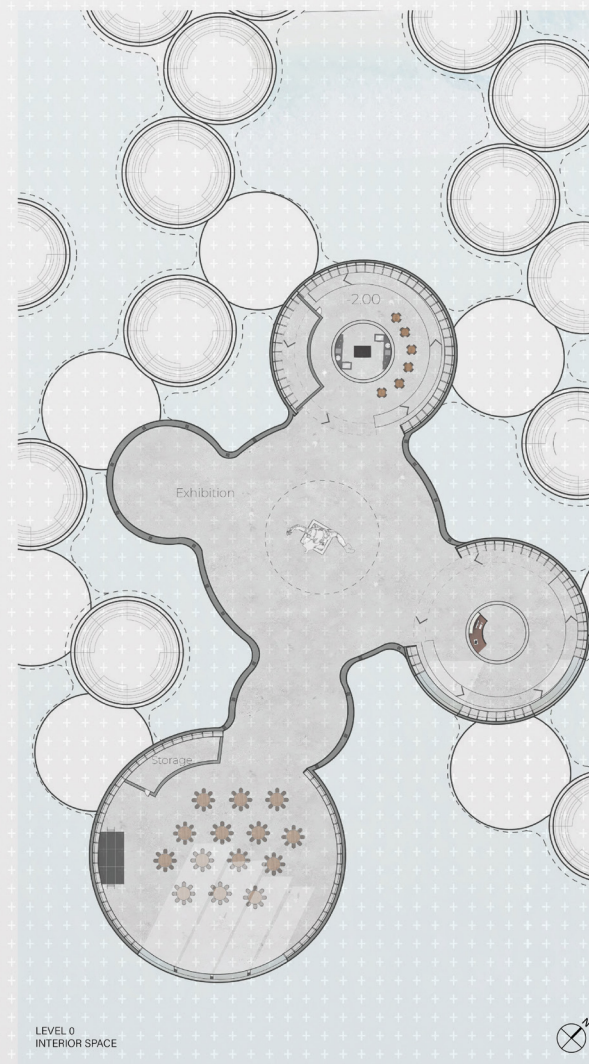
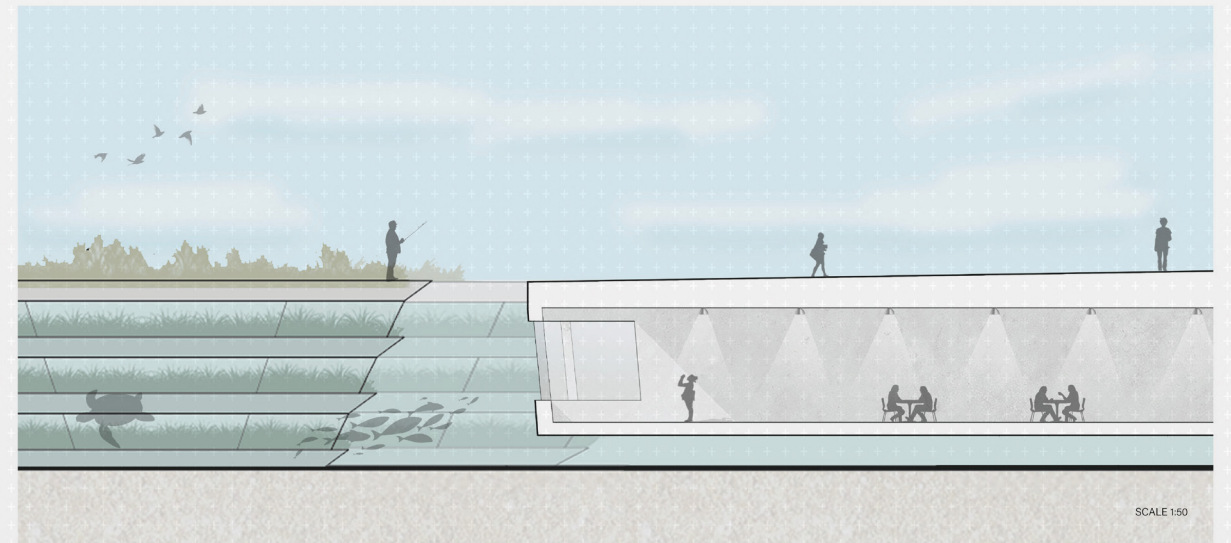
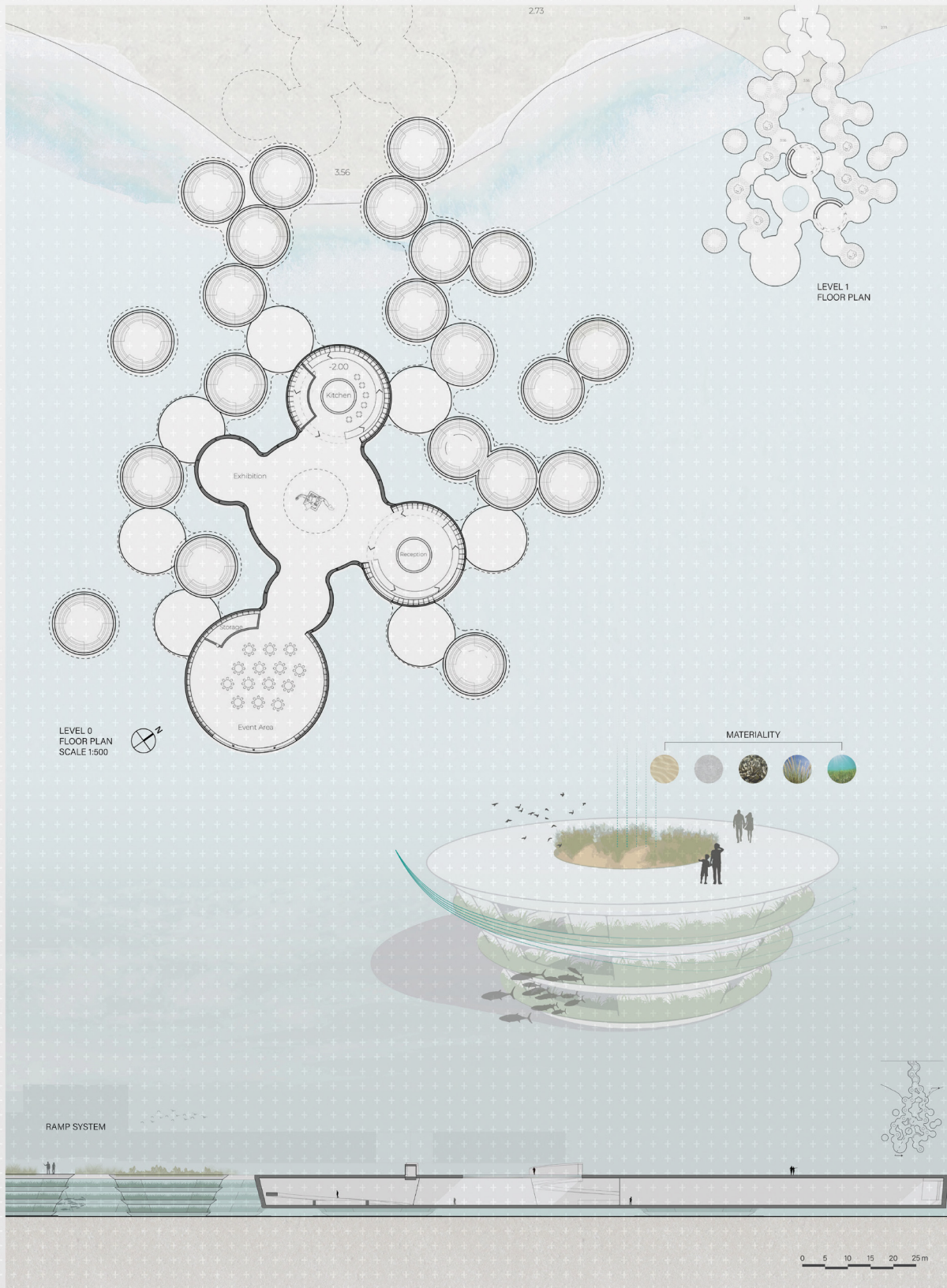
Michael Maher:
I reinforce point about the conceptual approach to this performative landscape architecture and the idea of your project. For me the struggle is the move from conception to execution. While the ideas that are embedded are so powerful, the execution of anything particularly, is that techno code is addressed as truly as possible. So the circle for me represents the issue. In this particular site directionality is crucial. You have the forces of sand movement, forces of sewage, the solar condition and all of this does not support the idea of the circle working together in this site. So the circle to me is not correct approach specifically to this site. I definitely applaud the idea, but I would like to see some more technical requirements of this project in this particular site solved.

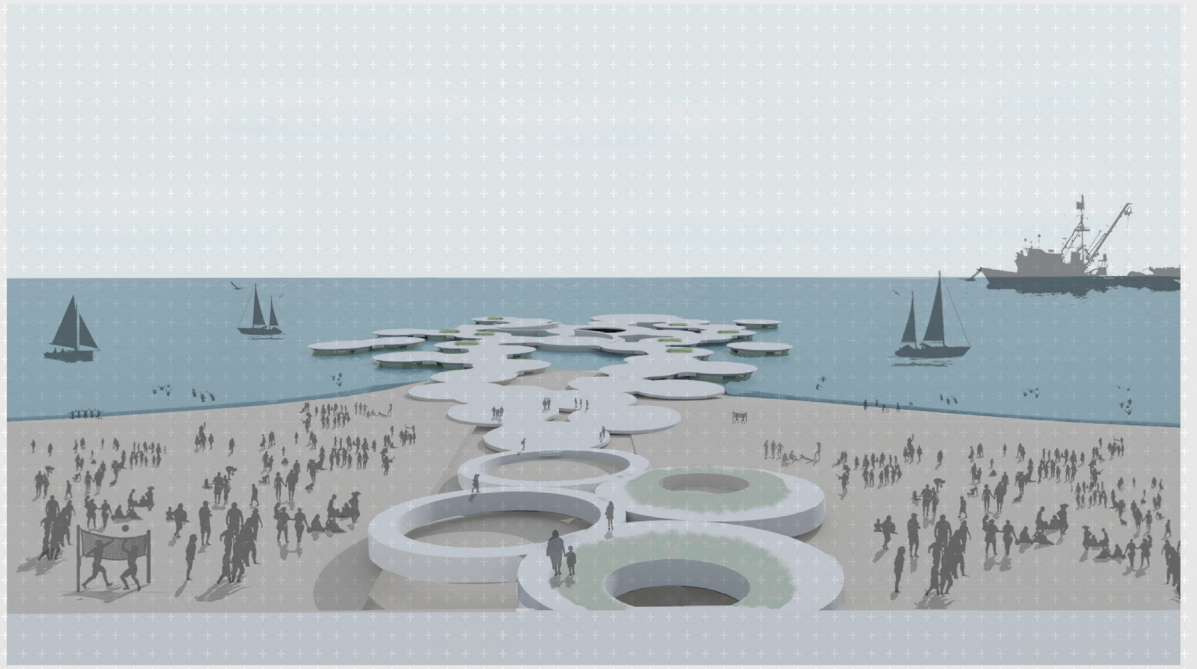
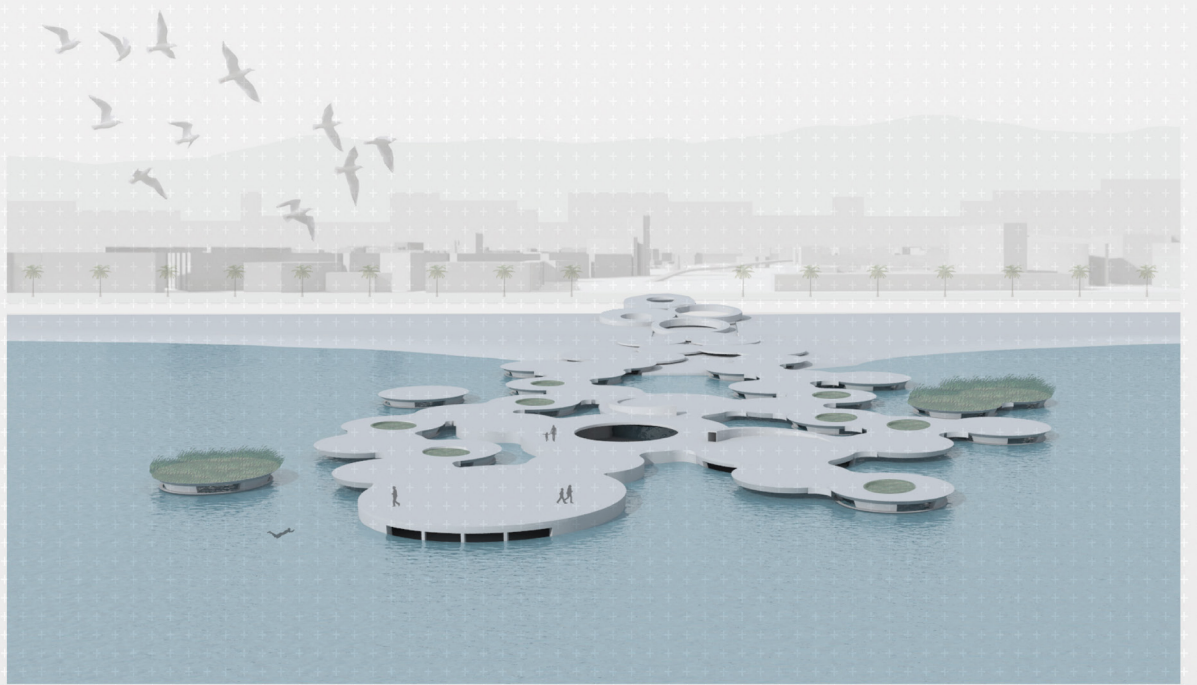
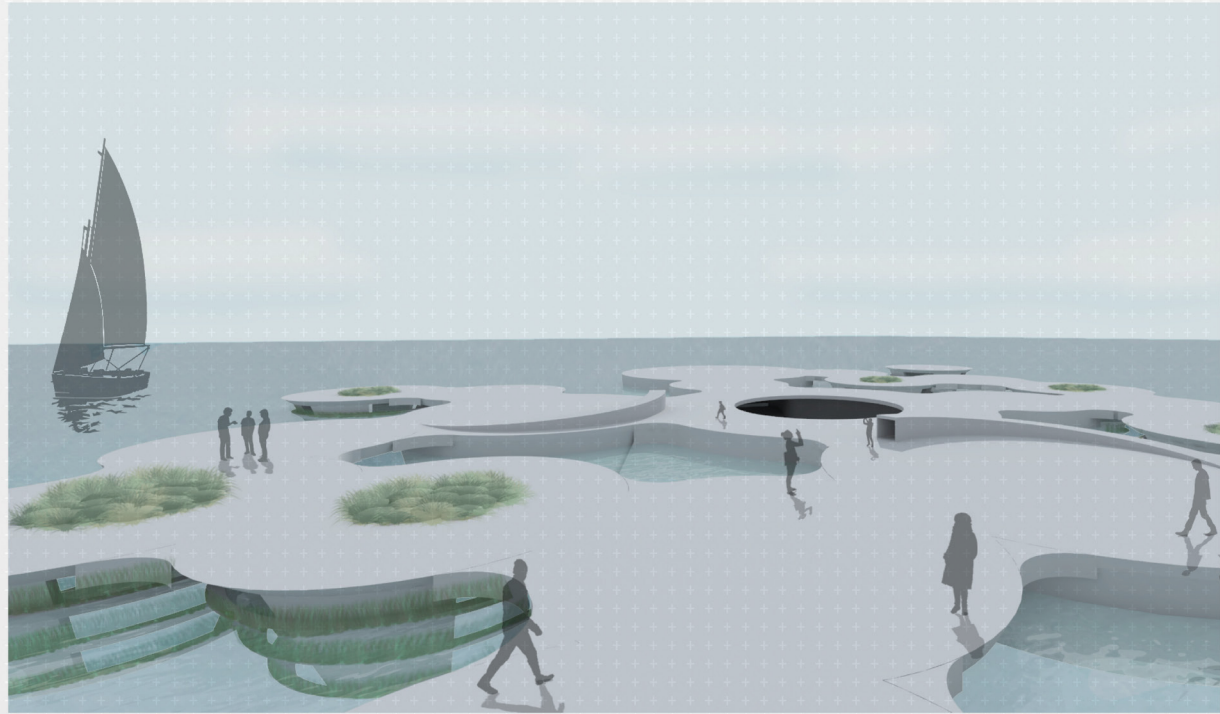
Marcel Emmy TAMU:
I'm interested in a fact that in this solution the building does not appear as a building, but it appears as continues surface that comes from the beach into the sea with no emerging elements from the sea. It is very brave to imagine the architecture seen from under the sea and you visualize it on your first image.

STRUCTURAL FUNCTIONALITY



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 Barcelona Architecture Center | Design Studio 019/020/2021 | Miguel Fiollet
 Joohyun Shin & Alex Cabe | Clemson University | Undergraduate
SUBMARI 01





MOUNT - CITY - SEA

Jack M Chatelle, Texas A&M University, Architecture Undergraduate
 Emmanuel Guerrero, Texas A&M University, Architecture Undergraduate

The main theme that influenced our design was the green corridor that runs from Tibidabo mountain through the city and ends at the Mediterranean Sea. Where the green corridor ends, we have natural and urban factors transverse. The redesigned breakwater adapts to both the natural and urban environment around it, like a living organism.

The breakwater is composed of cells that are adaptable to be used for activities and filter out natural and urban factors. The breakwater serves as the closure of the corridor from the mountain to the sea. There is a strong connection between the city level and the beach level with two ramps and stairs to increase movement between the two levels and have a natural connection to the breakwater. At the breakwater there are four pavilion cells; that are a reception area, atrium, service area, and kitchenette.

The breakwater integrates aspects from the mountain, the city and the sea. This is achieved by having the foundation of the breakwater be composed of stones, a representation of the mountain. The pillars, the slabs, and arches of the pavilion are made out of concrete to represent the city. Finally the carbon fiber supports for the roof and the canvas mesh roof are a representation of the sea, though a sailboat and the wind being an important factor of the sea

The breakwater would promote growth of marine flora and fauna, which will then turn into a reef which will provide protection for plankton and fishes, while also protecting the coastline from erosion by reducing the energy of the waves. The axonometric is showing the breakup of the breakwater into the main components. The cells, the circulation, the pavilion. The breakup of these components shows how the cells filter out the water, the circulation filters out people.

The breakup of the pavilion into the walls, roof supports, and the roof further shows the filtration of people, the wind and the sun. It is the closure of the corridor from the mountain to the sea. The breakwater embraces the mountain, the city, and the sea to create an adaptable and usable space for anyone to use.



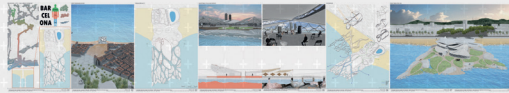
FINAL JURY

Marcel Erminy TAMU:

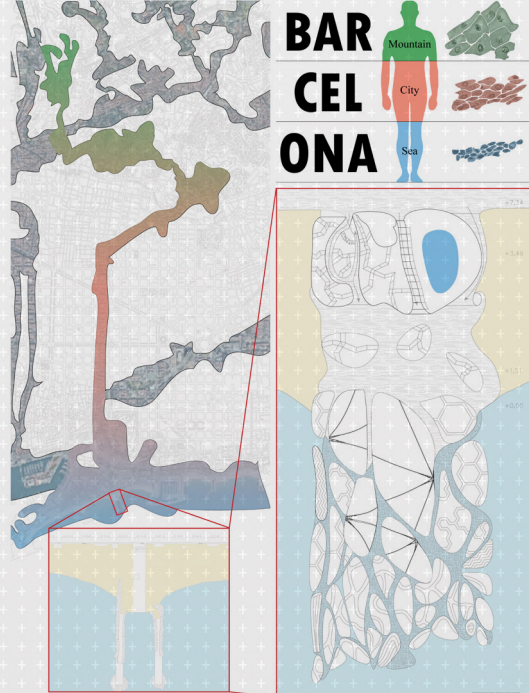
There are extremely very sophisticated concepts that you are dealing with and I appreciate the concept of filtration. The filtration of people or filtration of whatever we do, I think it is interesting to begin to express what that might be in terms of architectural response.

And I admire that you can think on that level of dept of understanding that filtration can be something that you can begin to apply into this complex response. So from the conceptual stand, I think it is very powerful.

But then your drawings, the formal decision and graphic interpretation should be more precise and rigorous in my opinion.



MOUNTAIN + CITY + SEA: GREEN CORRIDOR



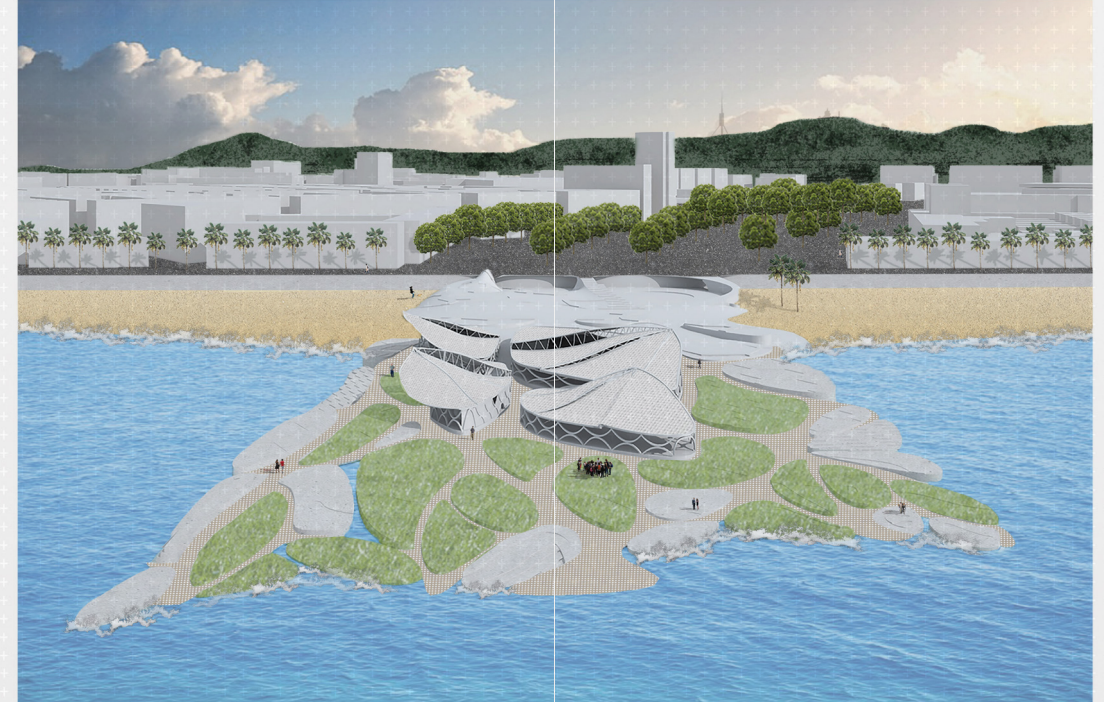
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 Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Roldán
 Emmanuel Guerrero and Jack Chatelle/Texas A&M University | Undergraduate
 MOUNT-CIT-SEA 01

VIEW FROM MOUNTAIN

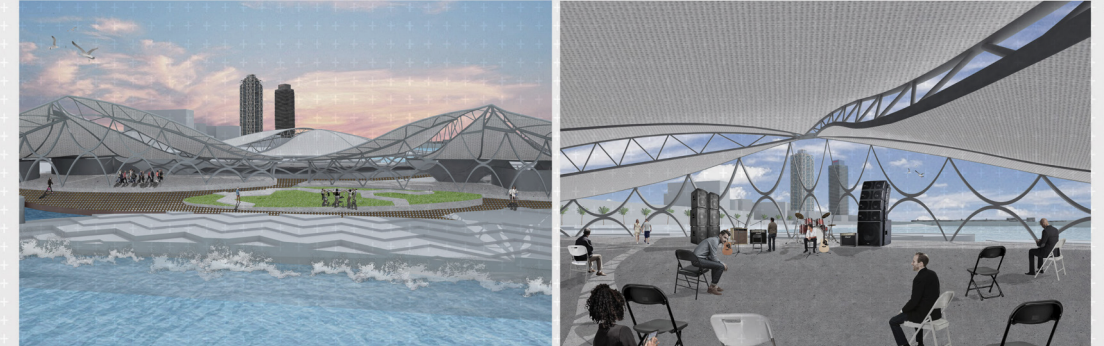


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 Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Roldán
 Emmanuel Guerrero and Jack Chatelle/Texas A&M University | Undergraduate
 MOUNT-CIT-SEA 02

VIEW FROM THE SEA

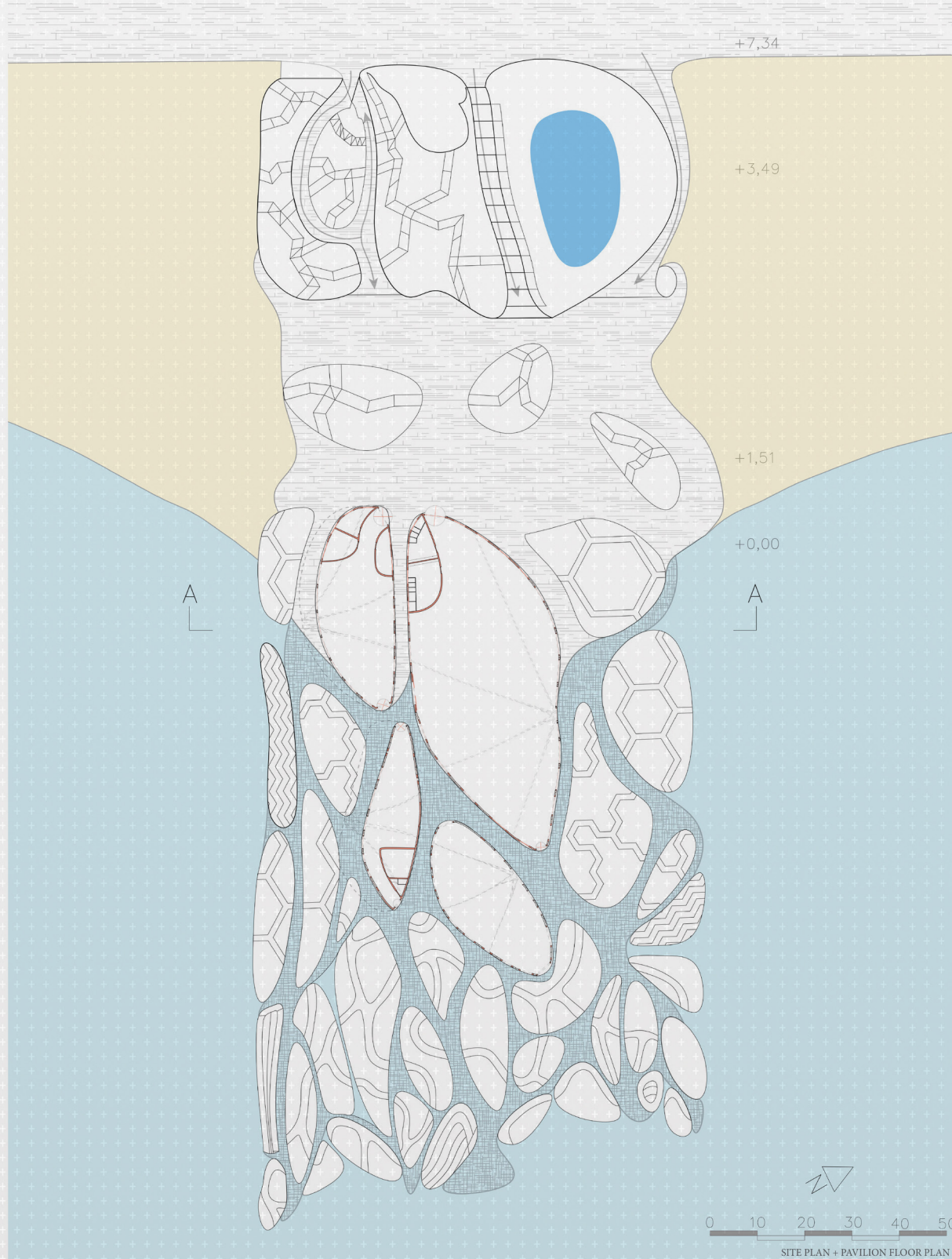


ADAPTABLE CELLULAR SPACES



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 Emmanuel Guerrero and Jack Chatelle/Texas A&M University | Undergraduate
 MOUNT-CIT-SEA 04
 "L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
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 Emmanuel Guerrero and Jack Chatelle/Texas A&M University | Undergraduate
 MOUNT-CIT-SEA 05

TRANSVERSALITY



FILTRATION



WAVES IN THE WIND

Maddy Cost, Clemson University, Architecture Undergraduate
Lauren Bradshaw, Clemson University, Architecture Undergraduate

At the current site of the project, you will find a flat strip of concrete leading to two more flat strips of concrete, baking in the sun with no shade. This environment is rather underwhelming and harsh compared to the surrounding city and sea. Upon meeting these conditions, we propose to create a ground and sky of the same code, that of waves and wind.

A double topography, to compare the movements of water and air around the site. Our proposal gives volume to the ground and perspective to the sky, providing an experience of walking on waves. The varying heights changes one's perspective of the expansive sea when walking through the site. Interplaying sun and shadow pockets perpendicular to the north axis allows for a pleasant escape from both the city and intense sun, while still enjoying the vast natural light expressed in the atmosphere of the shore.

The eyes in the roof focus daylight into the pavilion, further creating wave-like shapes along the ground. Floating on the sea, the pavilion gives the impression of a textile flowing in the wind, to both those on the beaches and in the water.

You emerge from the city, onto the beach, and approach elevated walkways leading to a monumental floating textile just beyond the beach. Walking towards the sea, you look down to the people basking in the sun, but you do not wish to be one of them because you are seeking refuge from the heat.

Stepping down the bridge, to the pavilion, the ground beneath you is solid, but not flat. It feels as though you are walking on the waves created in the water by the wind. Moving further under the shelter, the roof casts large waving shadows upon the ground. Looking straight ahead you are experiencing the sea reflected back towards you, but you come to realize that you can also see the vast expanses of the sea peeking out from under the ceramic blanket above you.



Double Topography Waves of Sky and Sea



Sky Above, Sea Below



Walking closer to the sea you peer through the glass wall ahead and notice a large gathering of people. What could they possibly want to look at other than the view, you think to yourself. You feel the cool relief of the shade but are captivated by the sea and continue walking forwards. Finally you reach the extent of the waving topography and take in the sea extending outward. Resisting the urge to jump into the cool waters below, you turn back and observe the double topography form in front of you and the city beyond.

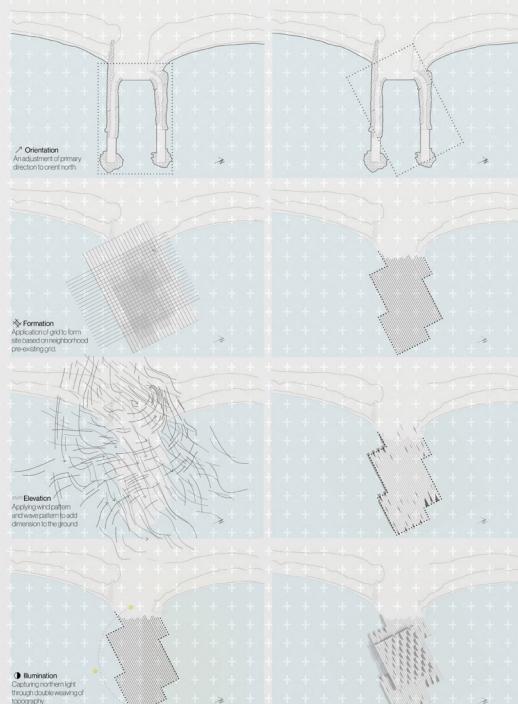
FINAL JURY

Ulrike Heine CU:

I think it is very interesting approach that you ladies have. You create this double waves surface and endless spatial experiences. I would study the edge condition. The next step for me would be to start thinking that the waves have more hierarchy and more diversity in the movement. And I'm very excited with this proposal.

Michael Maher:

I find the canopy extremely elegant. I'm concerned about your verbal description in which you say that you mimic the form of the wave. I'm not interested in mimicry as an architectural device. I think that the nature of the waves are explained by the form then you're getting into something more worthwhile.

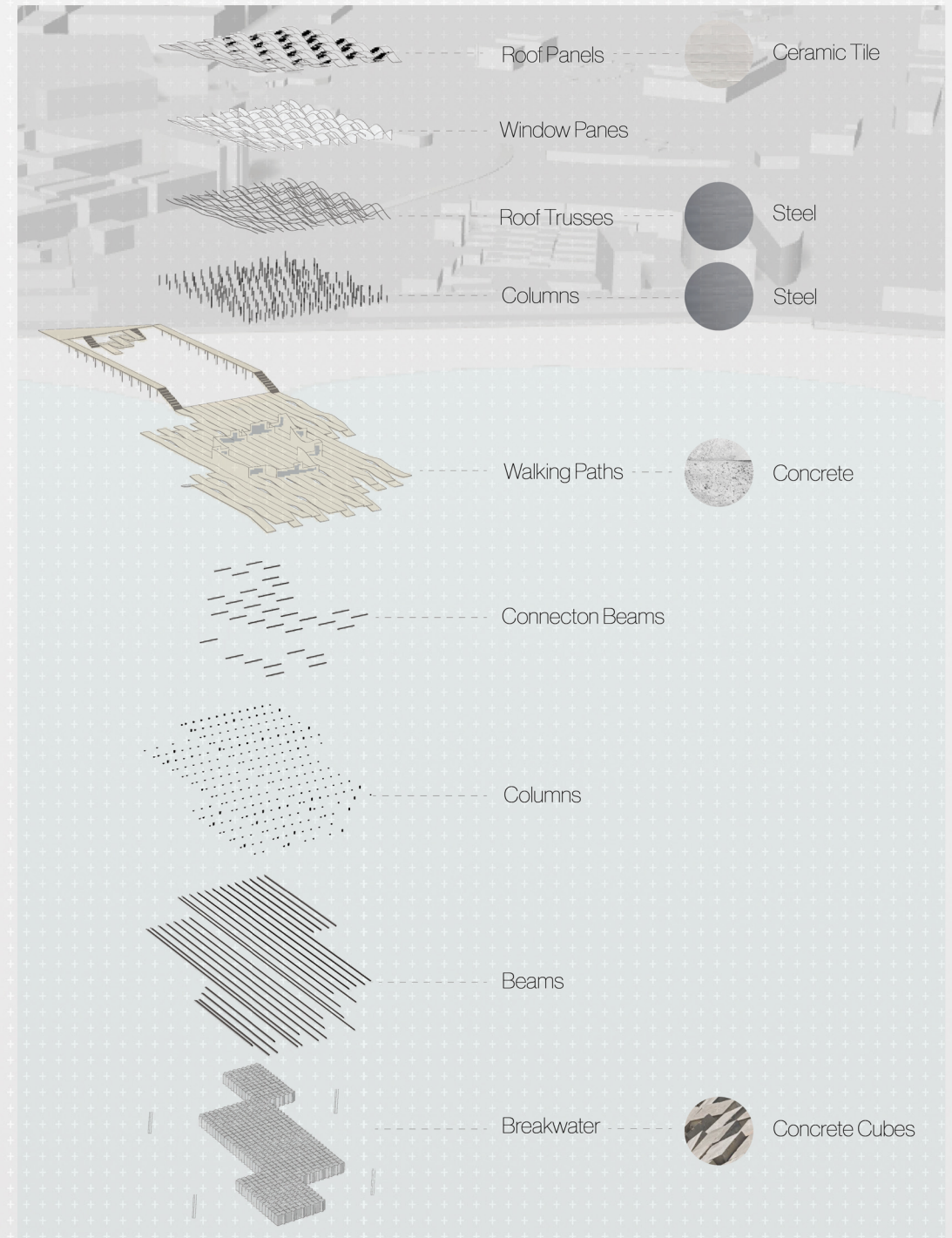


Orientation
An adjustment of primary direction to orient north

Formation
Application of grid to form structure on irregular ground pre-existing grid

Elevation
Adding vertical dimension to add dimension to the ground

Illumination
Capturing natural light through double waving of topography



Roof Panels --- Ceramic Tile

Window Panes

Roof Trusses --- Steel

Columns --- Steel

Walking Paths --- Concrete

Connection Beams

Columns

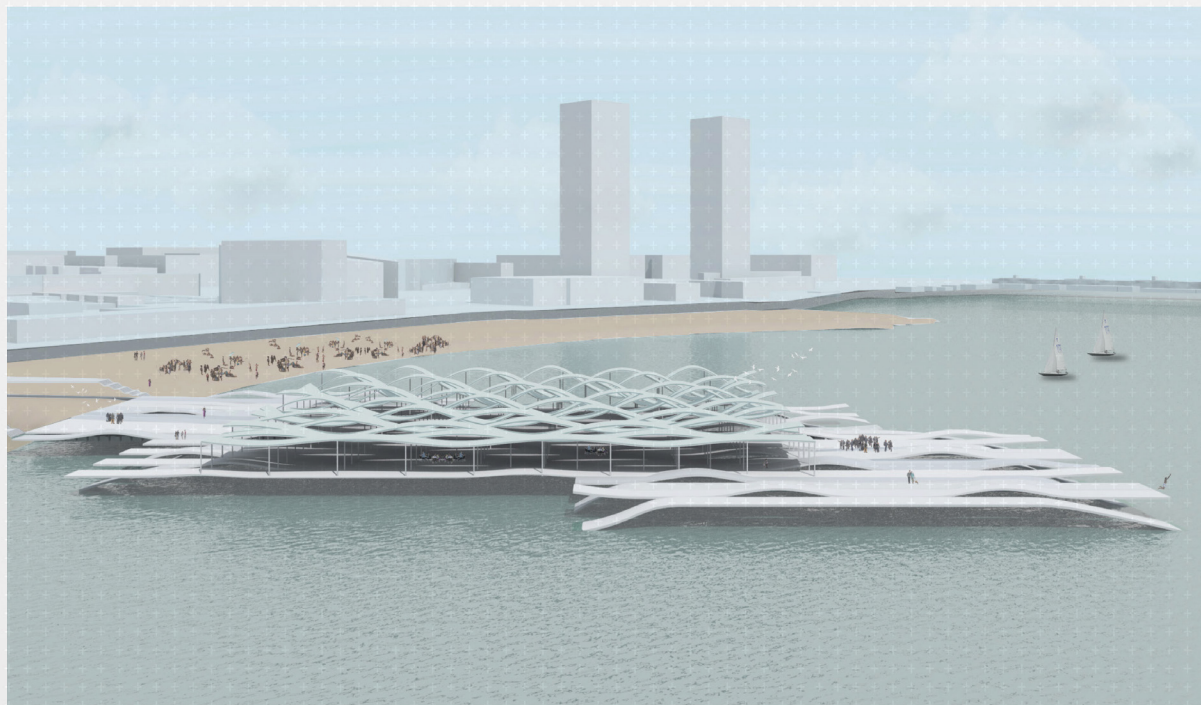
Beams

Breakwater --- Concrete Cubes

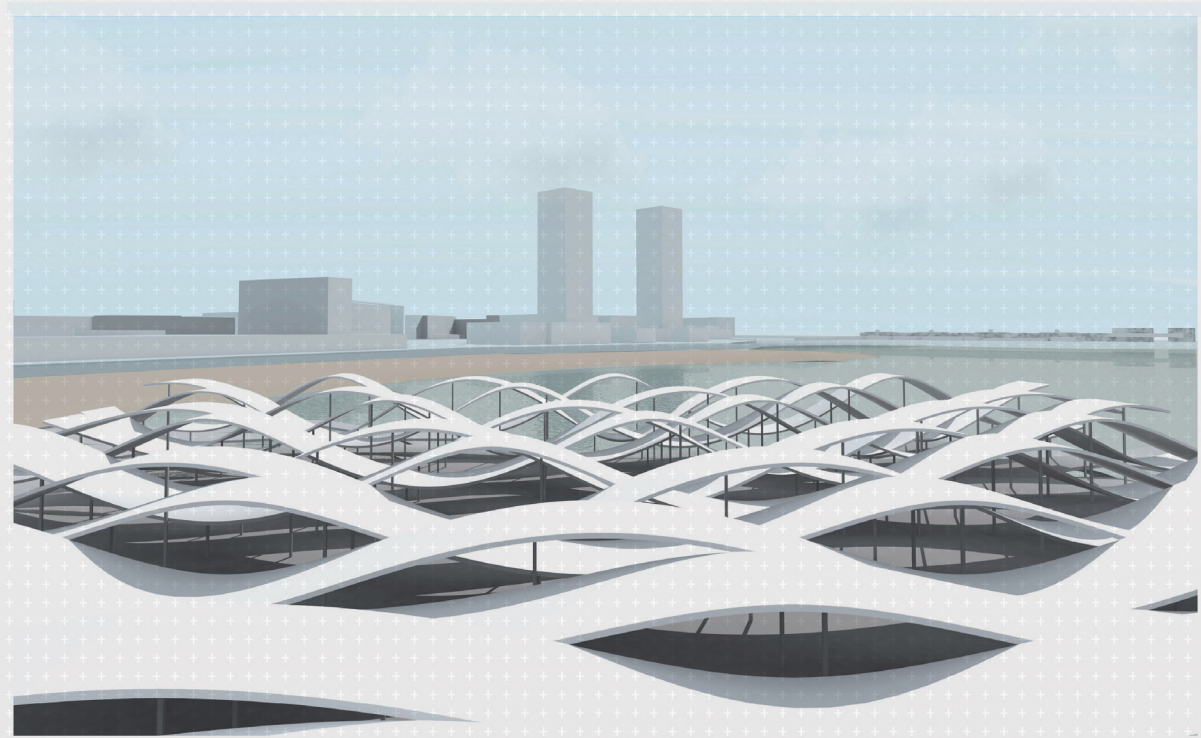
The canopy to me could be one of those clever tricks that make the experience more of what is underneath you than what is above you. This canopy could serve two functions, one is the space that you have created underneath it and you can rent that for significant amount of money and it would probably be booked every day because of the experience of being out there. The way the light comes through and the sound of waves being there and all that. Great idea and great way to design it. And I think you should have explored more the connection with the sea on the lower level and the connection with the breakwater by splitting the panels or similar. I'm very excited about this project.

Marcel Erminy TAMU:

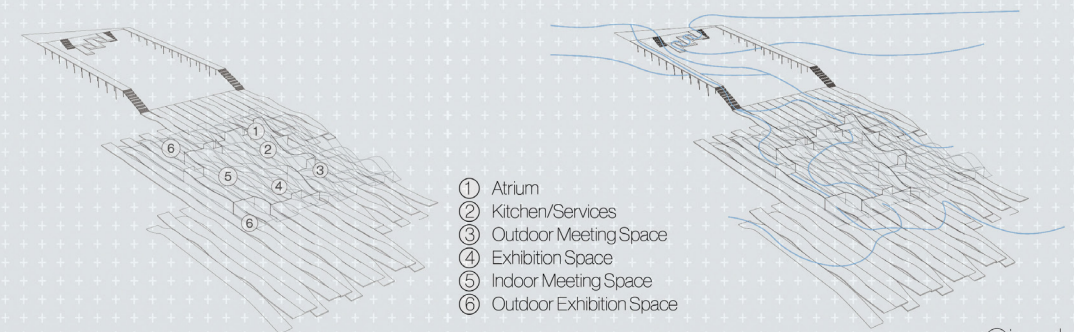
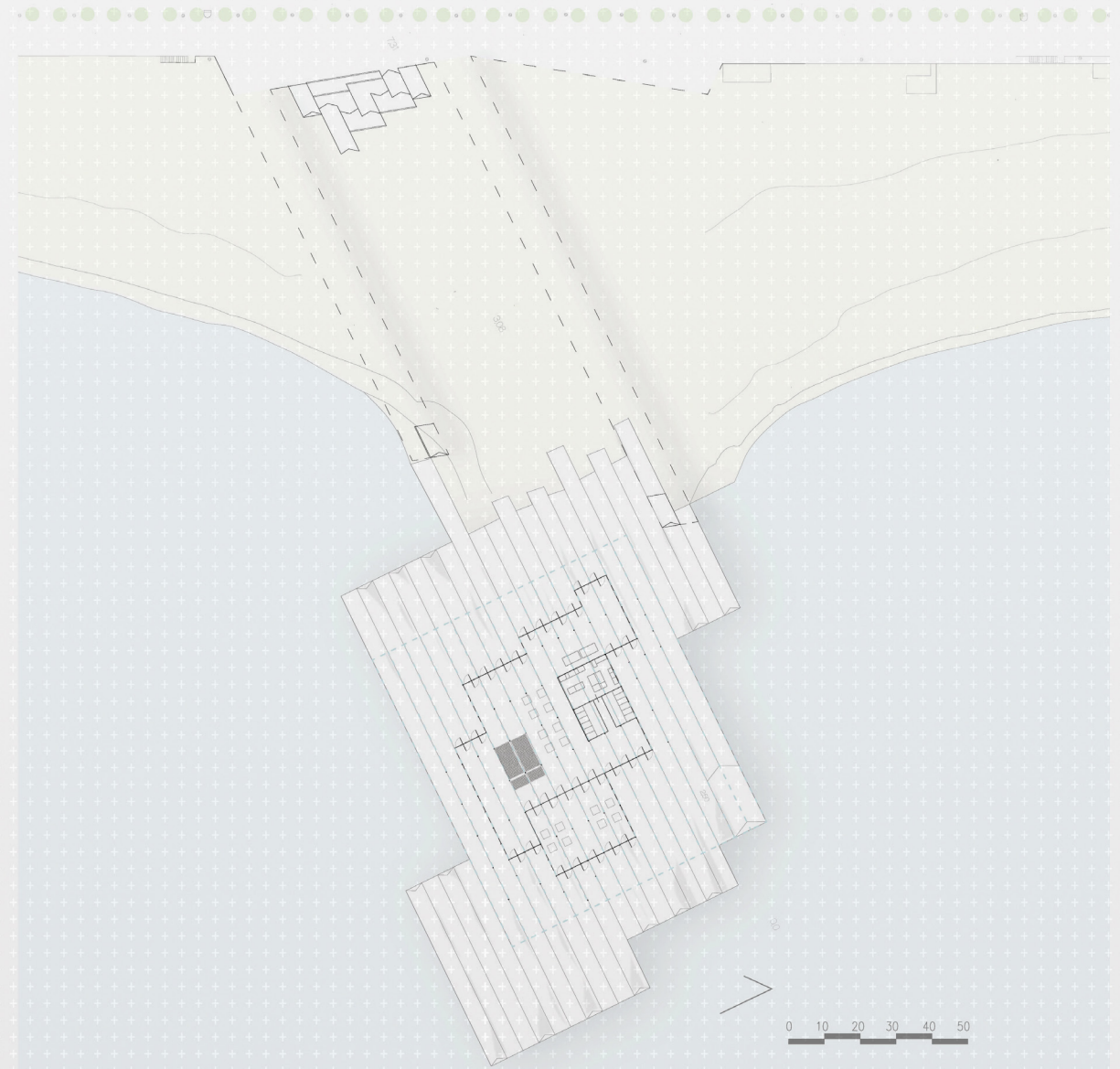
I think it is fascinating this section where you froze the moment of wind movement in your project. Maybe the waves should have touched the ground and the continuation of the flat surface on the beach side. I wonder if the structural grid that you have designed should be more informed on relationship with the height of the waves where at some point on lower level the wave itself can be structural. And with that the structural support and the wave become more cohesive as a solution. I really want to congratulate you by this section and what it evokes and it commits what this project is about.



Flotation Exhibition



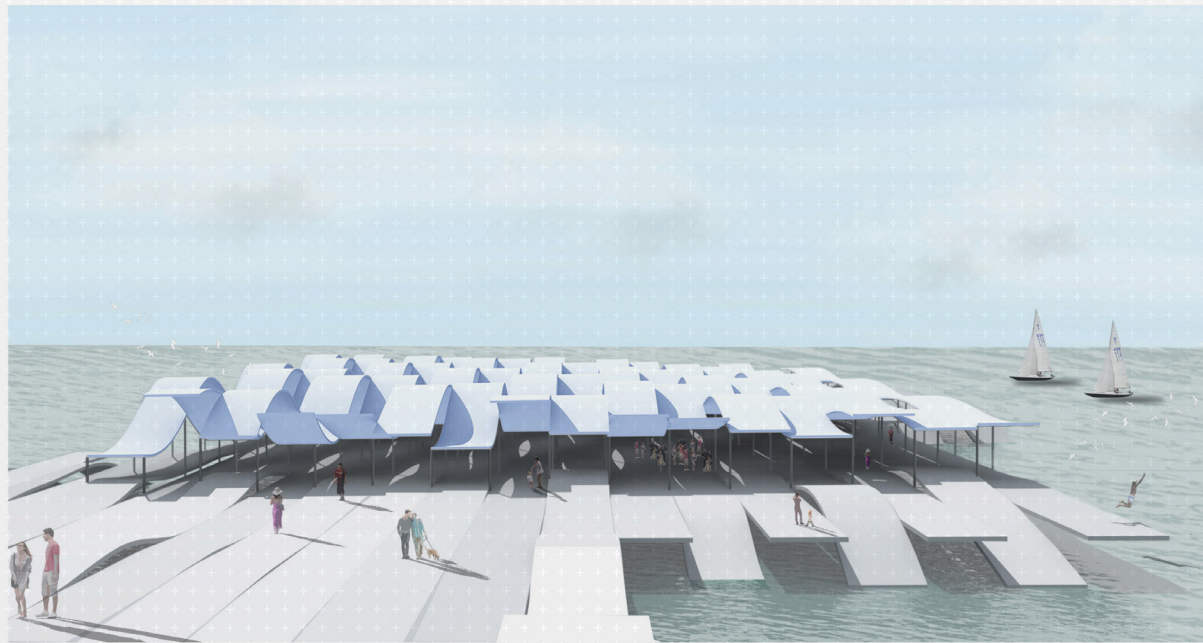
Sea Below, Sky Above



- ① Atrium
- ② Kitchen/Services
- ③ Outdoor Meeting Space
- ④ Exhibition Space
- ⑤ Indoor Meeting Space
- ⑥ Outdoor Exhibition Space

Program

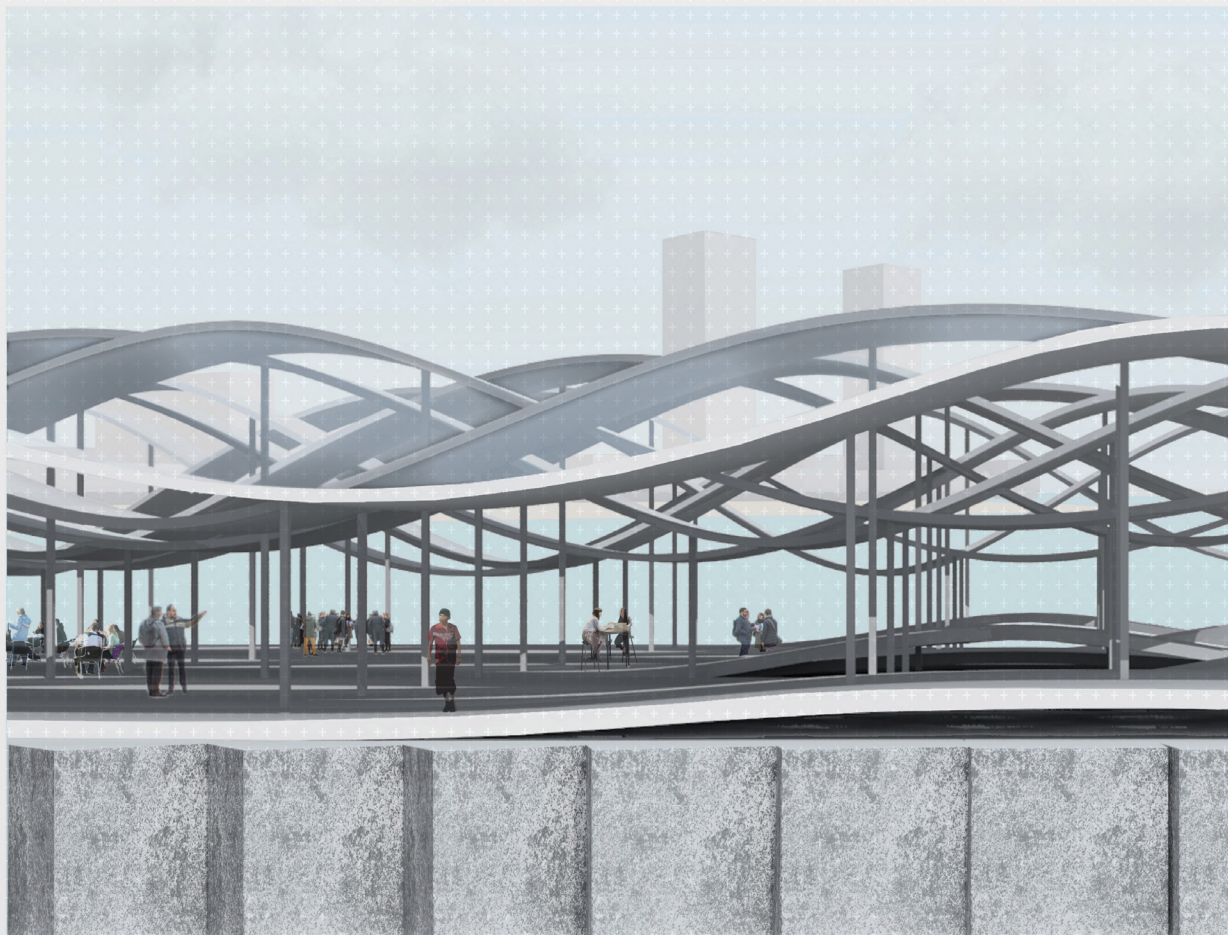
Circulation

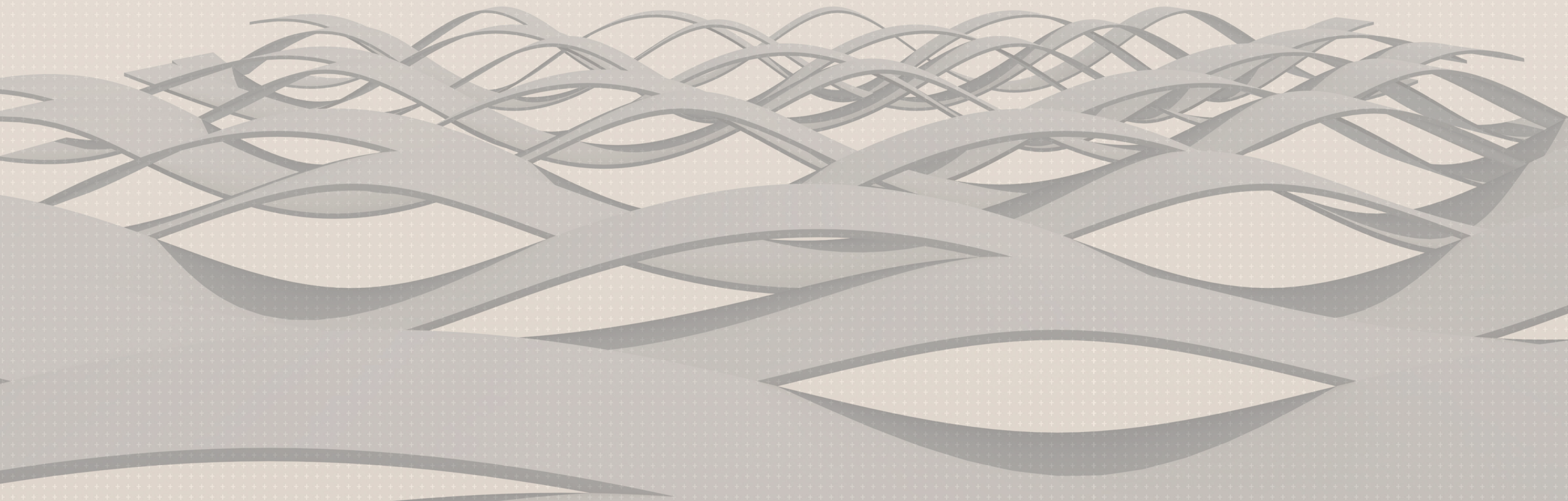


Eyes on the Ground



Eyes in the Sky





GESTURES OF THE SEA

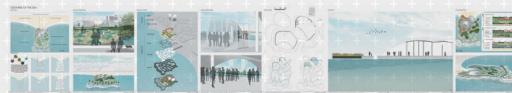
Susan He, Clemson University, Architecture Undergraduate
 Lauren Alexander, Clemson University, Landscape Undergraduate

Gestures of the Sea is a project inspired by water movement and processes. The islands extending from the beach out to sea are shaped as if they were eroded away by water. The pathways throughout the site follow these organic shapes while varying in width, similar to various waterways throughout the globe.

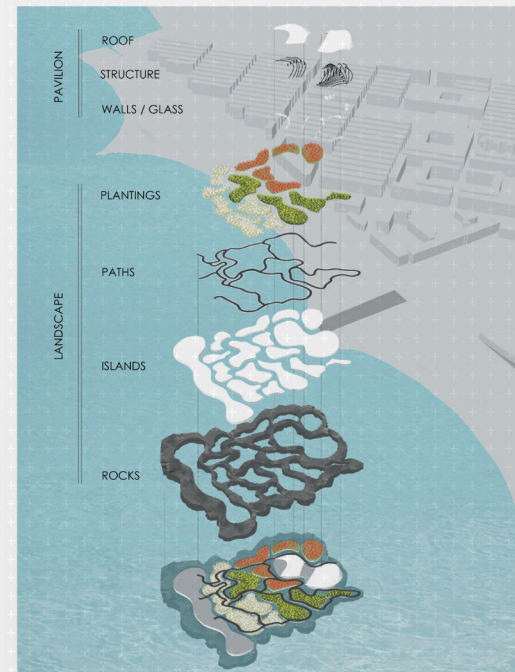
At the front of the site, stand two pavilions, which serve as event and exhibition spaces, both with additional outdoor spaces. The two pavilions on the site provide an atrium, restroom facilities, kitchen services, and exhibition space. The main use for the pavilions is for events. The organic shapes of the pavilions represent the fluidity of water, and both pavilions contain glass walls to reflect the blue of the sea. The pavilions are located at the front of the site to provide easy access to guests and services when events are held. The pavilions overlook the islands that lead visitors to the sea.

On top of the islands, are three distinct planting styles: Spanish, Mediterranean, and Coastal. Visitors will enter the site in the Spanish style garden, and find as they move through the site, the styles of gardens broaden out from Spain to the Mediterranean, and eventually to the sea. All three planting styles will provide varying experiences for visitors, but all work to connect people to the sea.

At the end of the islands, is the largest island.. On this island people have space to rest, relax, and reconnect to the sea. This platform carries through the Coastal garden plantings and has built in seating and shade trees. Gestures of the Sea provides an experience for both local residents and visitors to leave the beautiful city of Barcelona and enjoy the Gestures of the Sea.



Axonometric



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 GESTURES OF THE SEA
 Lauren Alexander/Susan He | Clemson University | Undergraduate 03

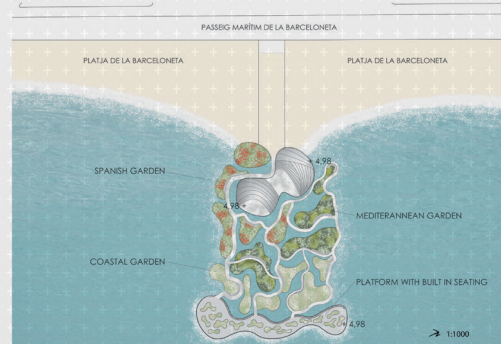
Interior Renders



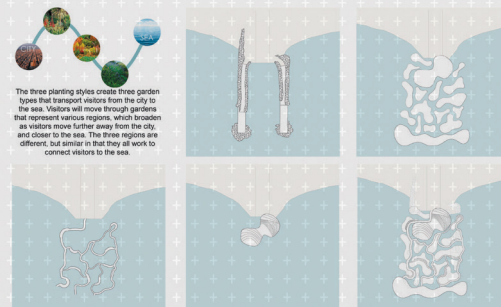
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GESTURES OF THE SEA

Site Plan



Diagrams



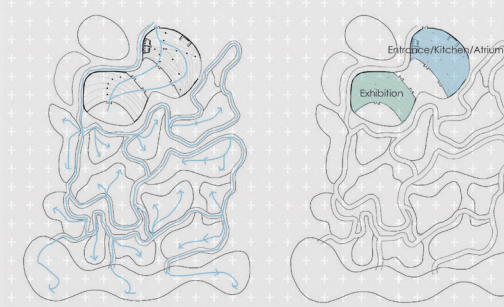
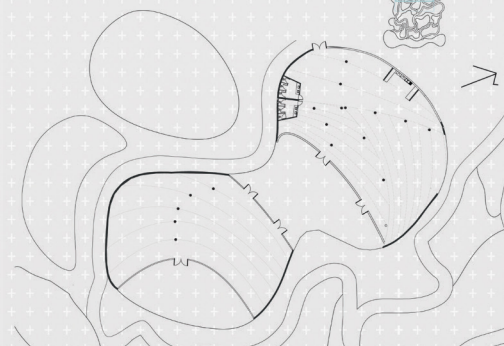
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Exterior Renders



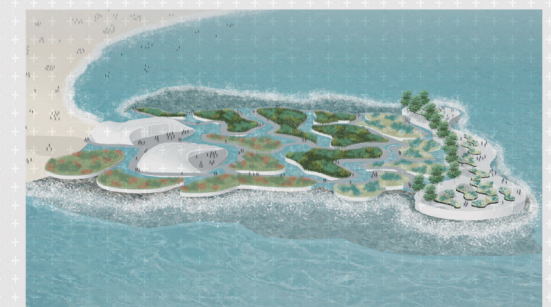
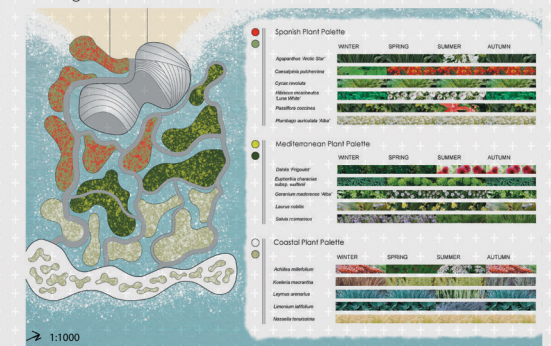
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Floor Plan



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Planting Plan



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 Lauren Alexander/Susan He | Clemson University | Undergraduate 08

EROSION AND THE COAST

Max Edward Binion, Texas A&M University, Architecture Undergraduate
Kalle Alice Bentson, Texas A&M University, Architecture Undergraduate

Erosion is the natural process in which wind, water, and the fluid movement of people transport and wear away the rocky material of the extended site. We wanted to illustrate the differences between natural, rocky coasts of Catalan and the artificial sandy beaches of Barcelona. So, we approached the question of how can we best continue the natural coastline using the natural process of erosion to inform and define our building. Every aspect of the project is influenced by erosion.

The site acts as a continuation of the Catalan coast, and thus experiences the same symptoms of erosion; juxtaposing the sandy beaches of Barcelona with a rocky outcropping of the natural coastline. There are two systems of fluid movement that inform the natural erosion of the rock in the building. The first, upper, system deals with the fluid movement of people through the building. The second system pertains to the flow of water being drained from the city as well as the natural movement of the ocean beneath the building. These systems interact with each other through the site's lightwells.

We used our understanding of the movement of water as well as its effects on solid materials like sandstone to establish the process of construction. Through the method of shotblasting, we are able to replicate the process of erosion on a much faster timescale, and in a much more controlled manner. We mimicked this construction method by impacting blocks of salt. This gave us a clear idea of exactly how the sandstone would be affected by the steel shot.

There are three layers to our construction. A concrete center with sandstone cladding on either side. Steel beams run along the course of the building acting as additional supports. The entire site is lifted up from the water by massive concrete supports. The site evolves naturally, as a new infrastructure, landscape, and building are carved from the rock. Erosion to us means the combined efforts of infrastructure, landscape, and building to methodically evolve and extend the coast.

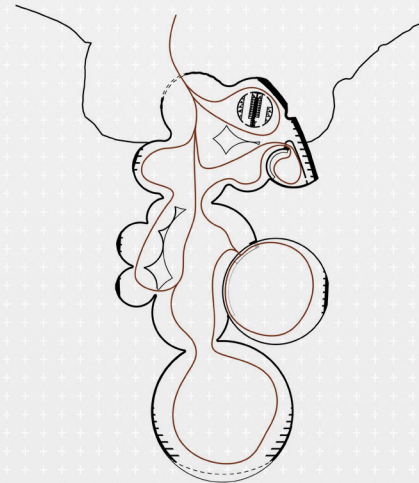


FINAL JURY

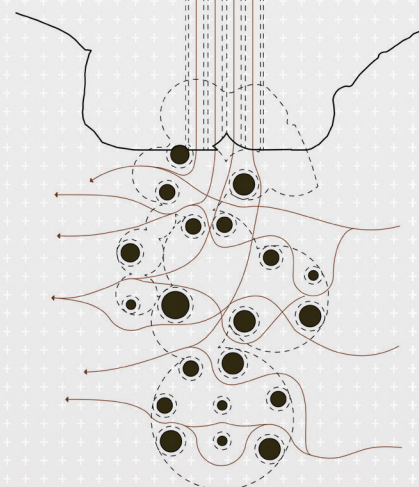
Marcel Erminy TAMU:

I'm excited to start this discussion since I have had Max and Kalle as students in the past and it is interesting to see another project from them and in Barcelona. Your project is perfectly explained by the process that you have presented with the material on erosion, the sand, but I wonder if one should be able to imagine. I don't think this surfaces could be continuous surfaces that you have expressed here. They would have been made somewhat out of overlapping pieces or some sort of assembly that would have given this more that this continuous mass as it was done in a mould and generated more as an assembly of pieces. I see that you have found the order in the series of circles which I also would like to imagine if this order of the structure which is order or parallel lines is really the order that these circles begin to request. I'm not sure if the series of planes in your structure is necessarily the geometric response of the form that you have created here. Especially when it comes to intersections where the all parallel planes contradicting the nature of circle.

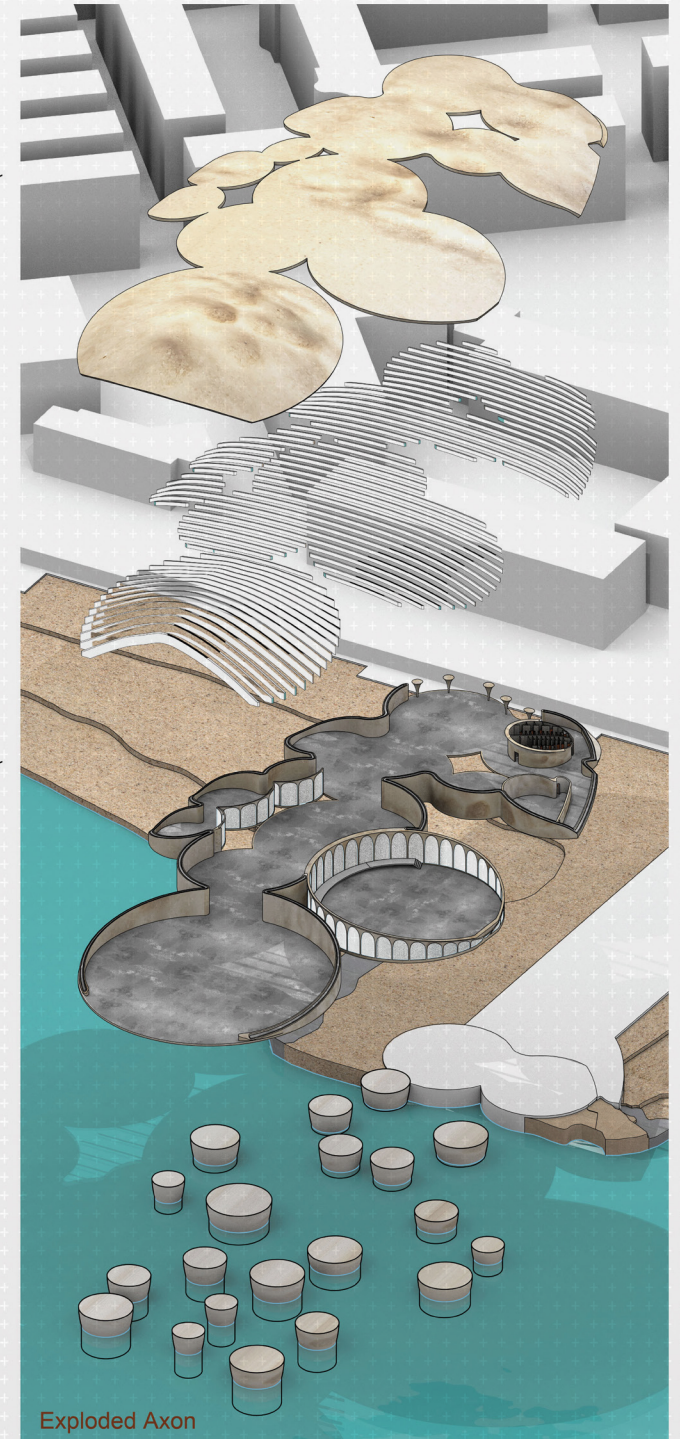
I appreciate the way in which you have explained the project in very structured way. I am thankful for your commitment to the lines of your drawings.



People Flow



Water Flow



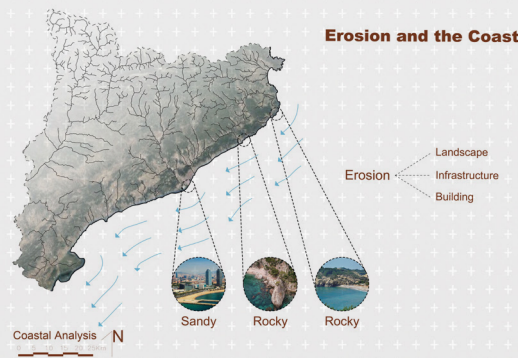
Exploded Axon

Michael Maher:

I found interesting beginning point to start designing with the rocks when we tend to look for lightness designing on the coast.

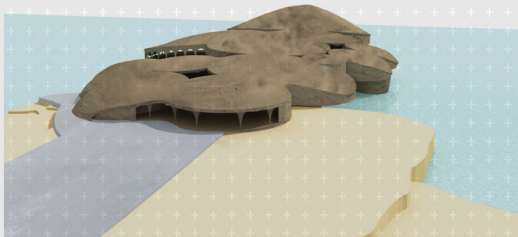
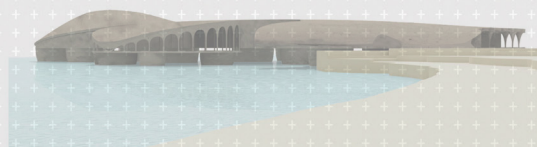
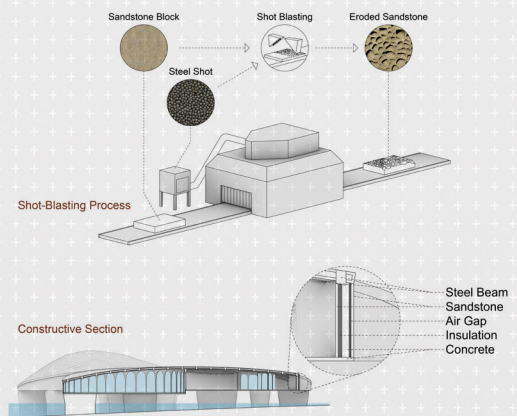
If you really think of erosion, erosion is time that happens during very long period of time but it can happen really quickly. Naturally the effects of water and wind take the rock and turn it into the sand and stones and lime.. And we turn that back into the building materials. So that is one form of the erosion. Which is the natural process.

There is another form of erosion which is the manmade erosion which is quarry. And if you look at architecture of Barcelona, its made by the mix of those two things. The products of erosion of the natural process and the products of manmade erosion of quarry. If you thought of your erosion in that way, it becomes much more tectonic instead of pallets of construction techniques that I think you could take another asset and talk about how did you design the process of assembly. I would have loved to see if you have taken the reset of the erosion and think how the erosion can became the part of the tectonics.



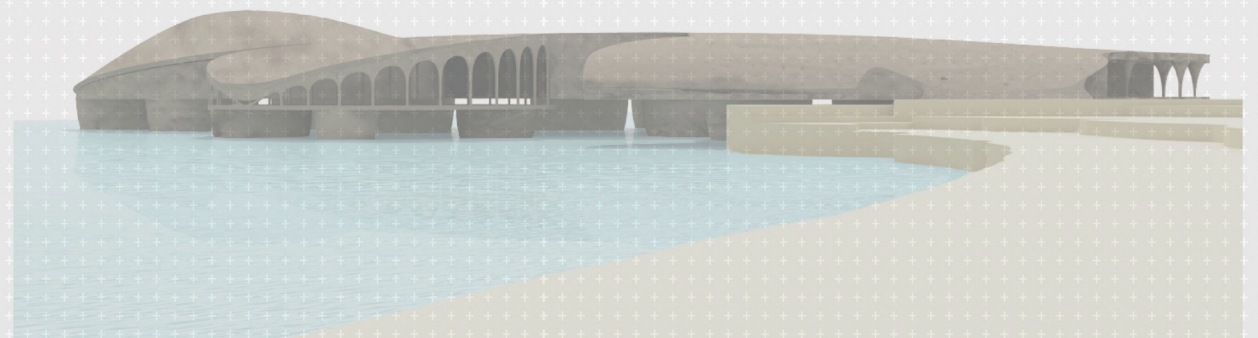
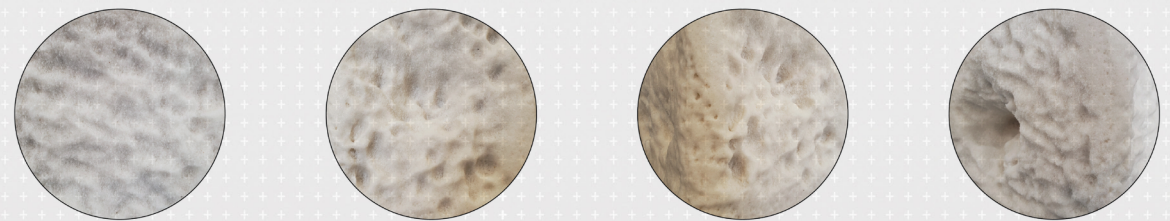
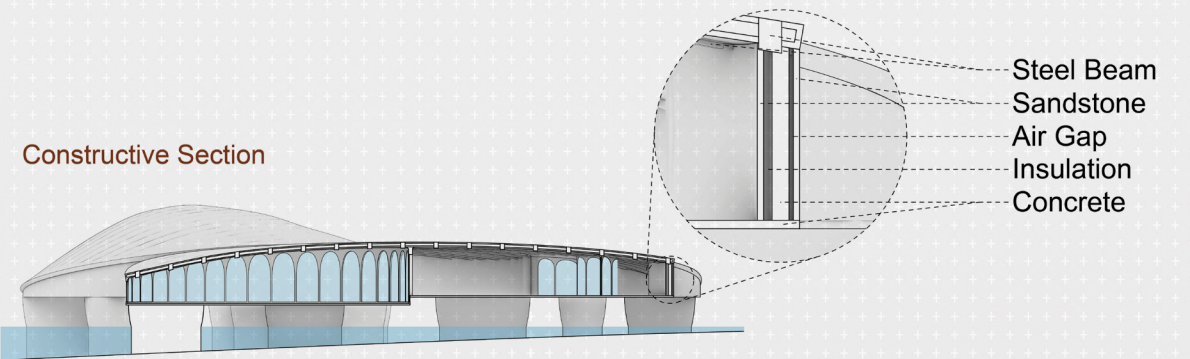
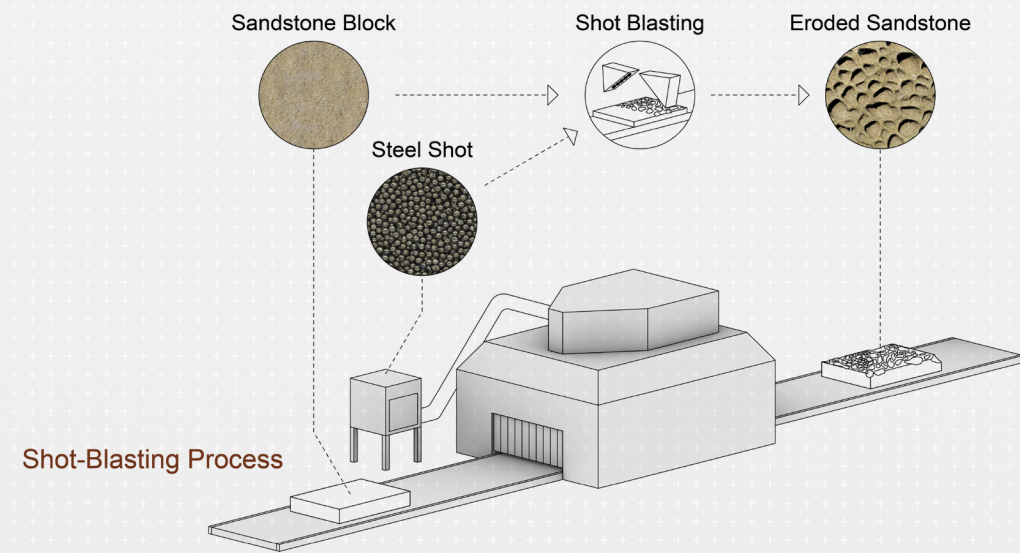
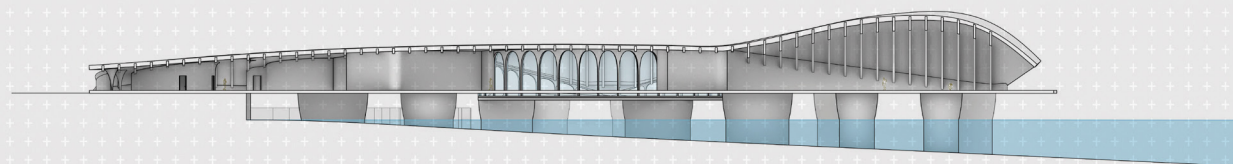
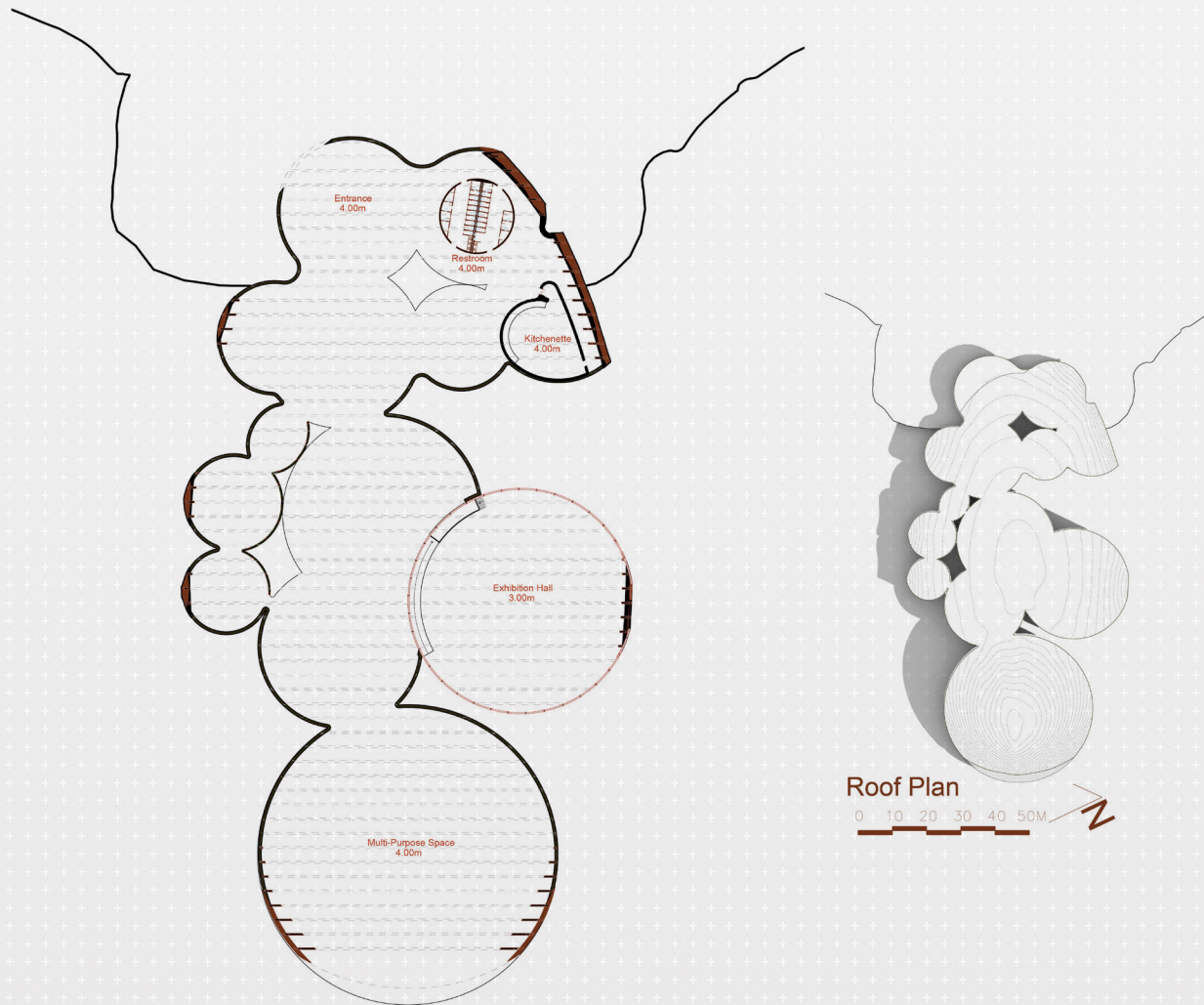
Erosion and the Coast

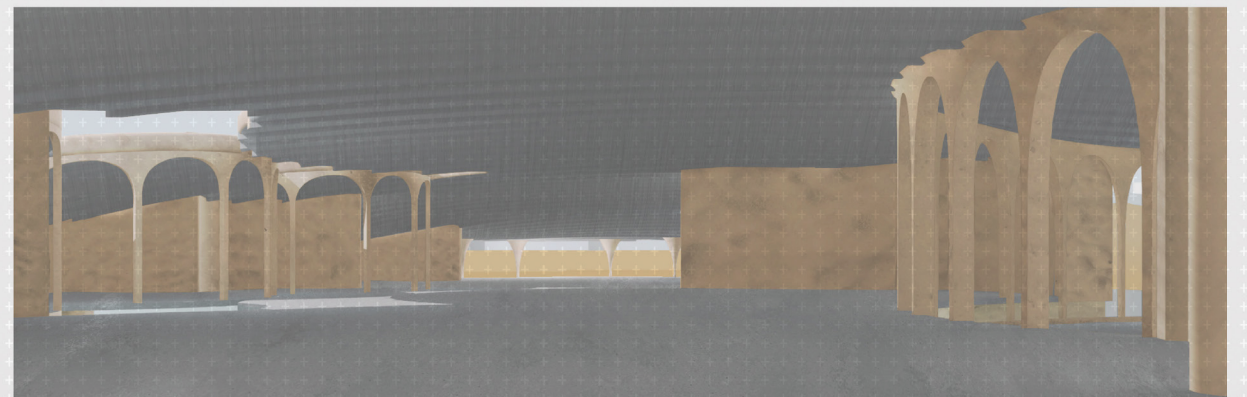
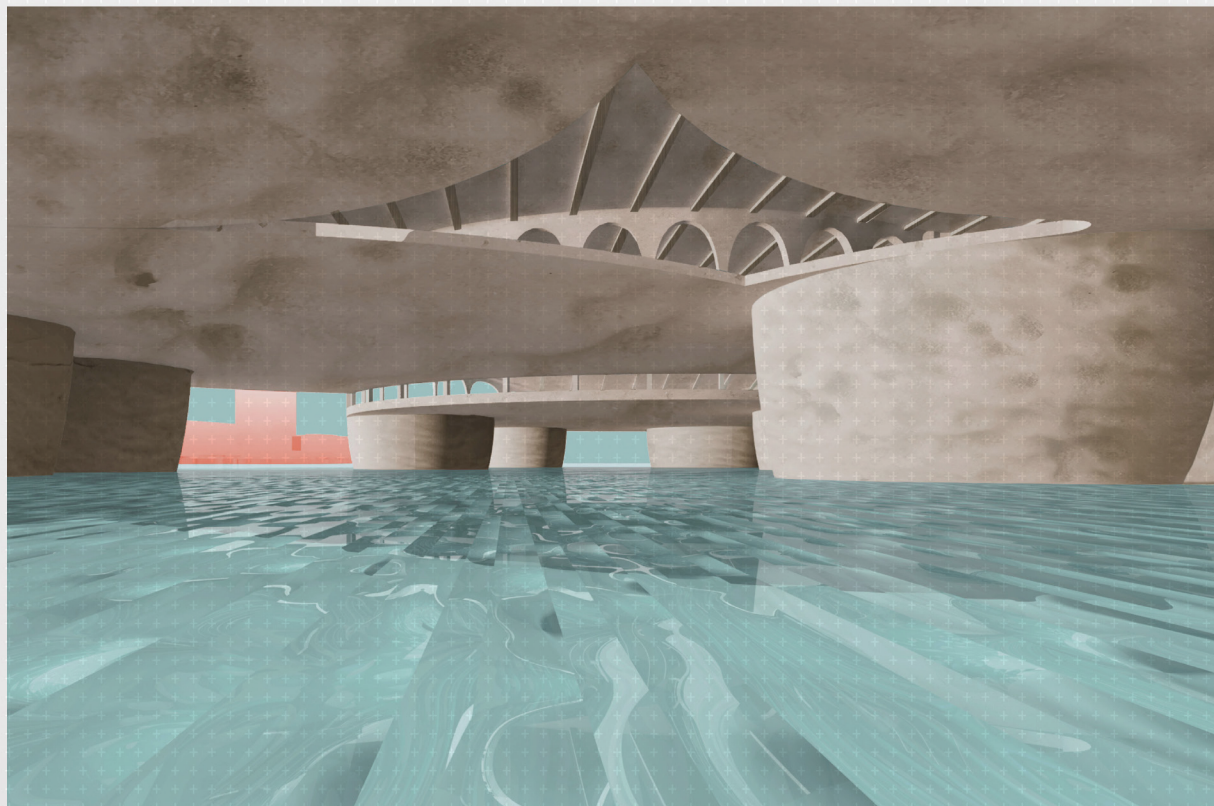
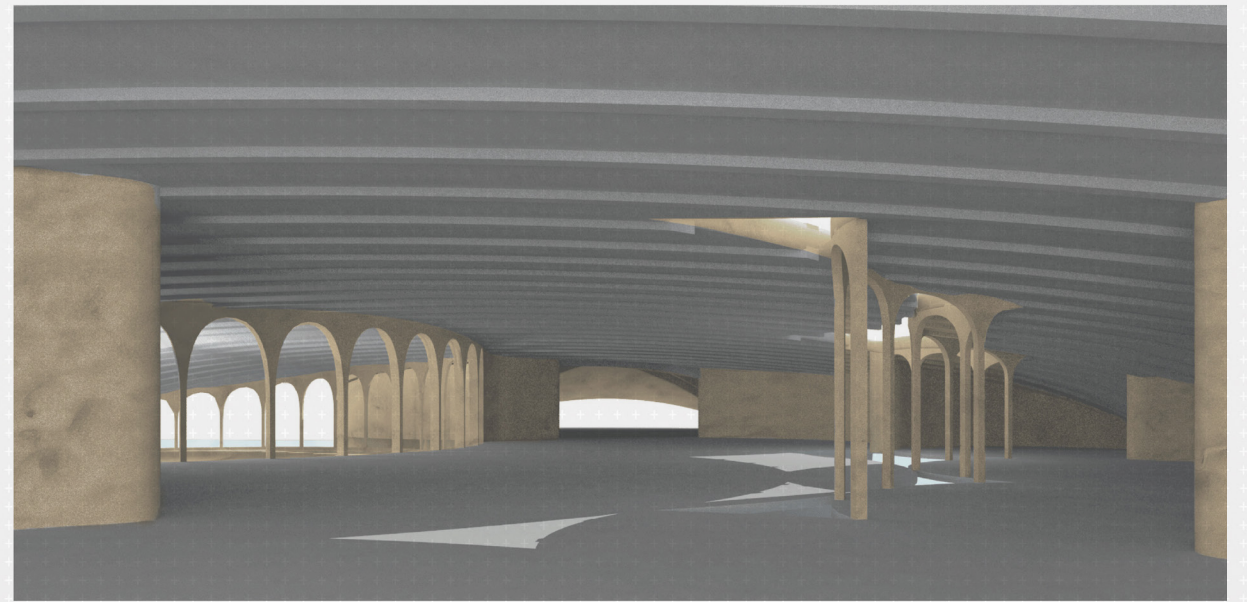
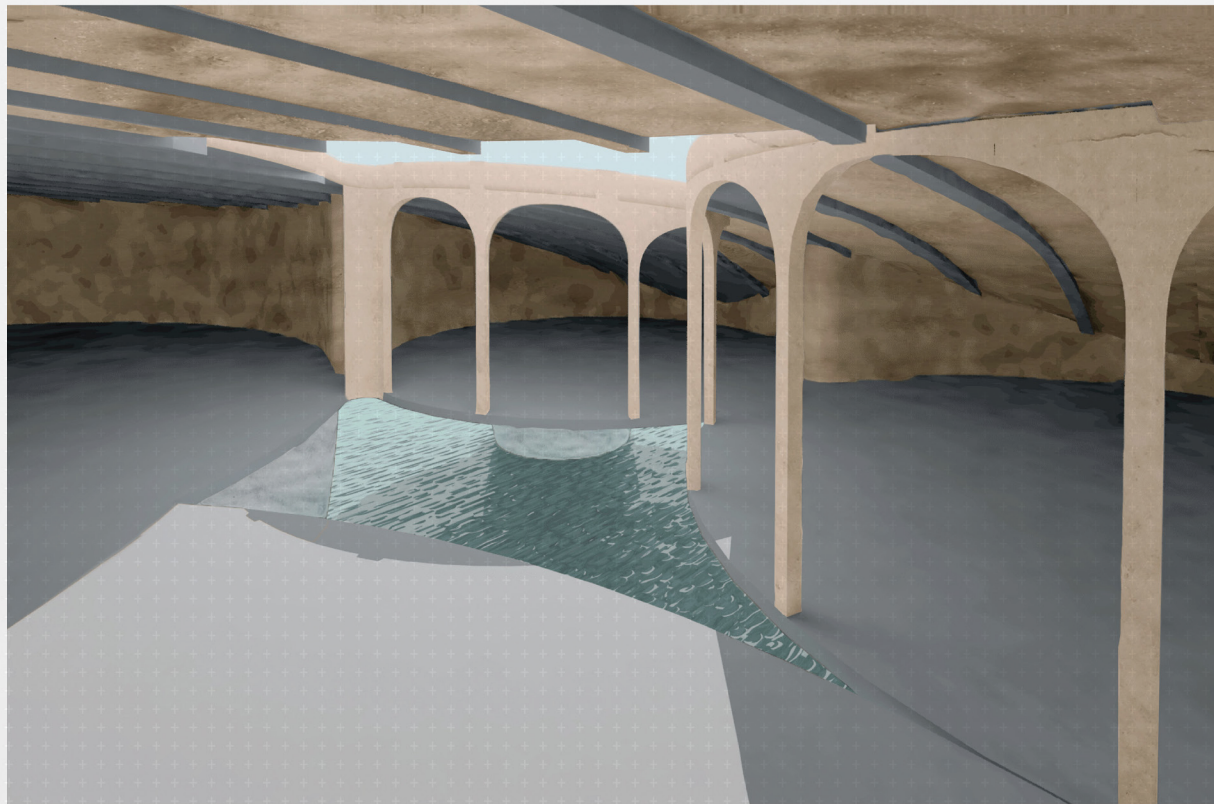
Erosion
Landscape
Infrastructure
Building



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THE WAVE

Lincoln Loeffler, Clemson University, Architecture Undergraduate
Evan Budelmann, Clemson University, Architecture Undergraduate

The Wave is a highly flexibly and re-configurable space designed for exhibition and as a balcony to view the sea.

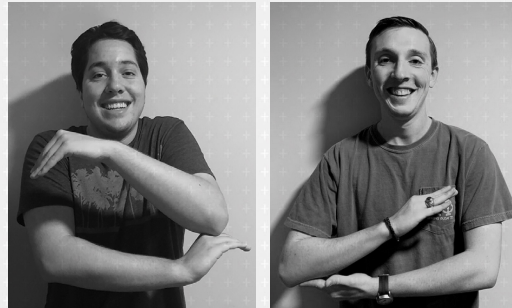
It is positioned between two other balconies to the sea, Montjuic and the Barcelona forum, where there is a lack of purpose-built opportunities to view the sea. Its design, in both material and form, is comparable to that of a modern sailboat with its sail-like shape and fiberglass construction. The waves on the roof double as seating for those who wish to use it as a viewing platform.

When looking at the original breakwater, there were some glaring issues such as a lack of useable space and a great distance from one pier to the other. Our new breakwater is both more spacious and more accessible in that it is unified in one large pier instead of two thinner piers.

The enclosure of the pavilion is very flexible. The fabric panels that make up the wall are able to rotate open or closed to create several different types of spaces, with varying levels of exclusiveness and privacy. The panels fit into a steel structure that supports the prefabricated fiberglass roof.

The pavilion is comprised of three levels, the basement, ground floor, and roof. The basement consists of storage and bathrooms. The ground floor is the primary exhibition space that is highly configurable using moveable walls that can be kept in storage when not in use. The program can be changed to suit any event hosted within the space. The roof is open and accessible to the public at any time, unless an event requires otherwise. It serves as both stadium-style seating to view the sea, and as a raised viewing platform to see the coastline of the city itself.

During the day the pavilion can be an active space, useable for any number of reasons by anyone. In contrast, at night the space is a more quiet and peaceful experience.



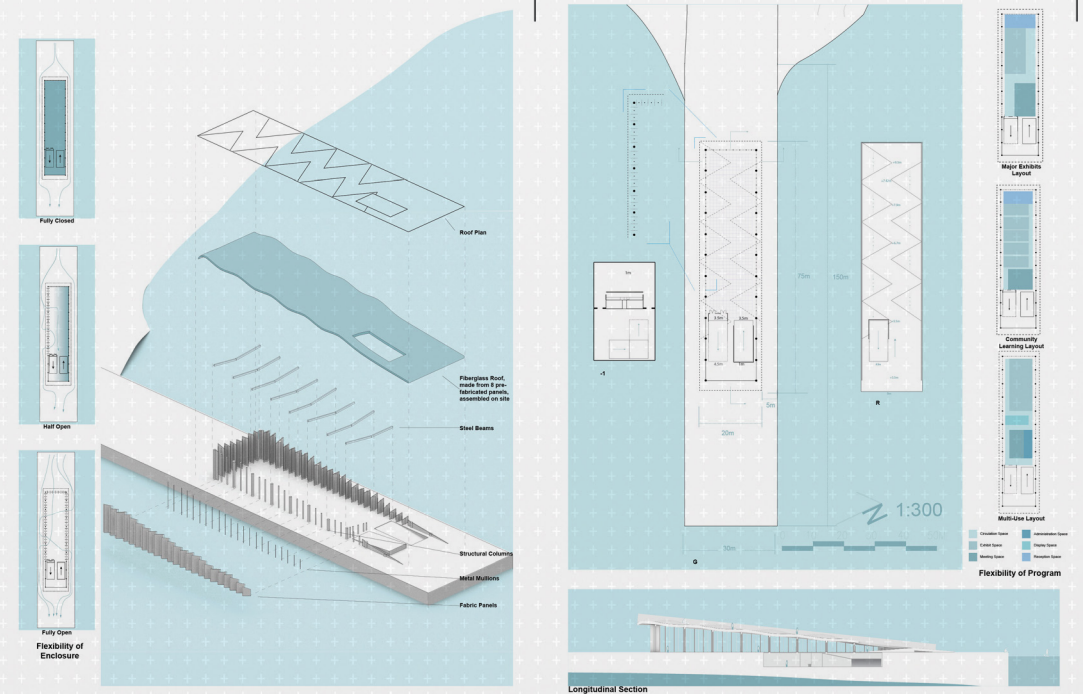
FINAL JURY

Ulrike Heine CU:
I would love to have the material of your roof surface that is more comfortable to walk on or sit on and I would promote that space better. I would have loved seeing that space occupied with multifunctional situations. In your generation, it takes a lot of bravery to do something simple and I really enjoyed seeing that in the middle of all other gestures that we have here.



Michael Maher:
I would like to reinforce this opportunity of making the simple gesture building for people to just enjoy the views and with that orientation you even create this intimate space from the city. That being said, the edge condition is almost inexcusable with the glass railing on the wavy surface. If you see Gaudi's park which is the roof with the bench of that roof that becomes the terrace. If you have developed that edge condition more you would define more how the people occupy that space.

Marcel Erminy TAMU:
I would like you to commend you to reducing the project to one simple element. Simplifying things is sometimes more difficult than doing complicated things, so I comment you for it.

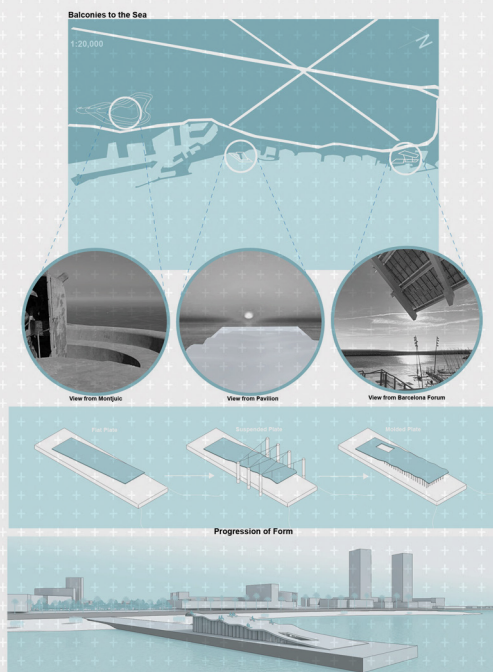


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The Wave
03

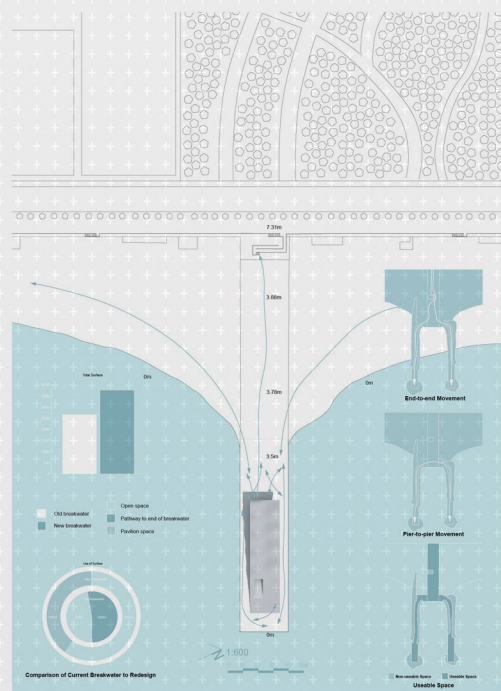
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The Wave
04



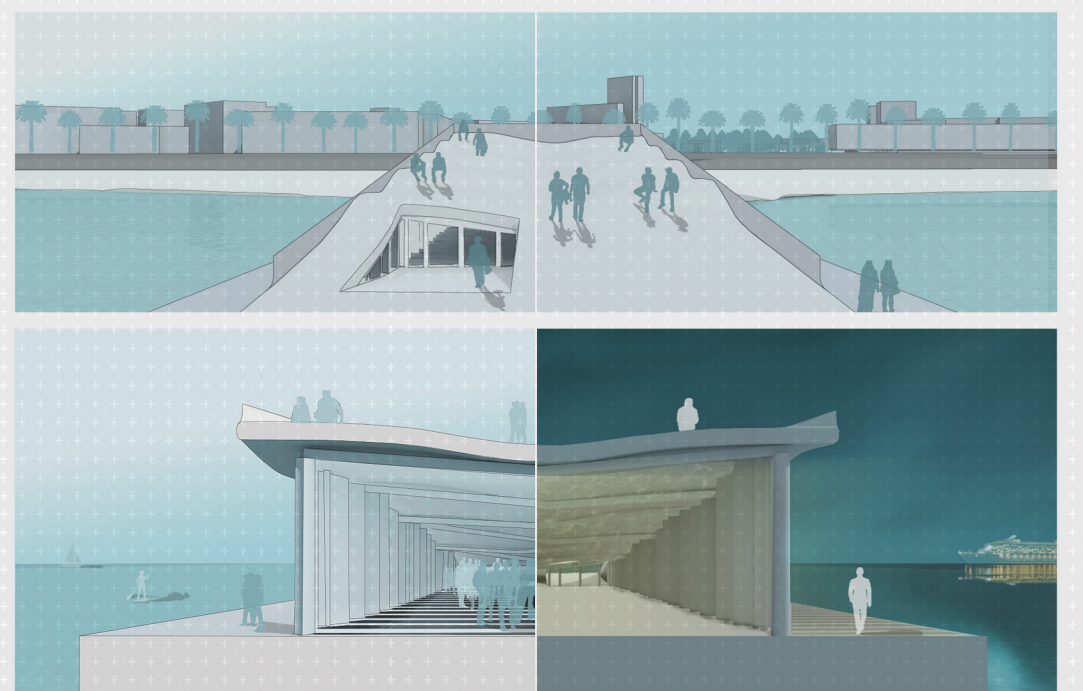
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The Wave
01



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The Wave
02

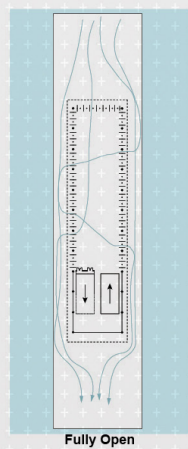
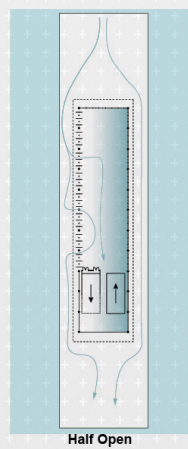
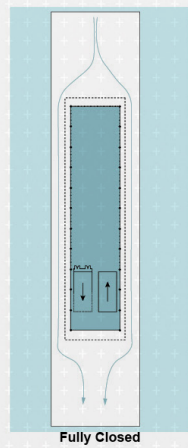


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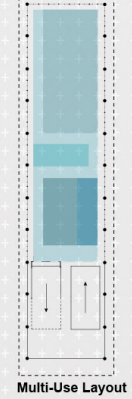
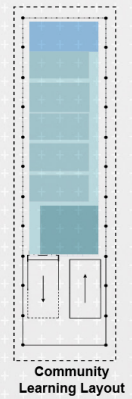
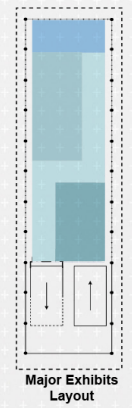
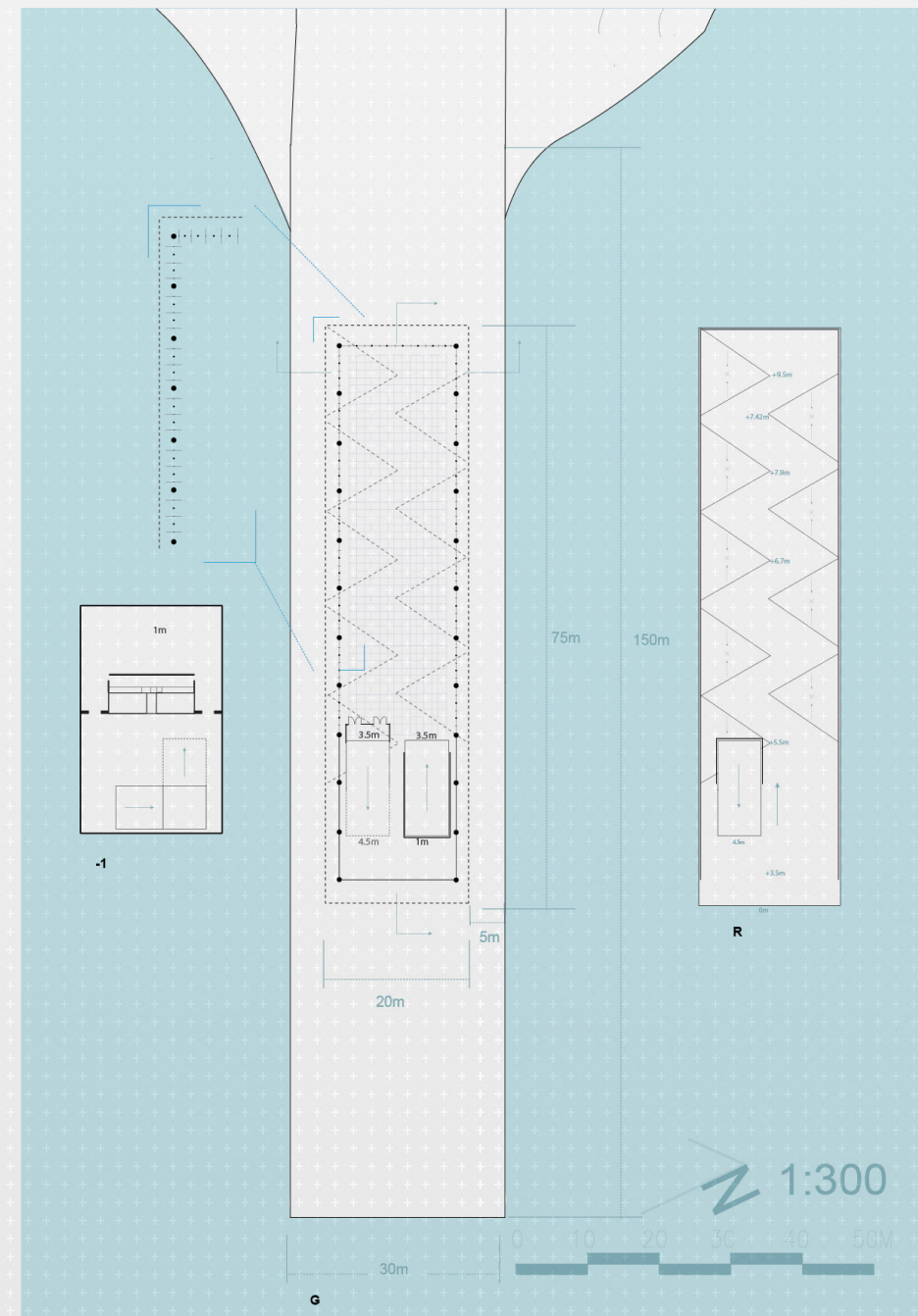
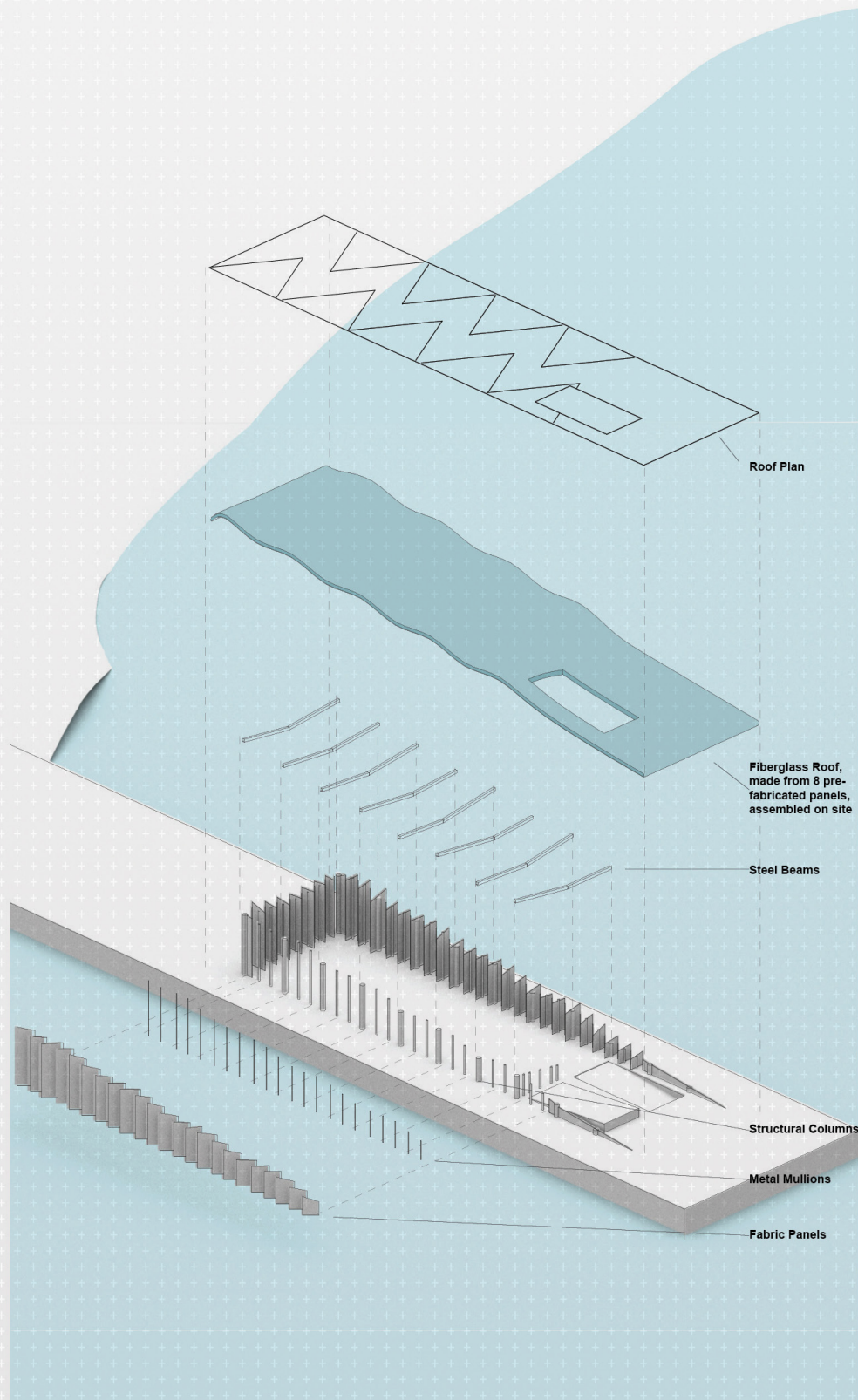
The Wave
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The Wave
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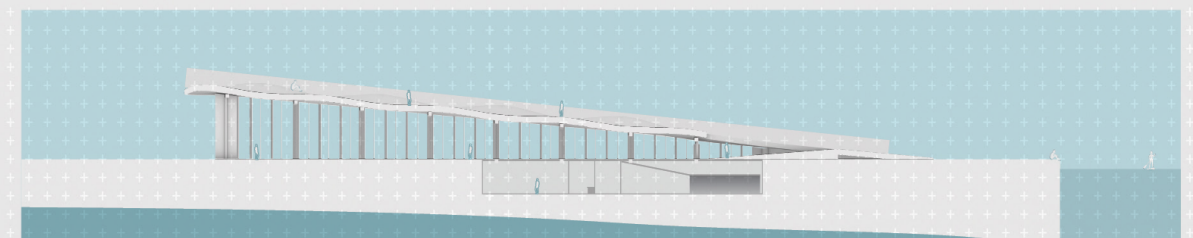


Flexibility of Enclosure



- Circulation Space
- Exhibit Space
- Meeting Space
- Administration Space
- Display Space
- Reception Space

Flexibility of Program



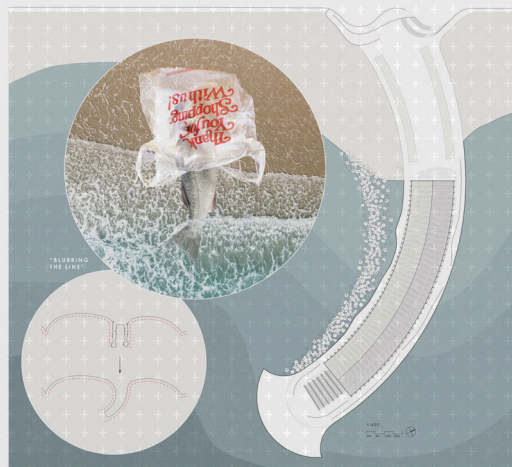
THE CITY IN THE SEA

Josue D Pisors , Texas A&M University, Architecture Undergraduate
Maggie A Martin, Texas A&M University, Architecture Undergraduate

The coastline of Barcelona has become a massive source of income and pollution, and when taken into the larger conversation of anti-tourism and the health of the planet, this coastal site has the potential to prompt a more eco-friendly and Barcelona-centric attitude when it comes to developing the highly sought after coastline.

The existing groin that makes up the site sits like two bars preventing entry, the rigid rails fail to guide the sewer's drainage out to sea thanks to persistent tides pushing it back to the sand. This team's proposal embraces not only the shape of Barcelona's coastline, but also her best interests with a pavilion that fosters economic vitality, spacial reconsideration of the phenomenon that is "eco-friendly", and public space that connects people to each other, the city, and quite literally- the sea. The pavilion follows the curve of the site, lined with public space that weaves in and out of the bounds of the Pavilion

This team's proposal uses bamboo as the pavilion's primary structural and finish material. This choice, although unconventional for European-Mediterranean structures, was brought about by bamboo's surprising structural capacity, sustainable (both economic and ecologic) qualities, and aesthetic value lending itself to this team's initial concept and inspiration for the proposal as a whole. This concept is best depicted by the embedded form of a "fish" that is hidden from the city approach but revealed towards the sea. The "plastic bag", a harmonious yet invasive element within the sea, relates itself to the city and how the site is a tense meeting point between the two. However, this point is relaxed by the team's proposal emerging from, or submerging into, the sea. Simultaneously, the pavilion's "fish ribs" arch over you and create a space that evokes reflection upon our own scale and how it pales in comparison to the impact we can have upon the ocean- good or bad.



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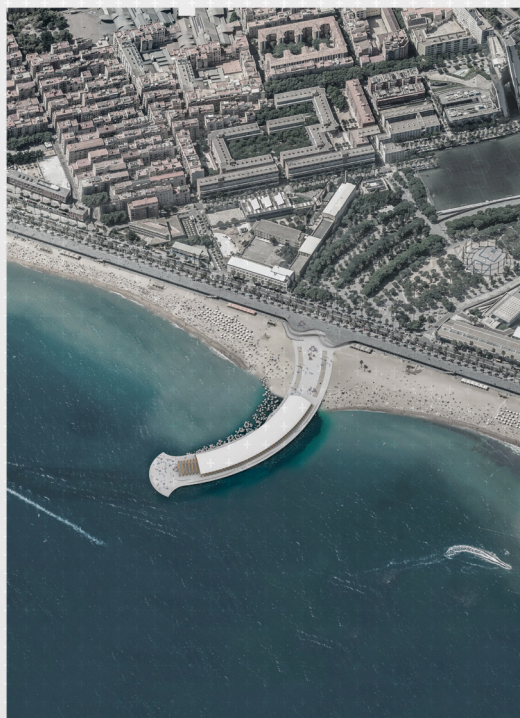


FINAL JURY

Marcel Erminy TAMU:

Very impressive and very interesting proposal all the way from that wonderful first diagram that was an interesting take on pollution of the coast that you have set on your discourse leads to everything that you have developed in architecture language. Your proposal is truly focused on form, geometry, layout with the strong emphasis on this particular structure with bamboo that yourself acknowledge that might be not the unique choice, but it is good to explore different tectonics and different ways in which one can imagine.

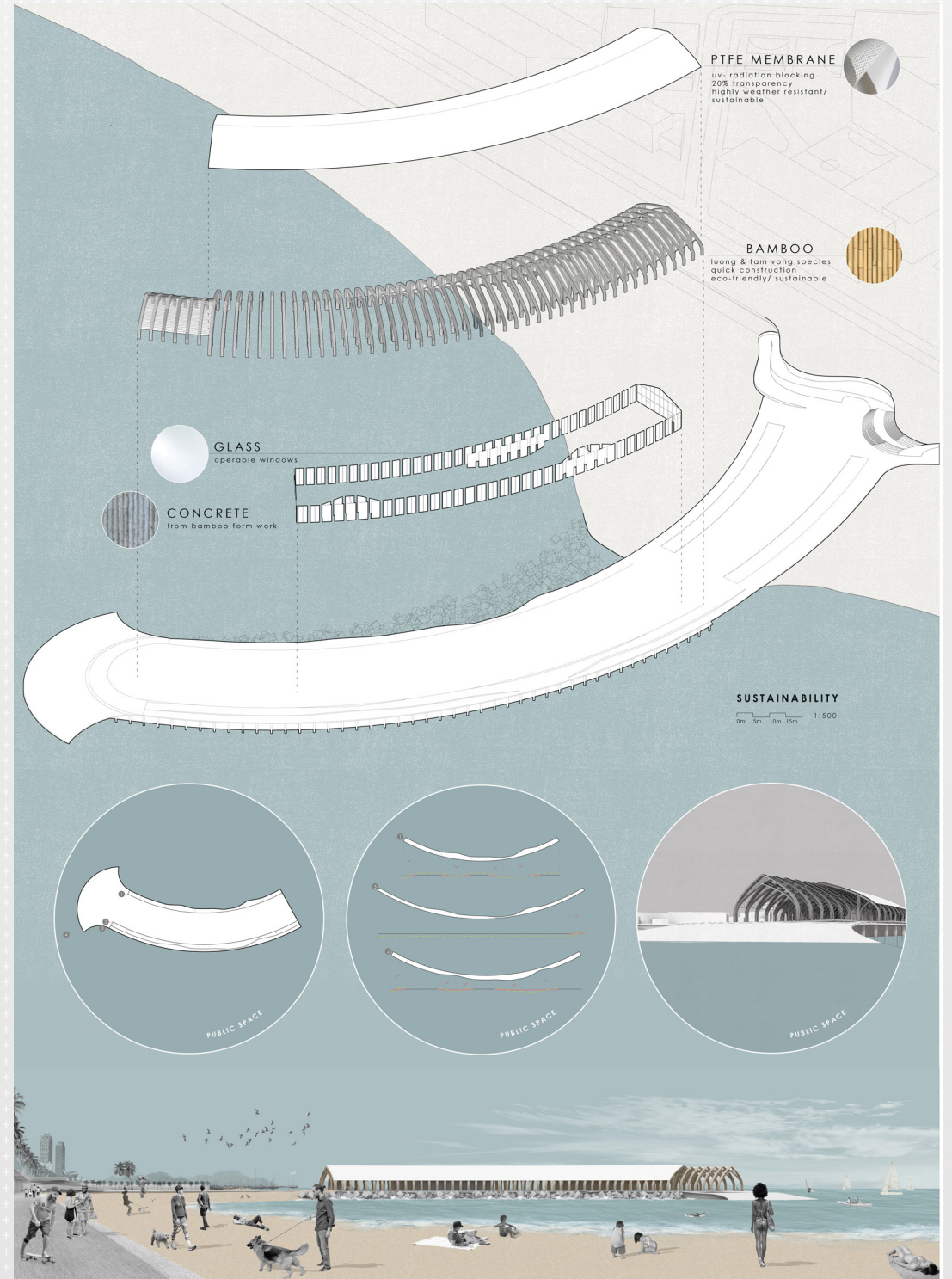
I wonder if this material can truly work as structure material with crossing of the elements that you have implanted. I find it fascinating to discovery that you did with interior intersection of the space. I think that is extreme geometric sophistication that I have not seen in a long time in student work. The sequence of sections that you have are making me imagine this movement that you talk about. Your work produced is astonishing.

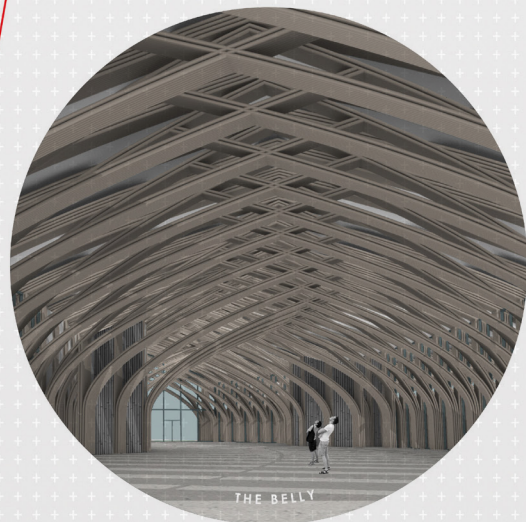
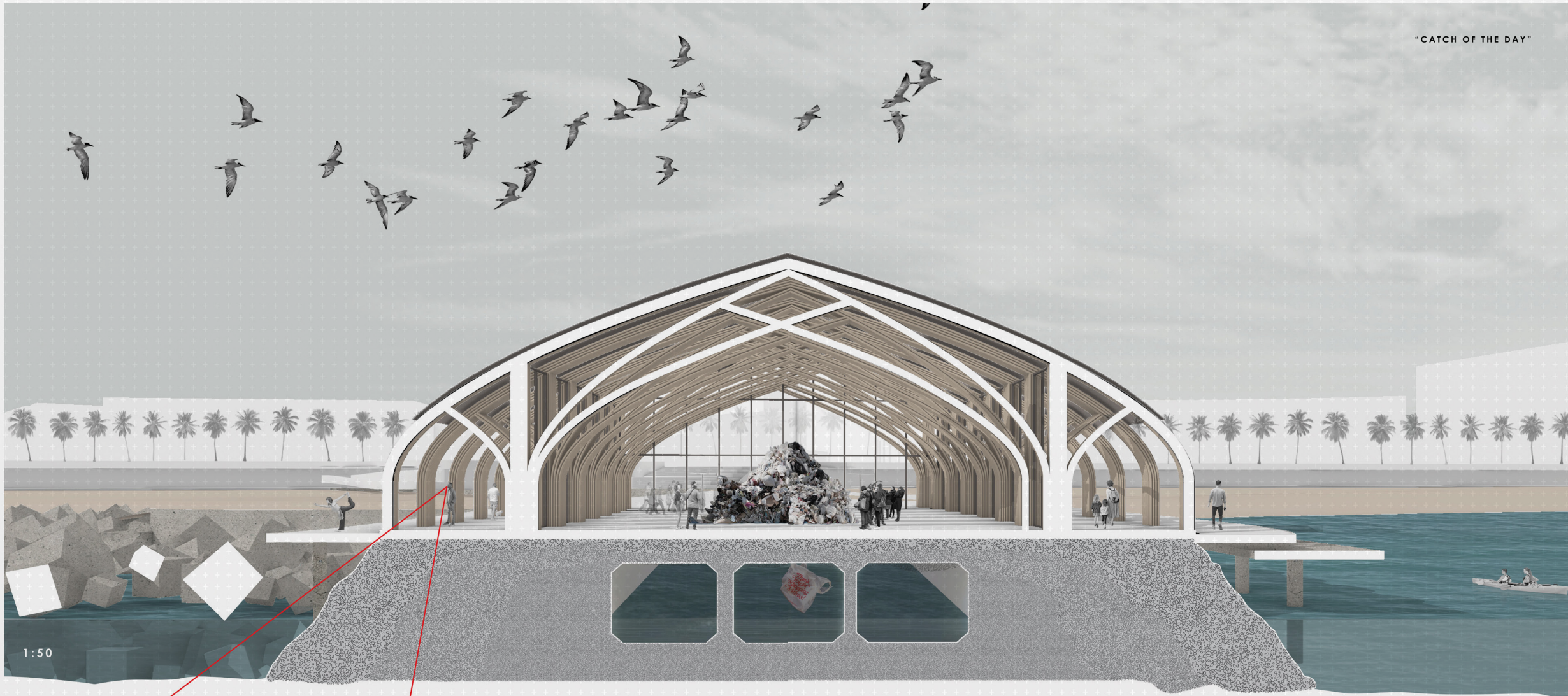


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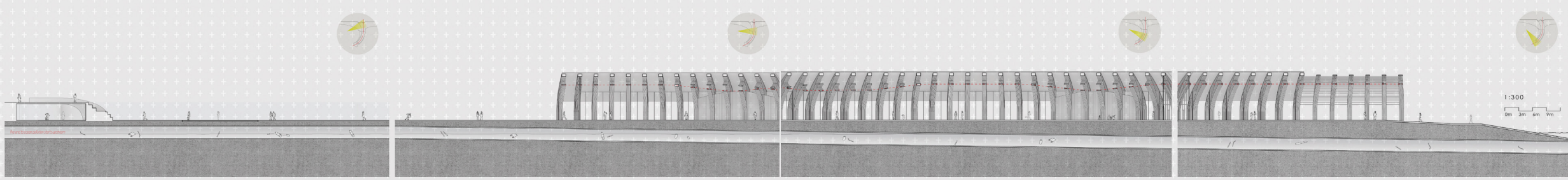
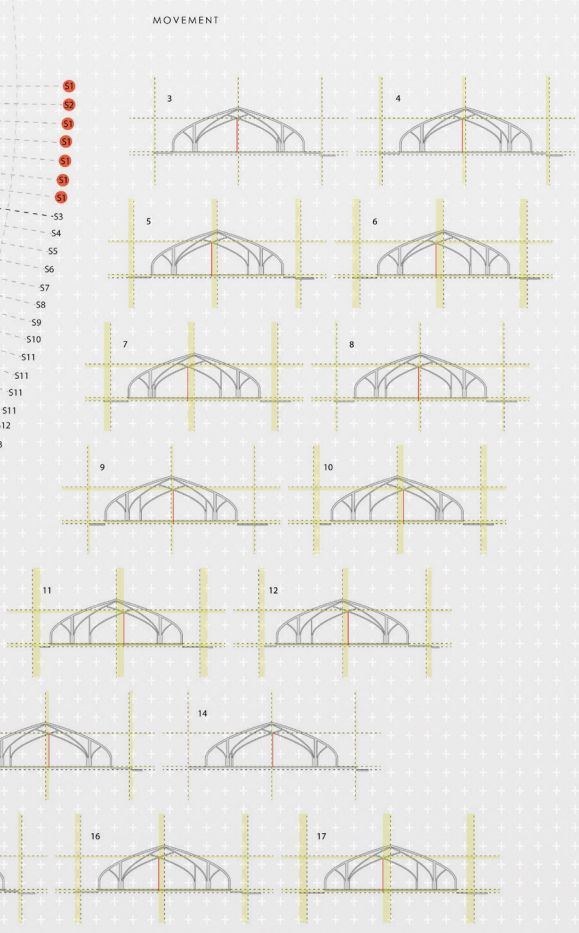
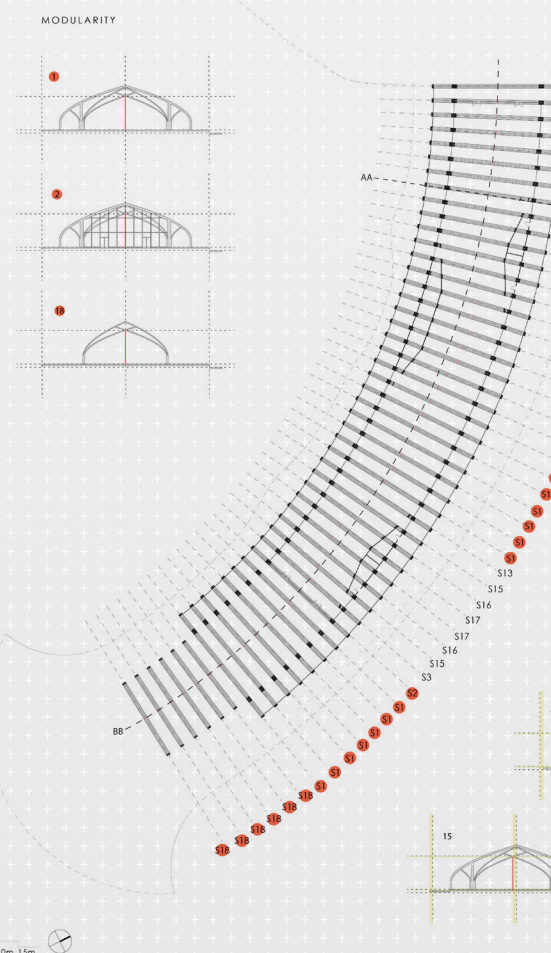
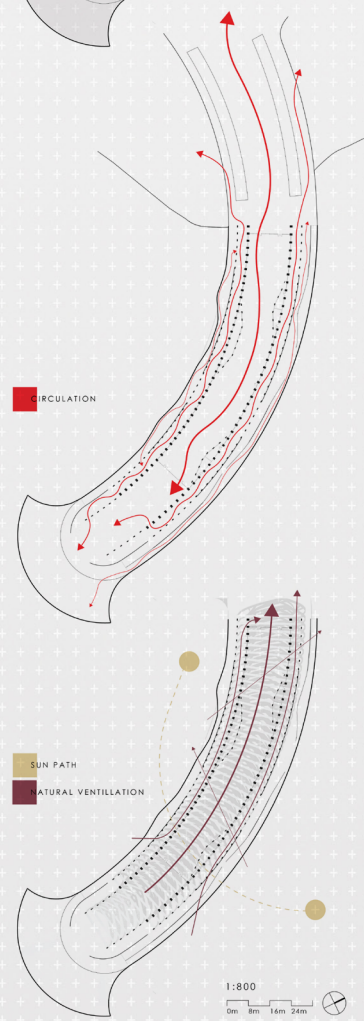
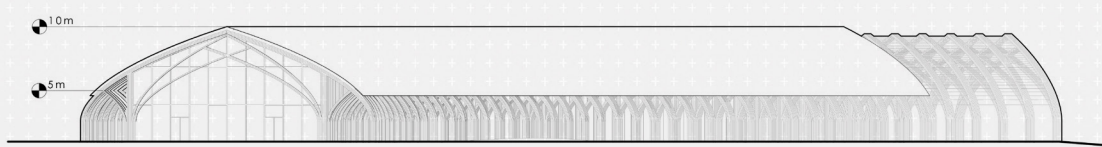
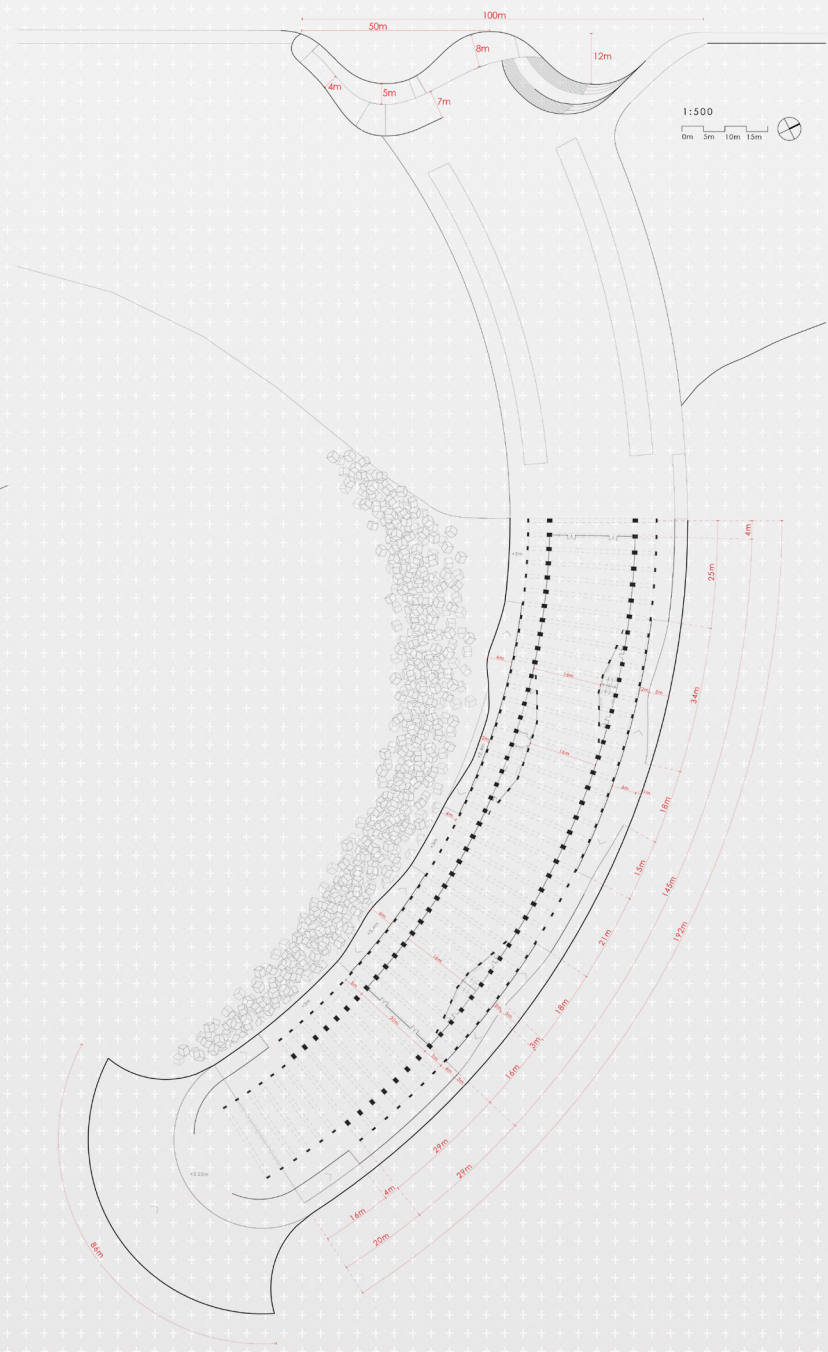
Vincent Morales Garoffolo:
All the curves in the city of Barcelona are kind of memories of infrastructures and your project kind of creates the new memory of the new infrastructure, which is really fascinating.

I really appreciate that you in your section you actually drew the new piping system that most of the projects have just avoided. Your material experiment is terrific.





- 1 ENTRANCE/RECEPTION
- 2 EXHIBITION
- 3 MULTIPURPOSE INTERIOR
- 4 SERVICES (WC, KITCHEN, ETC.)
- 5 MULTIPURPOSE EXTERIOR
- 6 PUBLIC SPACE



THE FRAMED PENINSULA(S)

Abigail Paige Gleinser (Abby), Texas A&M University, Architecture Undergraduate
 Logan N Froebel, Texas A&M University, Architecture Undergraduate

The country of Spain relies heavily on the relationships that take place within and throughout the city of Barcelona. This triad consists of, the city, its neighborhood's, and The Balearic Sea, each playing pivotal roles in Spain's culture, economy, and the lives of those who live in or visit the city. Although, with Barcelona being one of the densest cities in the world and a tourist hub, as a result, the city, neighborhoods, and beaches are constantly infiltrated with crowds of people.

In response to wanting to preserve the importance of these relationships, the proposed breakwater responds to the need of an intimate space where both locals and visitors can taste, see, and experience the richness of the city and its parts. Three peninsula beaches, each oriented to direct the users focus visually and physically while circulating through the site towards: the Barceloneta neighborhood, the Barcelona Port, and The Sea. Apart from these private peninsula beaches, each contains a covered cylindrical space to embrace the views that are associated upon the specific peninsula.

In wanting to nurture the idea that each peninsula corresponding pavilion direct the user to one component of the city, a gradient glass for walls, guides the users focus within each. Protecting these spaces are cantilevered roofs, within lying a steel ribbed structure that runs to a concrete column at the end of each roof and steel columns around the perimeter for additional support. The ceiling within each space has a concrete glossy glazed texture to mimic the reflections of the sea and in creating reflection of its own, this giving the users a sense of intimacy within these spaces.

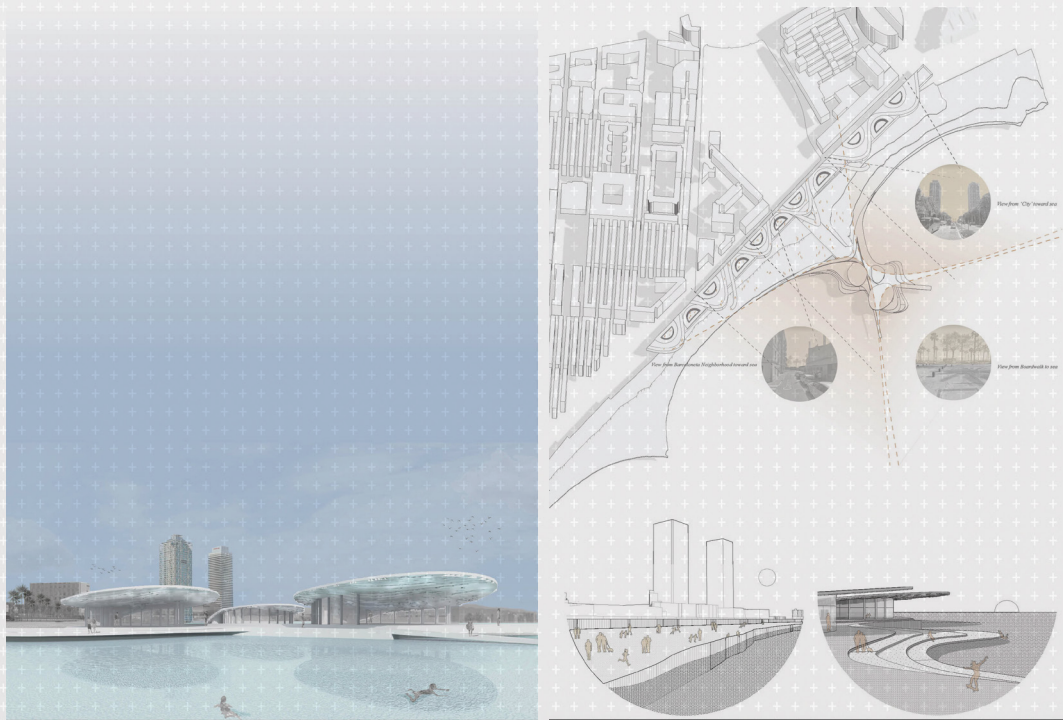
This team's focus was to design a pavilion and public space that provided a sense of intimacy within density and incorporating the most important pieces within the city of Barcelona, framing each view with equal importance of one another.



FINAL JURY

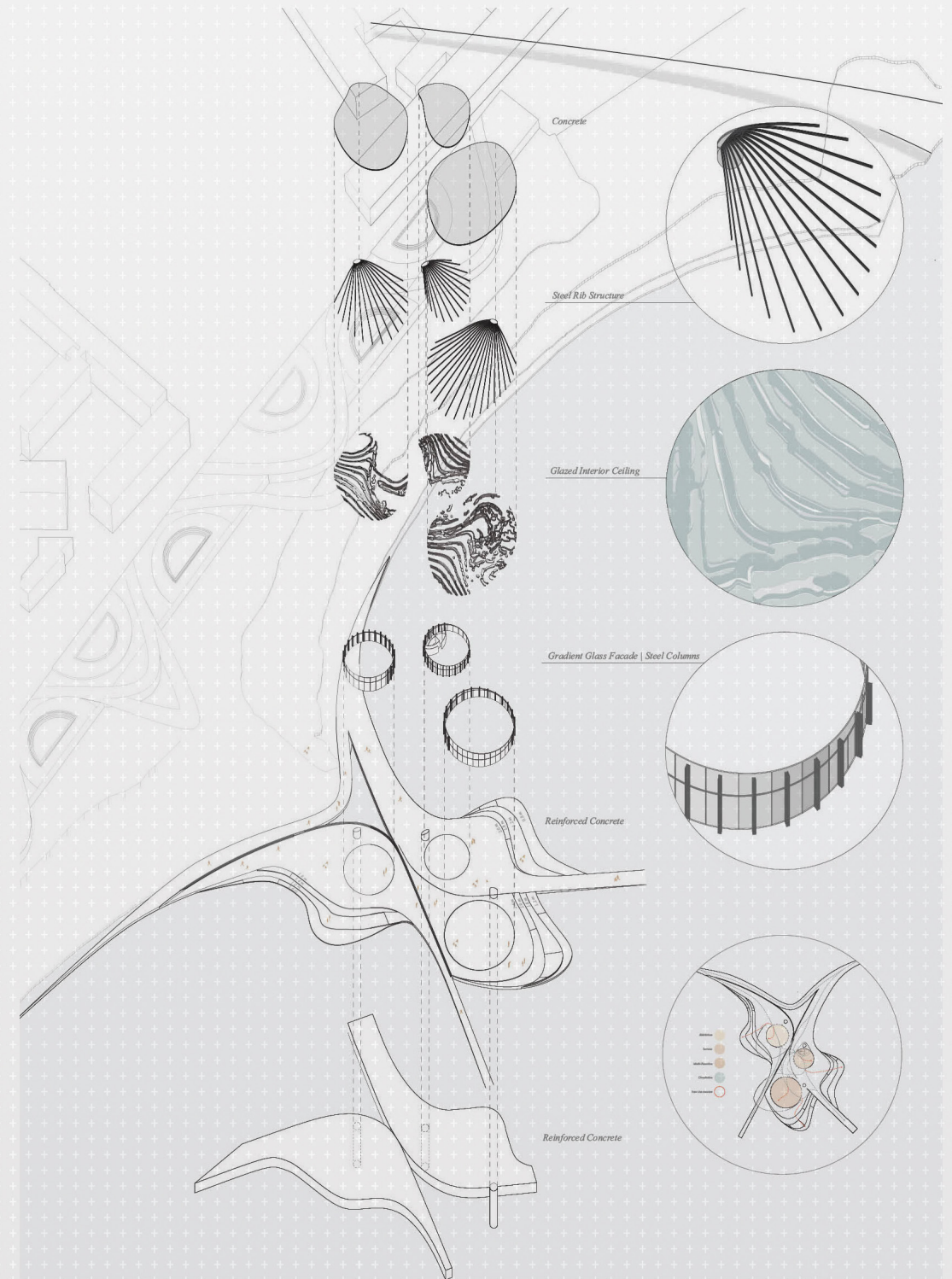
Michael Maher:
Your project is so seductive in a way that you've rendered it, in a way that you have explained it and in the way that you have designed it. I'm very pleased.

Marcel Erminy TAMU:
I want to congratulate you both. It is nice to see where you are today with this project. I see your connection with your design with all the planning of the upper boulevard a great accomplishment. The resolution of this wonderful shapes that are mixture between rectilinear axis versus very sophisticated curves are magically creating the place for these pavilions. When you overlap the geometries that you have done, even though all the elements have their own rules they perfectly work together. For that I really commend you. Is that moment when you finally understand that the shape of the floor is not shape of the ceiling or the shape of the pavilion.



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 THE TITLE OF YOUR PROJECT 01
 Logan Froebel & Abby Gleinser | Texas A&M University | Undergraduate

"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
 Barcelona Architecture Center | Design Studio SPRING 2021 | 1st Year Project
 THE TITLE OF YOUR PROJECT 02
 Logan Froebel & Abby Gleinser | Texas A&M University | Undergraduate



Concrete

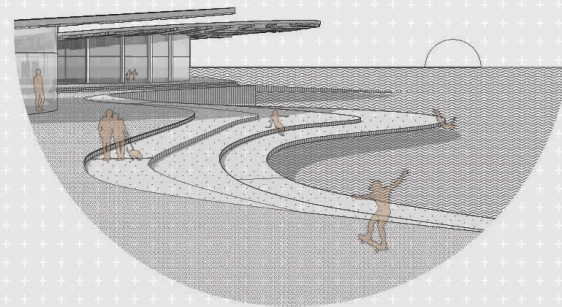
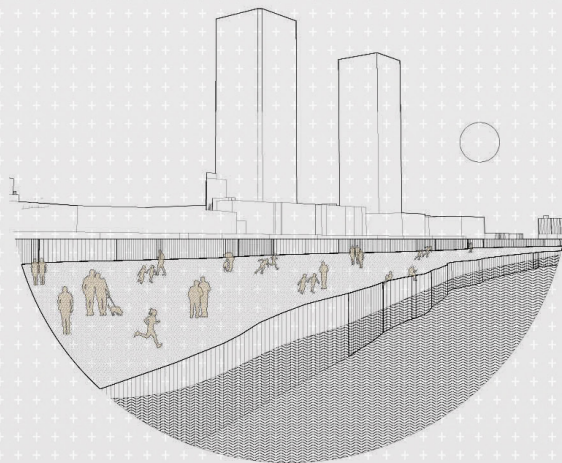
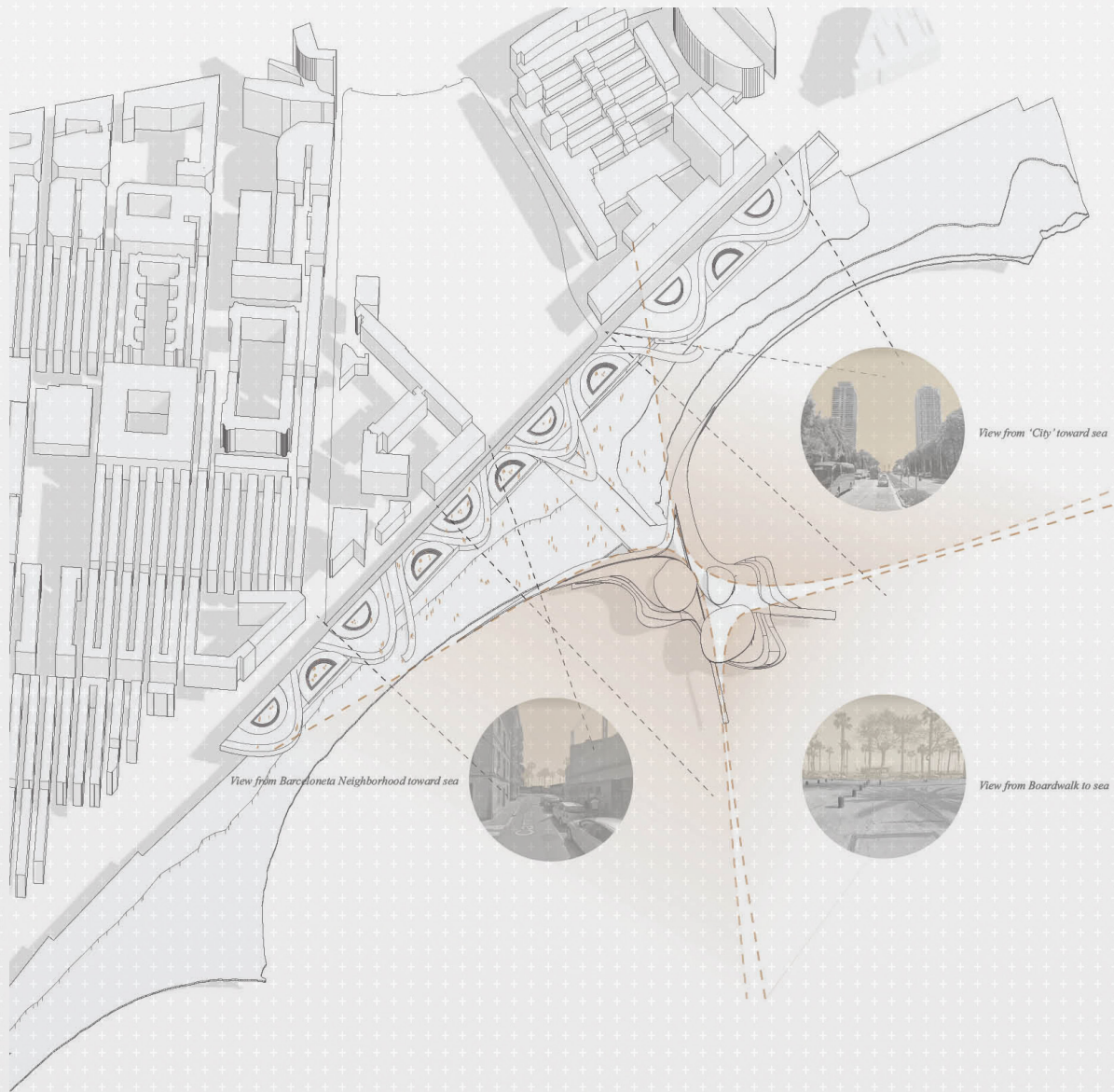
Steel Rib Structure

Glazed Interior Ceiling

Gradient Glass Facade | Steel Columns

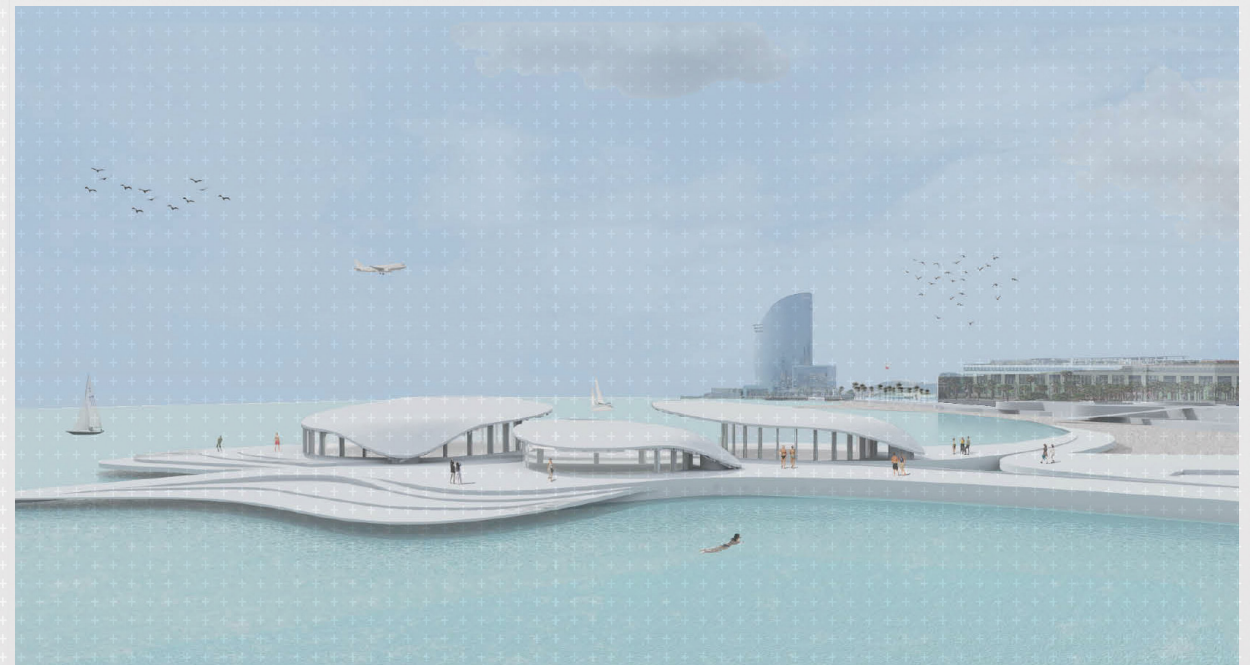
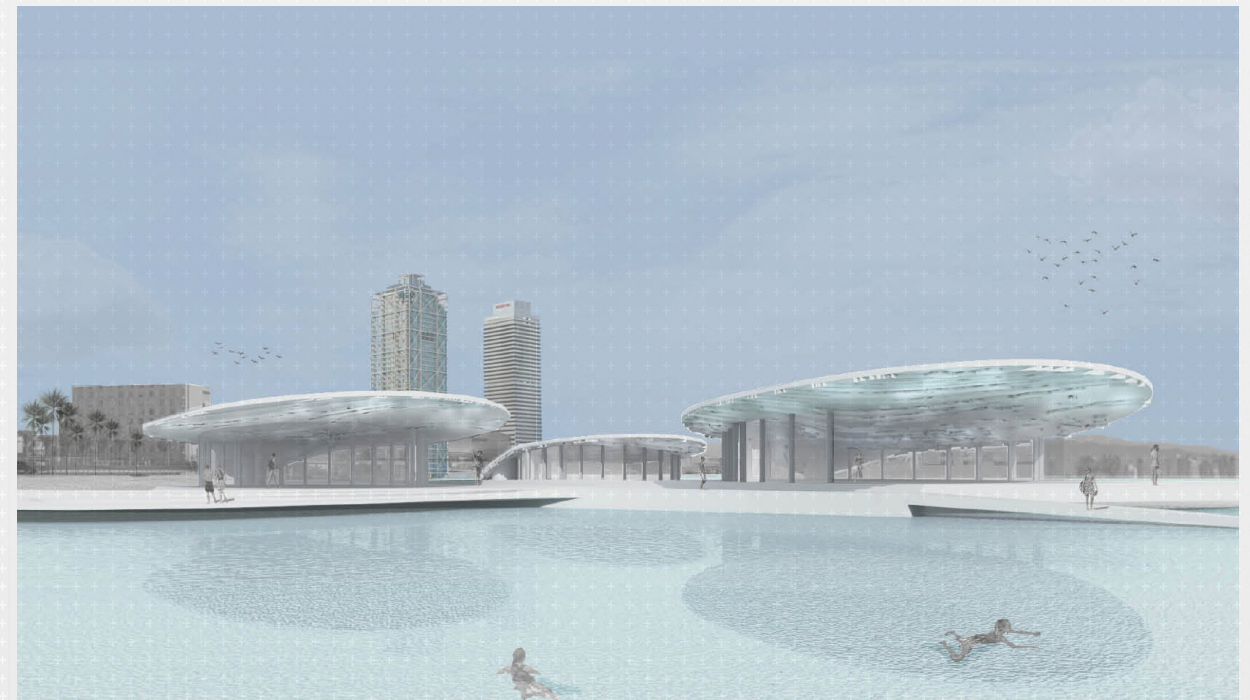
Reinforced Concrete

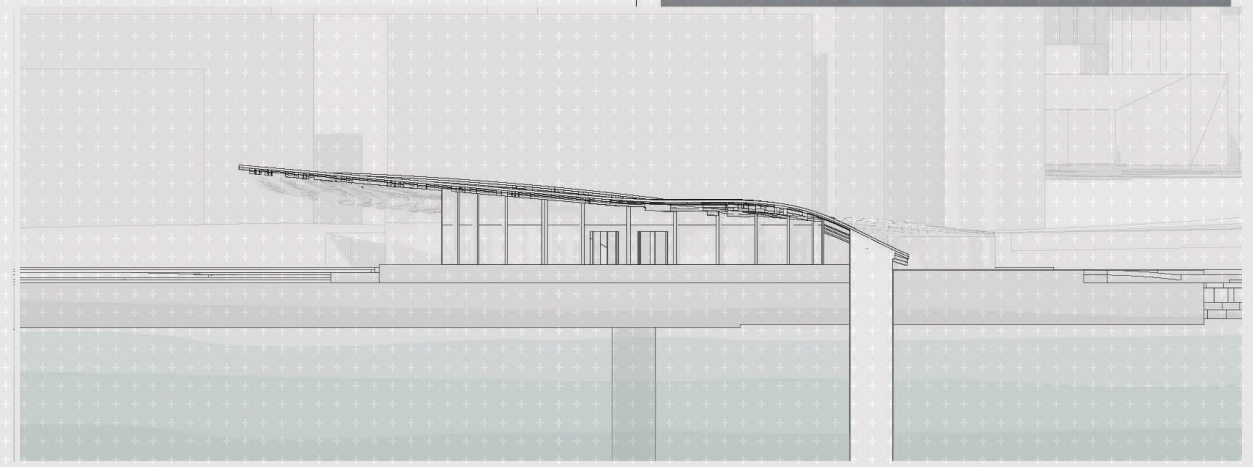
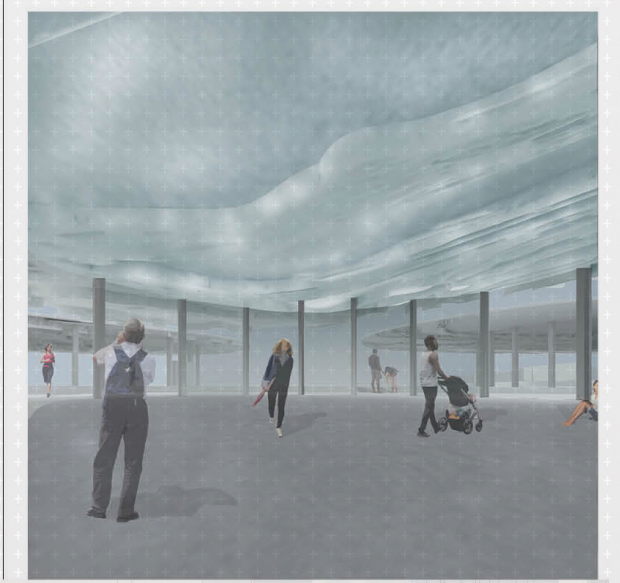
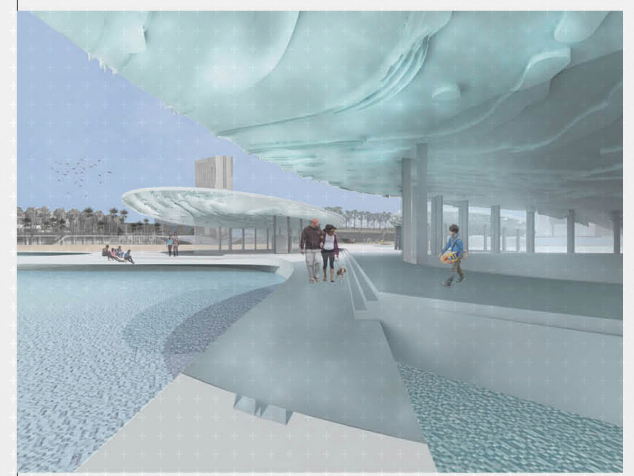
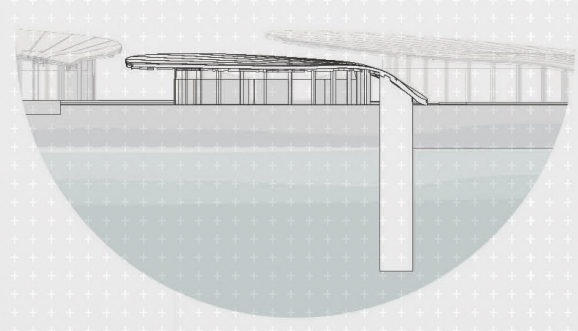
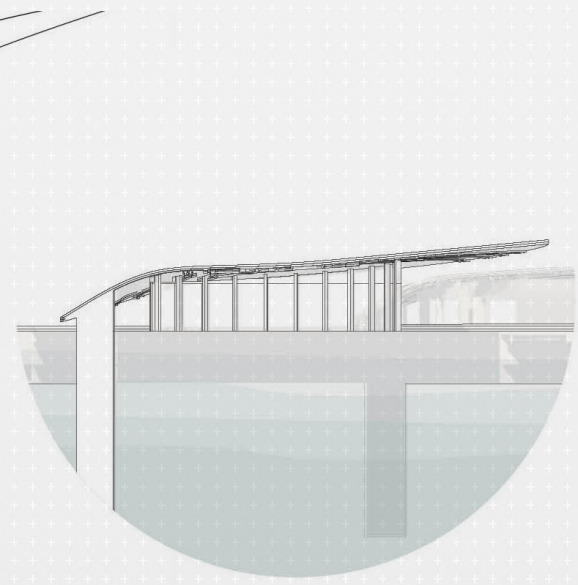
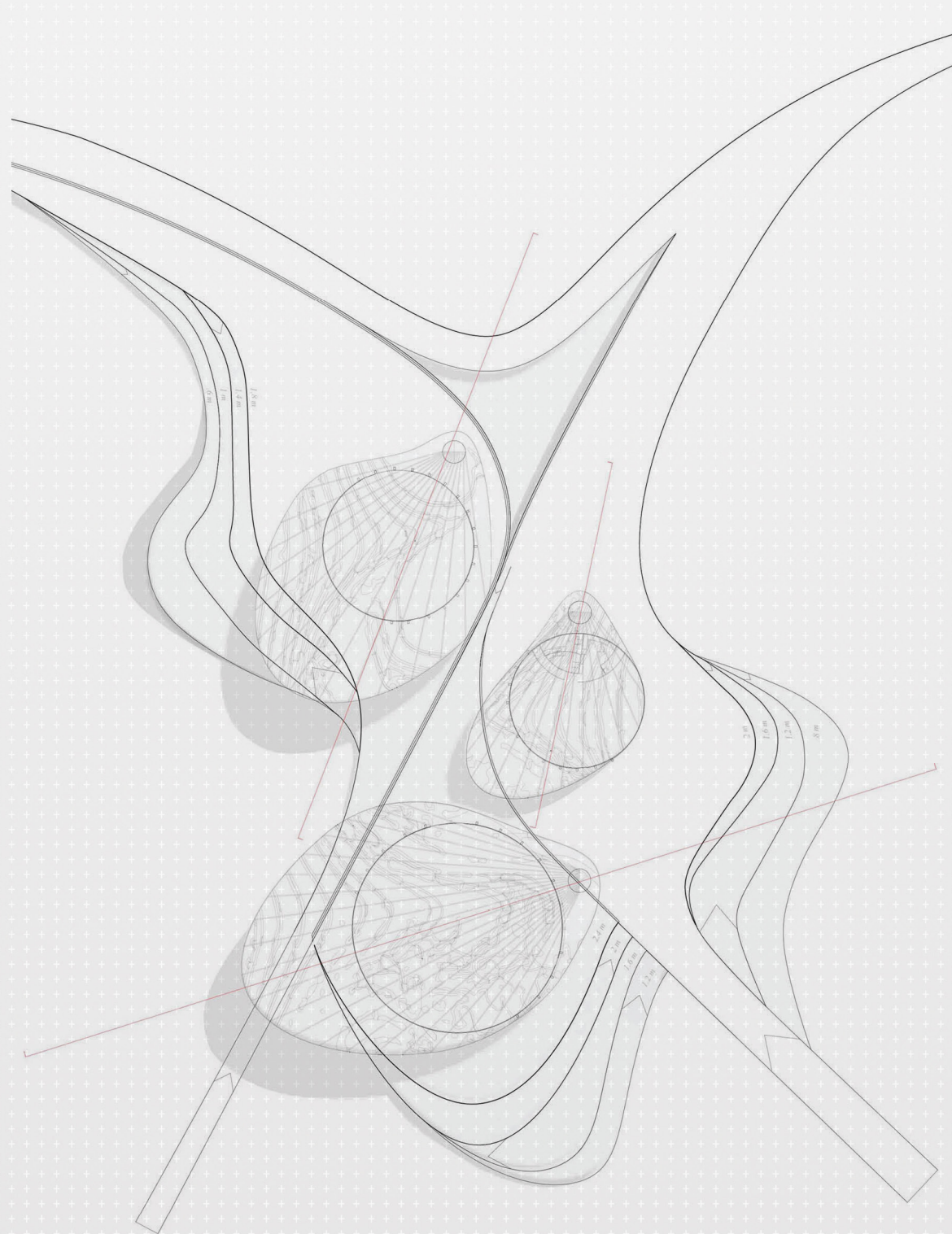
Reinforced Concrete

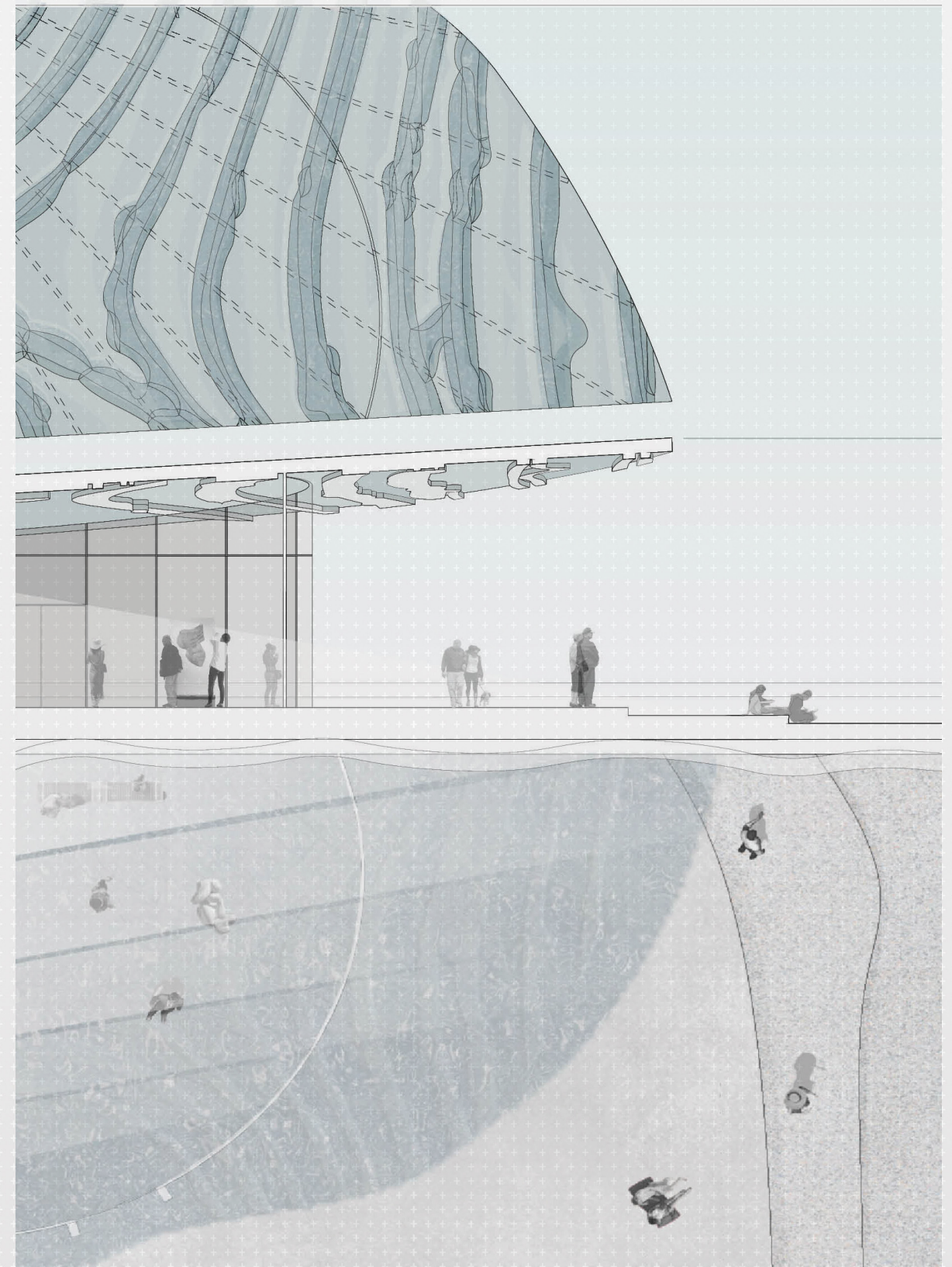
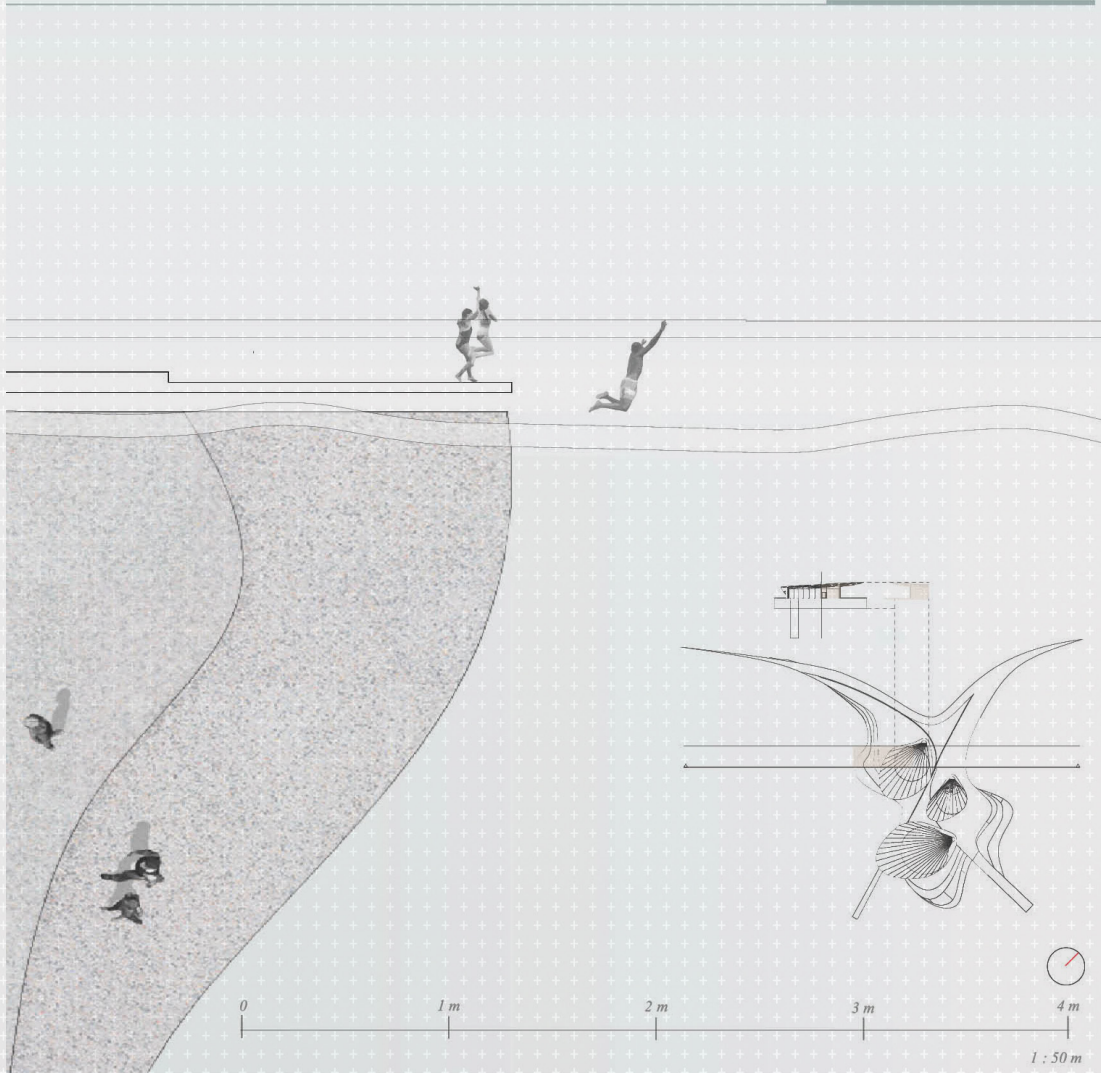


Vincent Morales Garoffolo:
 Beautiful presentation, verbally and graphically. Also these drawings absolutely fascinating and they just tell you that you are controlling everything. Even given the very complex shapes that you are implementing for your peninsulas.

Those shape remind me of Miralles and his way of controlling the geometries to produce the architecture. I am sand beach persona but I really enjoy your concrete beaches and that beautiful atmospheric feeling of the sun reflexion in the logic of your materials that you are applying. Beautiful project.







OVER / UNDER

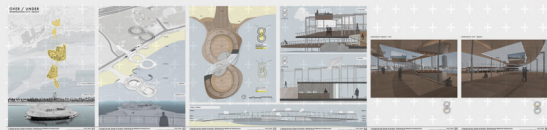
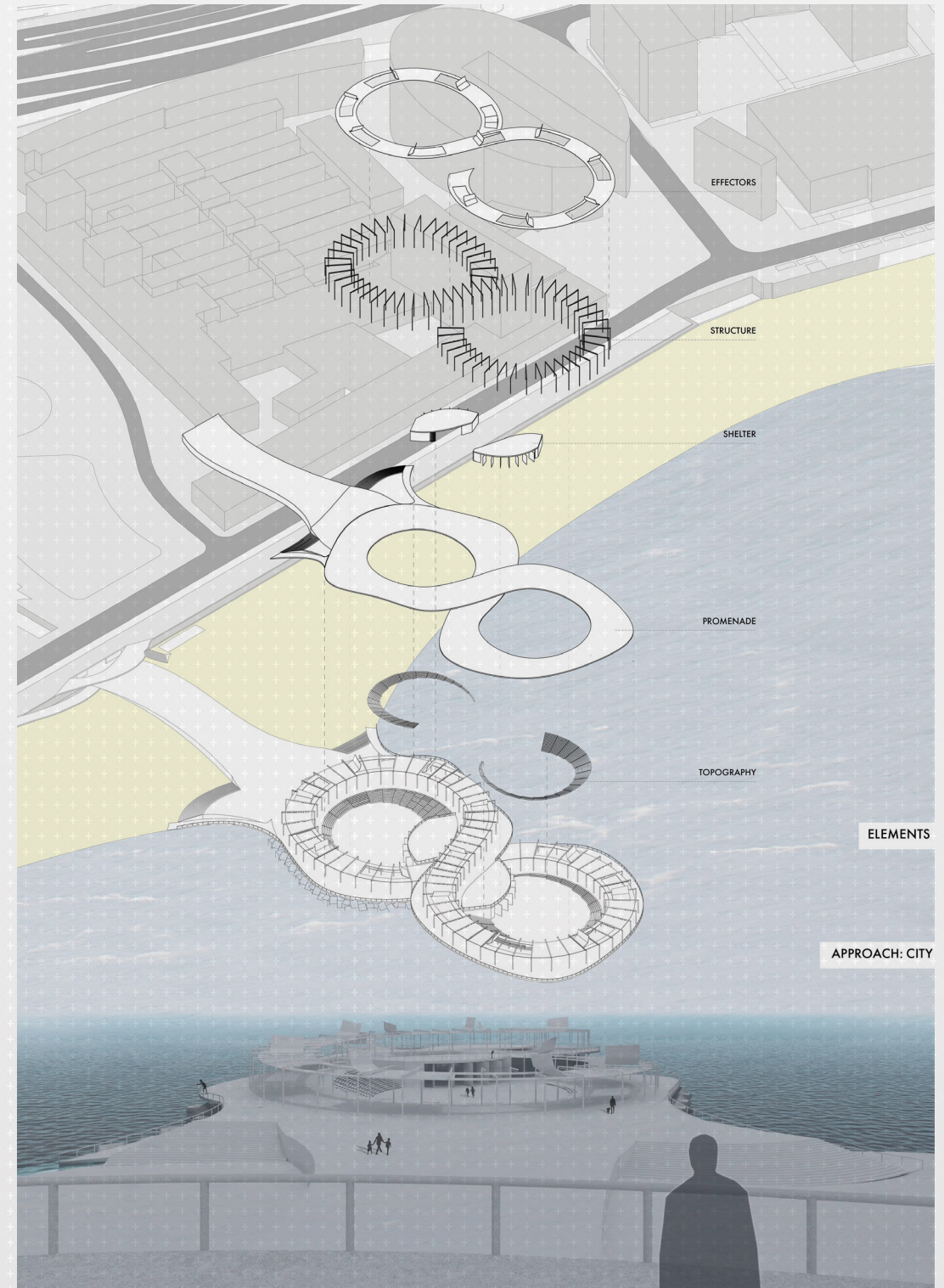
Evan Alexander Kennedy, Texas A&M University, Architecture Undergraduate
 Aaron Christopher Sheffield, Texas A&M University, Architecture Undergraduate

Public places and their connections are fundamental to the identity of Barcelona. While many of these public spaces are closely interconnected, the Espigó de Ginebra lies precisely at a point of urban blockage between Ciutadella park and the beach, created by the zoo, railroad, highway, and underused Barceloneta park.

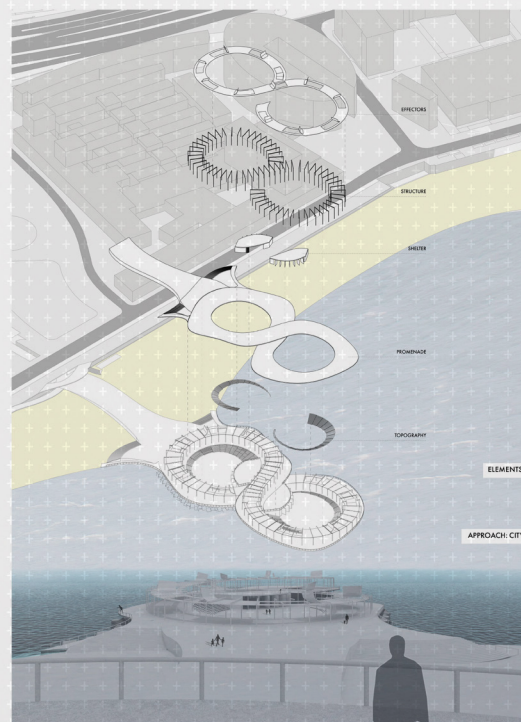
This project seeks to more closely integrate the city into the beach by means of circulation, materiality, and framed views. The proposed breakwater is a continuous strip of boardwalk that creates an infinite loop of circulation around the pier, over and under itself. The canopy over the boardwalk is a reflective surface on the underside, which peels up at specific points to create a kind of "peri-scope" that allows a person to view the scene behind along with the scene in front of them. These devices effectually connect the city and the beach through visual simultaneity.

The pavilion is created by the overlap of the mobius strip on top of itself, where the formal intersection has been pushed out to the sides to create covered spaces for exhibition, bar, cafe, and restrooms. The outer walls of these spaces open up to the large exterior public spaces created by the sloping circle of the boardwalk.

This project proposes an integration of the city to the beach through expansion of public space, and extended celebration of the simultaneity of city with beach. The periscopes expand the space of the beach into the city, while inviting circulation through the infinite loop of the boardwalk celebrating the integration of city and beach.

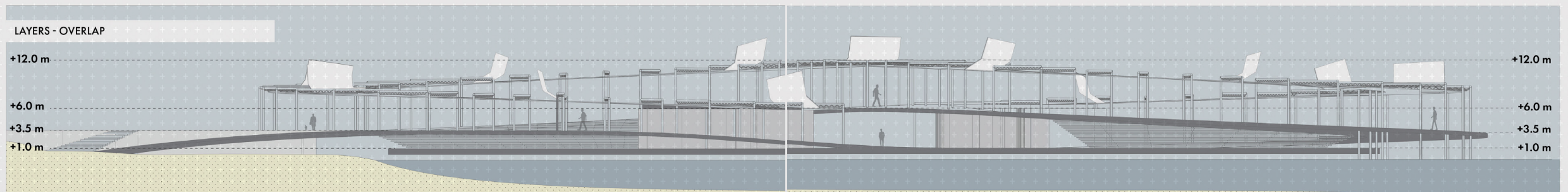
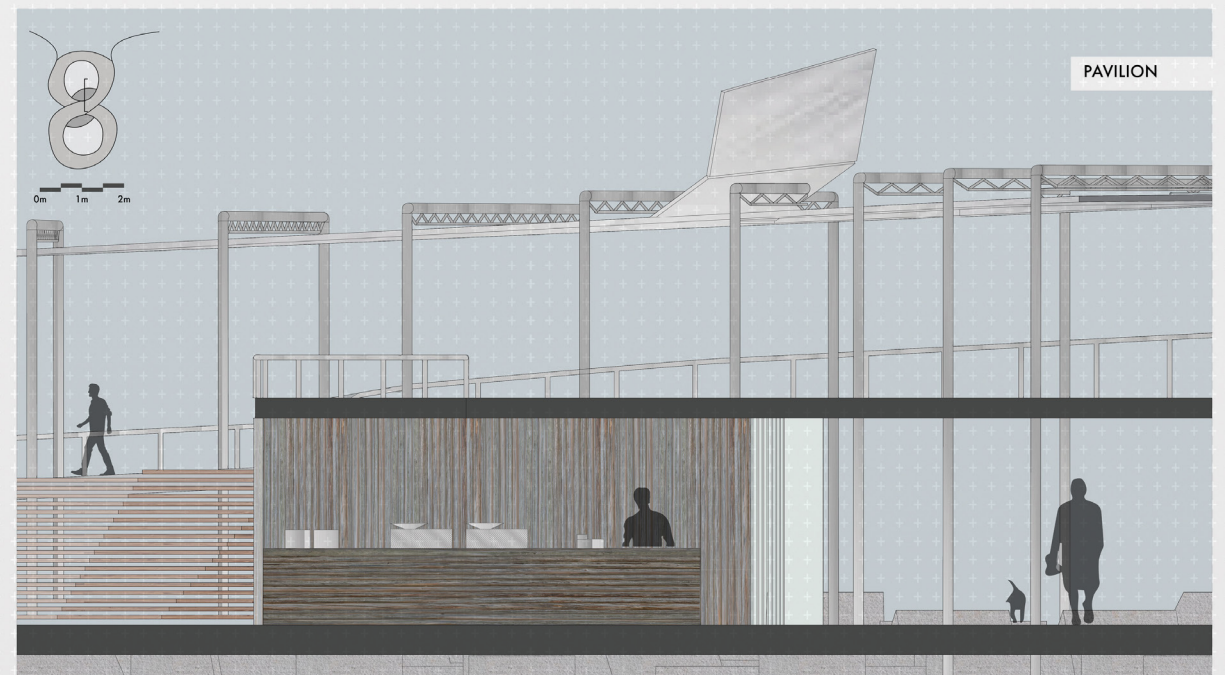
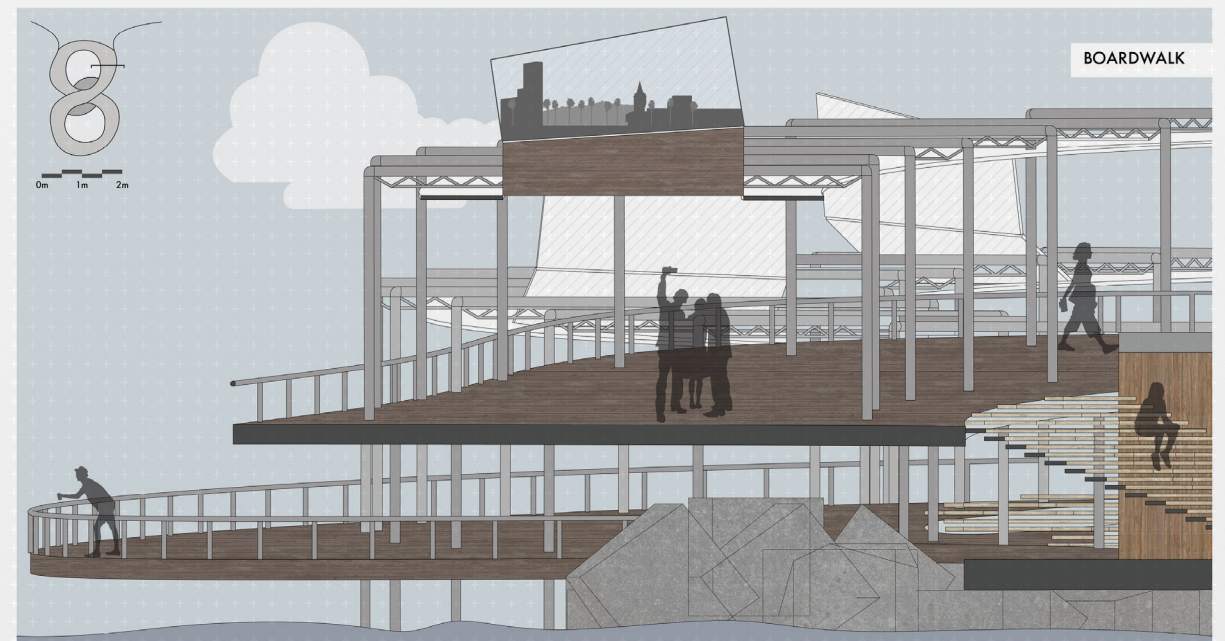
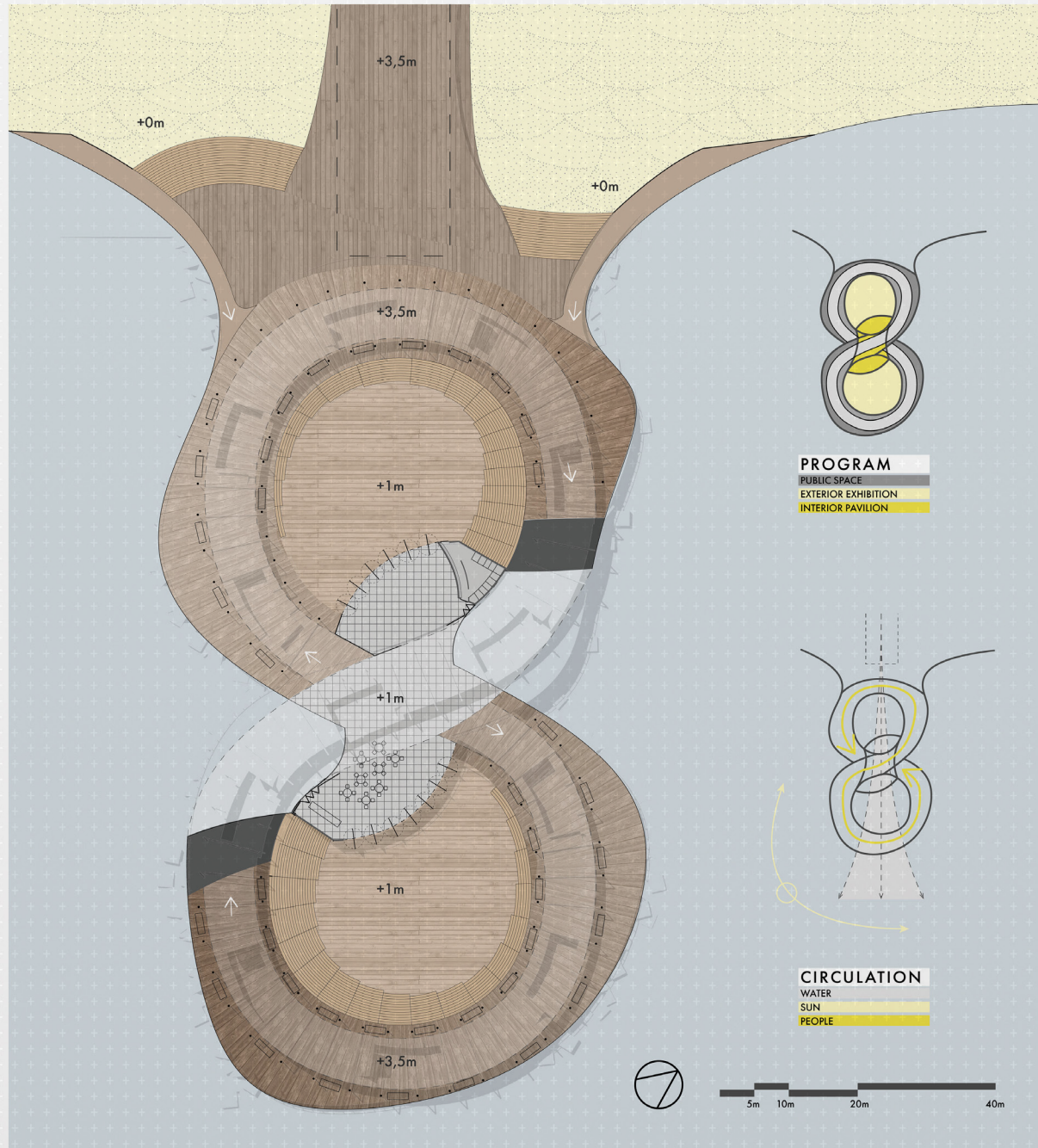


OVER / UNDER INTERWEAVING CITY + BEACH



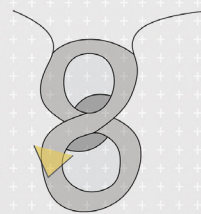
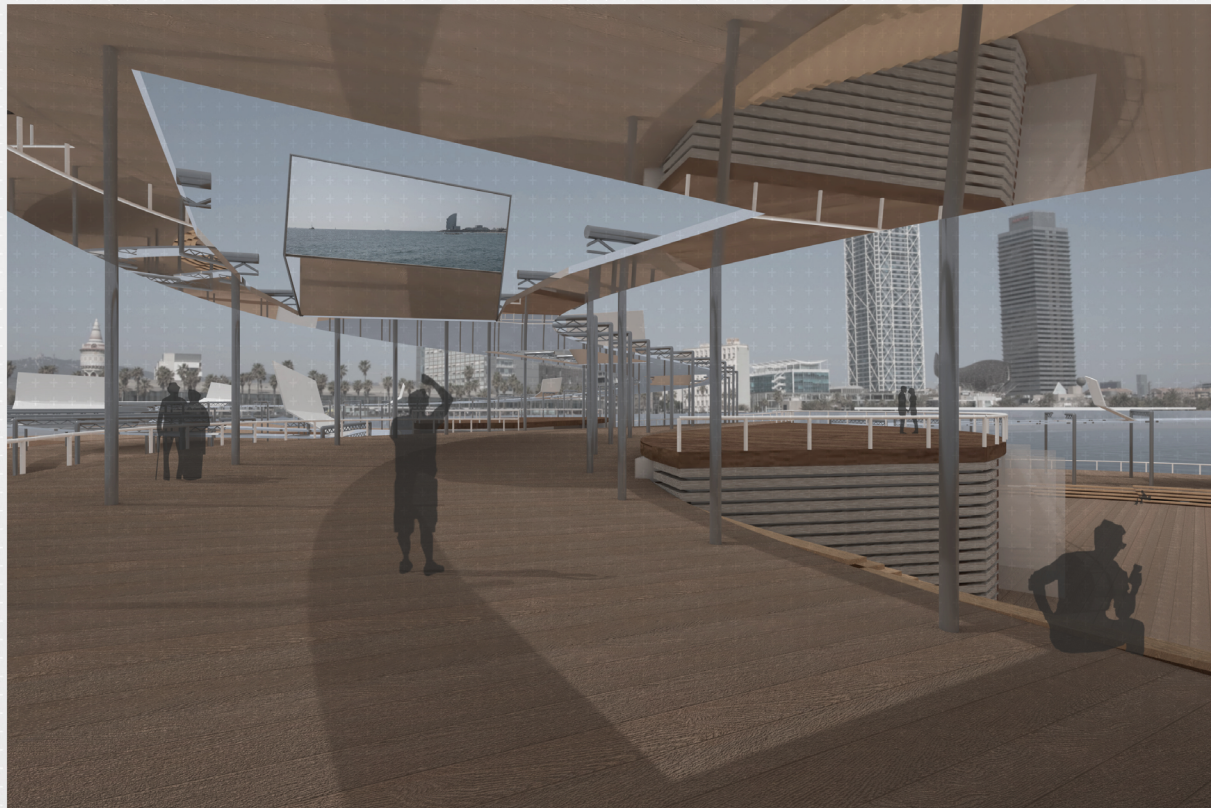
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 OVER / UNDER 01

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 OVER / UNDER 02

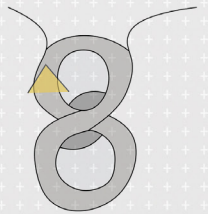
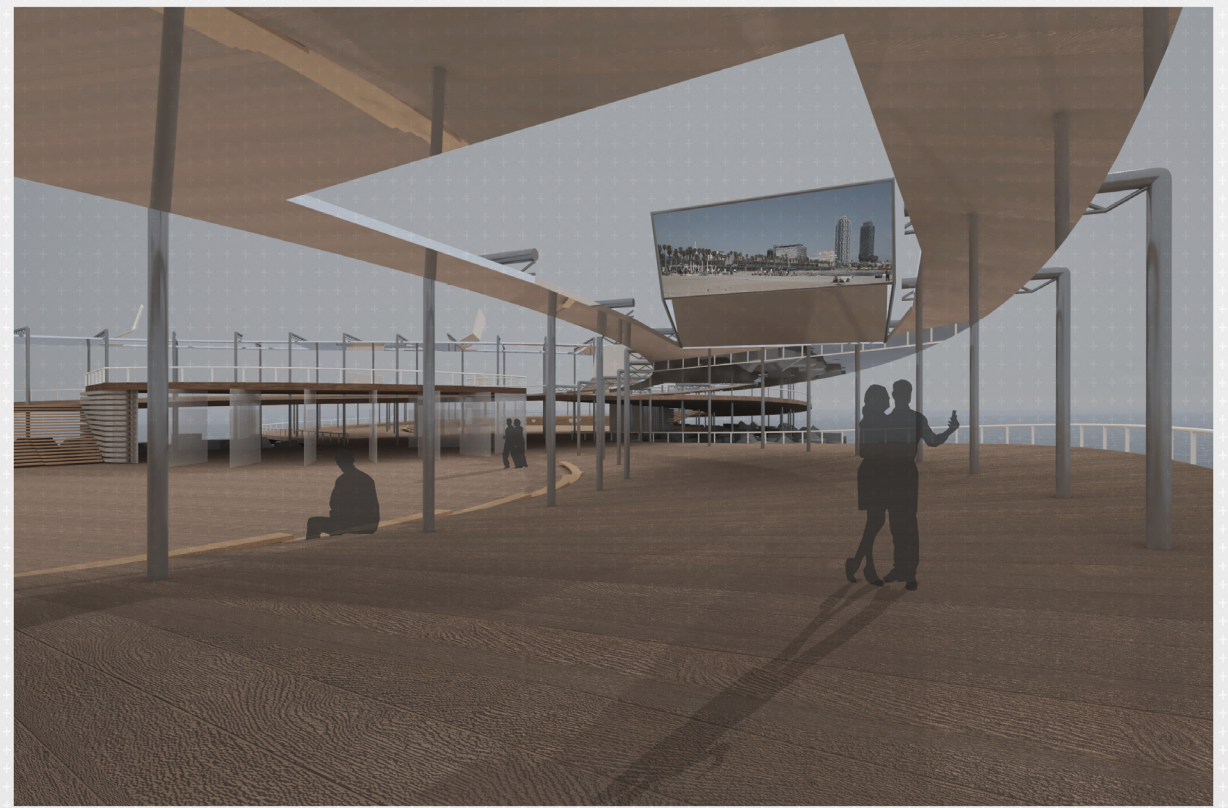




CONTINUITY: BEACH - CITY



CONTINUITY: CITY - BEACH



THE SEA SPONGE

Chloe Southmayd, Clemson University, Landscape Undergraduate
 Aleksandra Riley (Sasha), Clemson University, Architecture Undergraduate

When designing this project, the end goal was to create a public space that would provide a place for individuals to experience Barcelona's coast while also improving its existing condition. The sponge is a public pavilion that is accessible above and below the ocean water which allows for the structure to purify toxic run-off water from the city and to purify toxic sewage water being pumped from the city. The sponge is able to clean the contaminated water many ways. Starting with the top of the pavilion, vegetation beds outline the pathways which allows for a clear path throughout the open roof space, as well as cleaning the runoff water. Four different types of vegetation grow on plant beds on top of the pavilion, and these plants thrive in wet conditions. Water that runs off of the city and on to the pavilion will slope down to the sides of the pavilion into these plant beds. The plants will soak up the water and begin to purify the water. The water then seeps through soil and other cleansing layers until it drains in to a pipe that will pump the purified water out in to the sea.

Another way the sponge like structure cleanses contaminated water is by cleansing the sea itself. The structure is located directly in front of a sewage pump, so toxic water is constantly being pumped into the sea. The part of the sponge like structure that is immersed in the sea has rocks adhered to the walls. On these walls grow sea fern and sea moss, and this vegetation rid the water of any toxins before they can travel farther out in to the sea. Not only does this vegetation purify the sewage water, but it will cleanse the toxins that the sea has acquired over time. Along with vegetation, an oyster reef is attached to the rocks in order to rid the sea of even more toxins.

Another important component of the design is the experience. The project does not only act as a sponge, but resembles one as well. Light wells that vary from 0.762m, 0.9144m, and 1.0668m in diameter, allow the space below to have access to natural light since there are no windows on the perimeter of the structure. There are 8 glass cylinders that are 2.44 meters in diameter and 5 glass cylinders that are 1.83 meters in diameter that vary in height from 2 meters to 4 meters. The elevator and stairs are hidden by a center glass cylinder that is 4.6meters tall and 12.2 meters in diameter.



When you enter the interior of the pavilion, whether you take the stairs or the elevator, you will descend 5.2 meters down, below sea level, into an open exhibition space. Unlike the other program spaces that encompass the perimeter of the structure, the exhibition space was kept open to create a natural circulation around the glass cylinder that houses the elevators and the stairs. The layout creates an easily accessible and enjoyable experience.

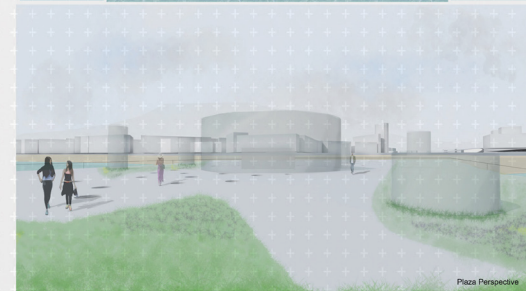
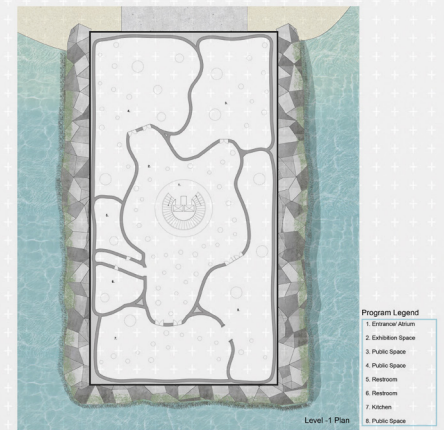
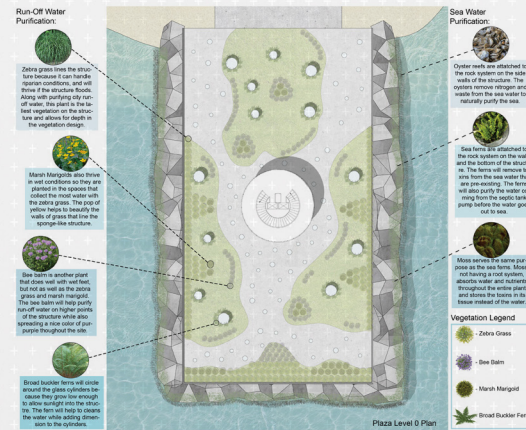


FINAL JURY

James Theodore Kalsbeek PSU:

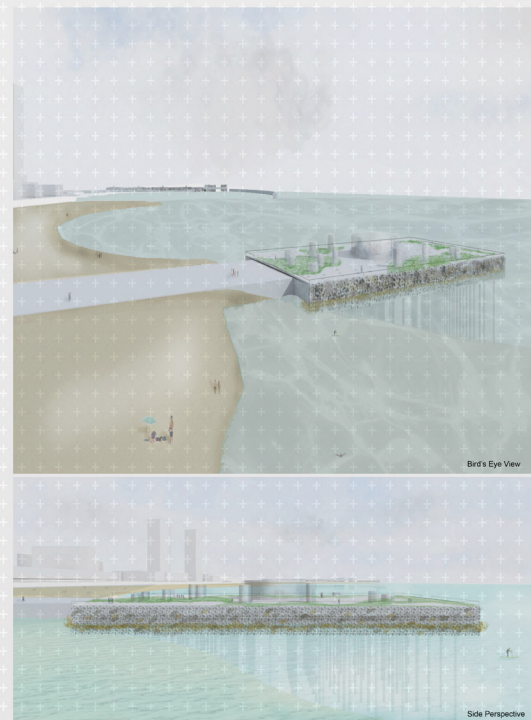
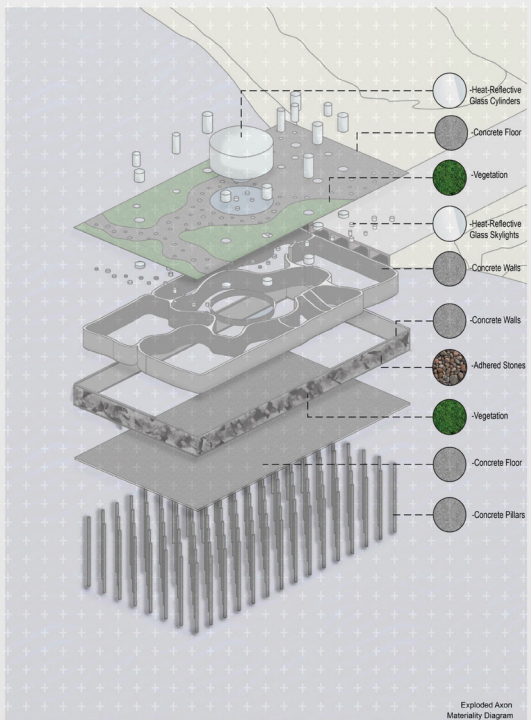
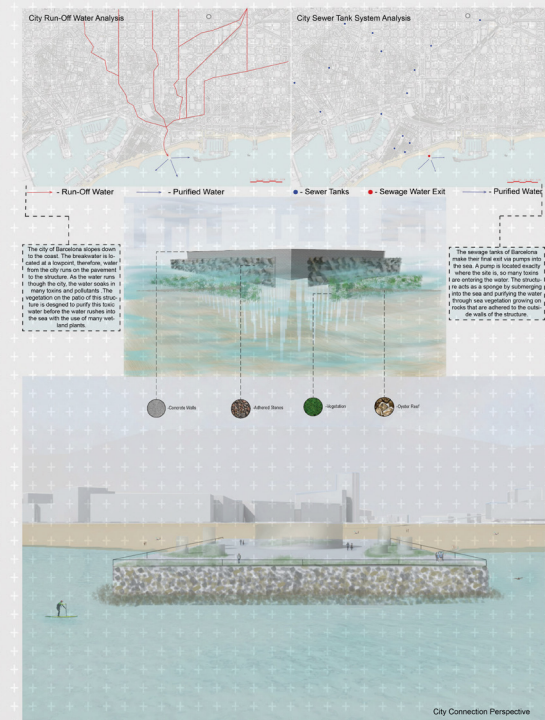
To me the exciting part are the gardens in the rocks the way you have described them. That is very exciting. I wish that the participant in the space would have more active access to that. To me the rocks are applied perimeter and there is the bit of disconnect between the section and you're your plan. So my doubt is whether the rocks necessary need to follow the rectangular form of your surface on the top.

I wish these two would follow each other and the rock should have more free geometric growth. That maybe someone can get out on these rocks and sunbathe. Your situation removes us from the beauty of that potential use of the space and rock perimeter. I also wonder whether with some openings you could achieve some nice moments of looking through that concrete wall and have visual access underwater.



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SENSORY PROMENADE

Lucerito Gonzalez Perez, Texas A&M University, Architecture Undergraduate
 Stefany Rodriguez, Texas A&M University, Architecture Undergraduate
 Brianna Nalley, Clemson University, Landscape Undergraduate

Our project is composed of 3 levels that intermingle to celebrate the sense of place of the sea through the use of senses and the choice of materiality. These levels are that of a constructed wetland with a stone garden, a promenade and a pavilion.

We chose to replace the current breakwater infrastructure with a softer breakwater that would serve to filter out water and slow down waves through a system of islands and stones. These two layers of a constructed wetland and stone garden work together to create a place of the filtration of water and of the creation of an ecosystem.

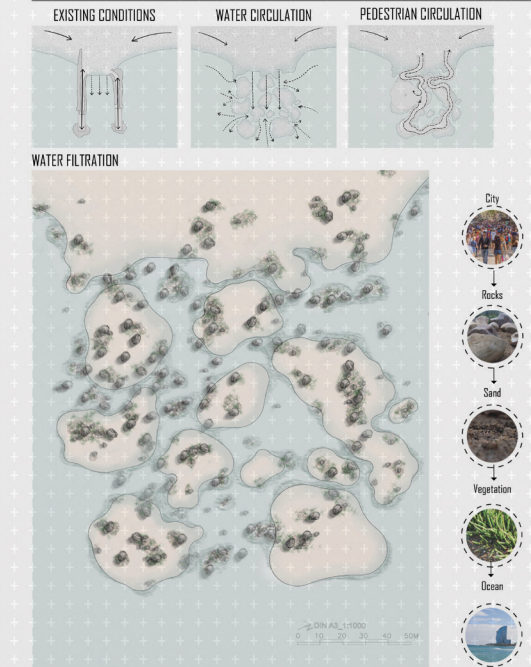
This same idea of movement and filtration continues onto the promenade above but this time with an emphasis on the movement of people. The promenade is a fluid movement of highs and lows that results in different interactions with the sense of place at different moments in time.

At the highest point of the promenade we chose to place the pavilion that can be understood as a hyper glazed ceramic shell supported by the stone minerality and that of the double layer hyper reflective glass walls leading to the clear views of the city and sea at the same moment.

As a result, we create various levels of interaction with the sea and city through the use of views, sounds, texture and smells throughout the promenade.

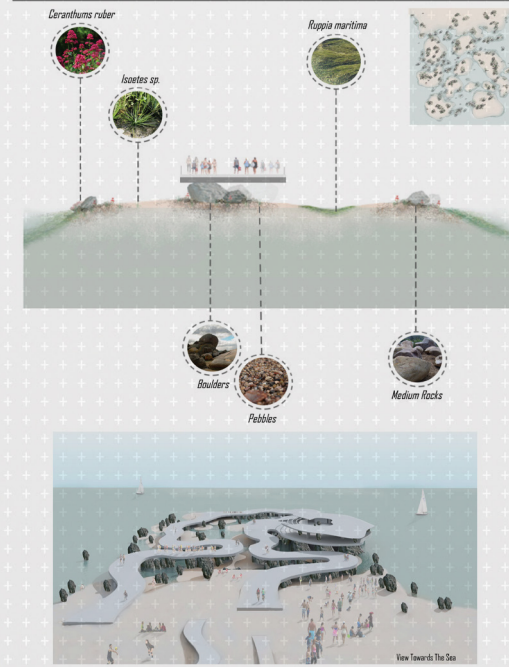


SENSORY PROMENADE



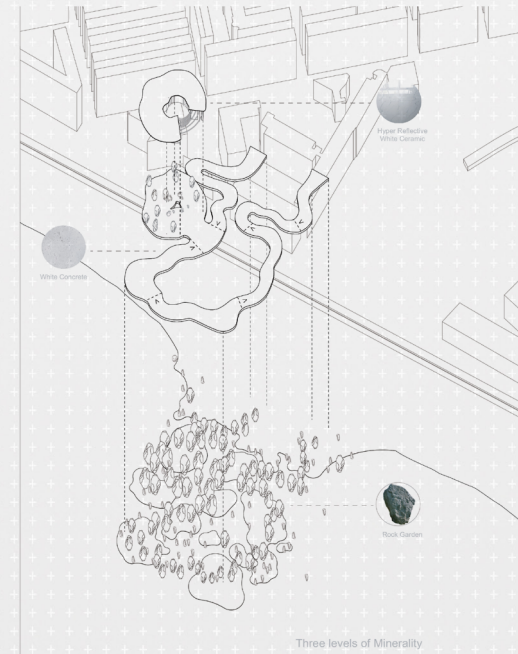
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SENSORY PROMENADE



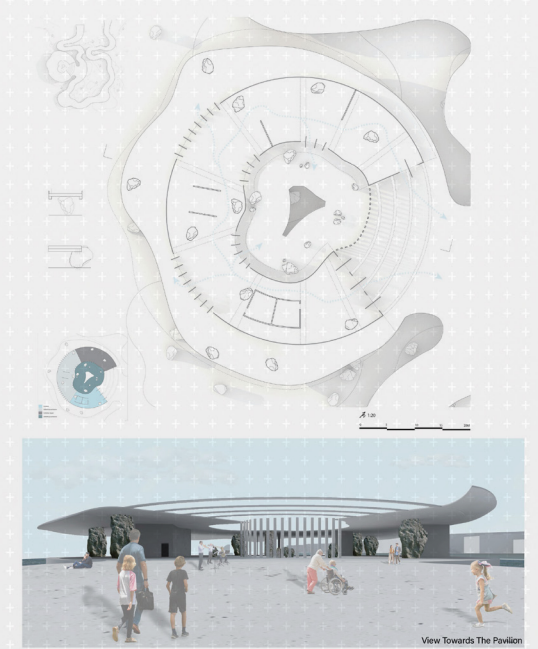
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SENSORY PROMENADE PROMENADE



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SENSORY PROMENADE PAVILION



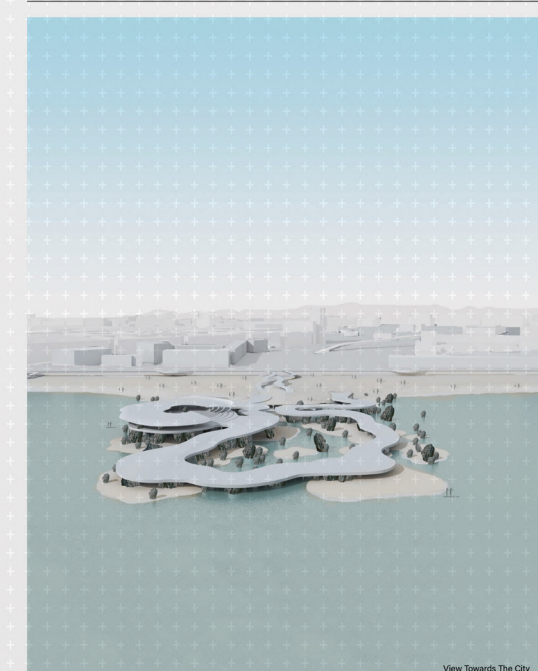
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SENSORY PROMENADE



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SENSORY PROMENADE



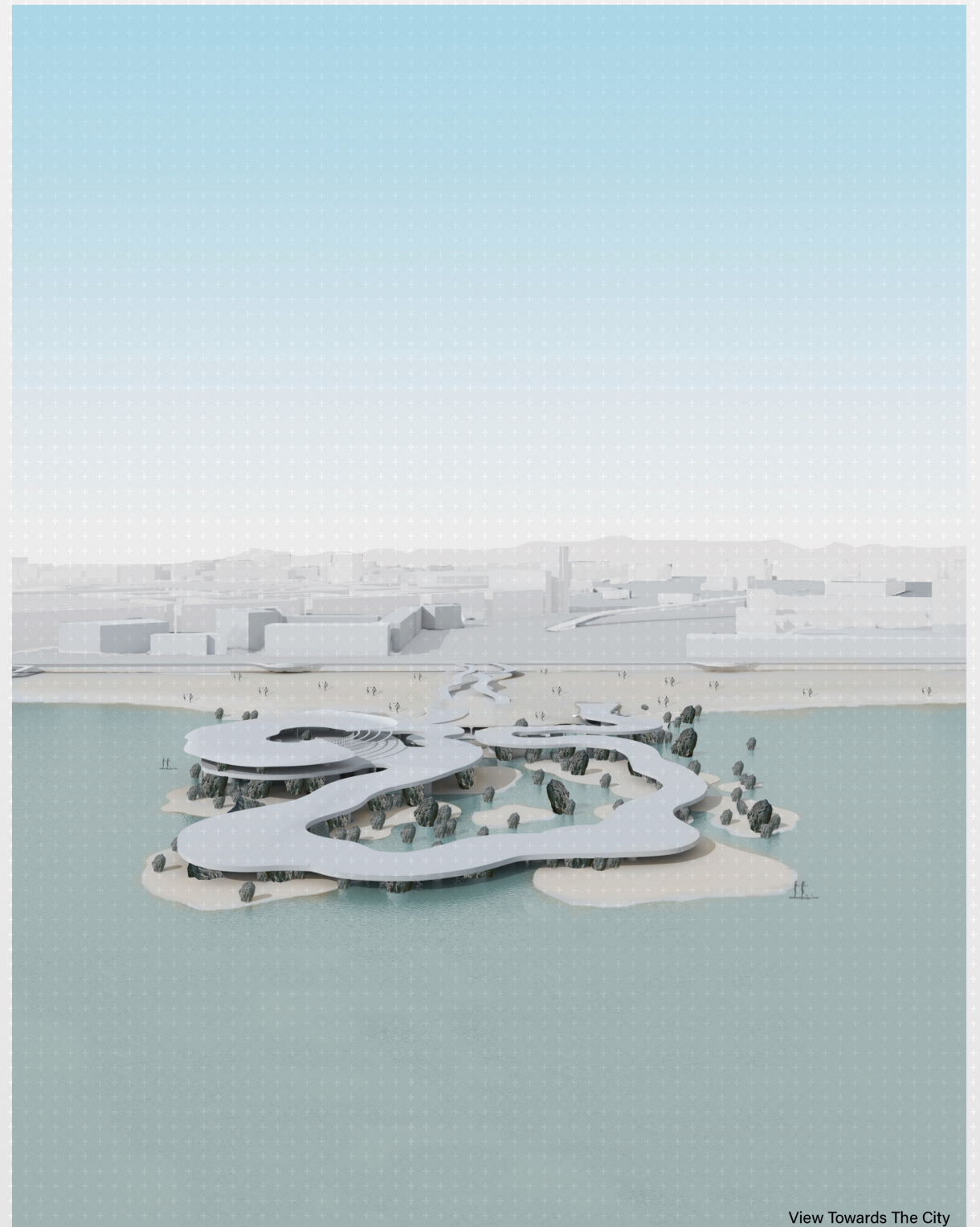
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SENSORY PROMENADE



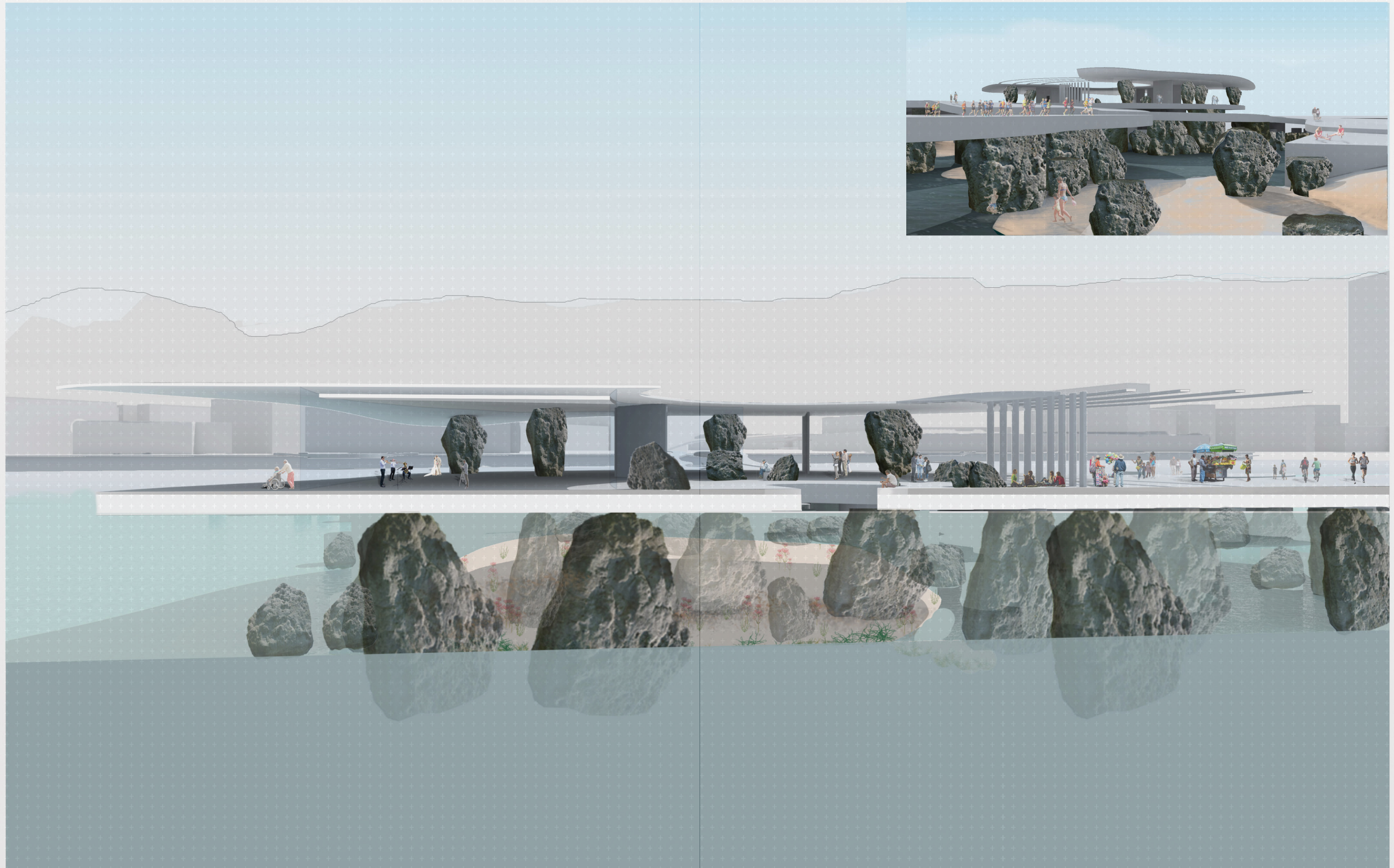
View From Promenade

SENSORY PROMENADE



View Towards The City

SENSORY PROMENADE



SENSORY PROMENADE

VAGABOND

Jane Holsten, Clemson University, Architecture Undergraduate
 William Scott, Clemson University, Architecture Undergraduate

"Vagabond" is defined as wandering from place to place without any settled home; nomadic. The boat-essence of this project allows for its flexibility and nomadic abilities.

The alterations to the breakwater allow for a harbor-like feel. Rather than disrupting the flow of pedestrians with two separate endpoints, the breakwater connects at one destination point. This point connects the people to the docked boats, much like a harbor.

The boats are both modular and diverse in the sense that they have the same materiality and structure, yet different shapes and sizes. The structure is boat-like, and the gradually-curved edges along with the evenly spaced structure allow for infinite connection points at which people can hop from boat-to-boat.

Sailboat technology is further incorporated in the manufacturing process. The boats are prefabricated in a local shipyard in a process much like that of true sailboats. The fiberglass shell is created from a prefabricated mold, and is then reinforced with the fiberglass ribs. The top and bottom shells are then pieced together. Finally, the boats can be brought to the breakwater by sea. However, this is not the final destination. The structure's sailboat essence allows for it to be docked anywhere along the coast of Barcelona or even anchored at sea. Thus, the project is siteless, deem-ing it a true vagabond.

The implementation of fabric walls and ETFE windows allows for more flexibility within. Much like sails, the walls can be opened or drawn away. This allows for infinite variations of spaces within. As the walls and windows are opened or closed, spaces can become intimate or public. Additionally, the previously mentioned sailboat technology allows for infinite flexibility as boats can be reordered for selected programs.



Harbor 01

VAGABOND
wandering from place to place without any settled home, nomadic.

EXISTING PIER 01 A NEW PIER 02

HARBOR-LIKE PIER 03

"L'Espiga del Gas, Espiga de Ginebra" Rethinking the Waterfront Infrastructure



FINAL JURY

Ulrike Heine CU:

I think that is fantastic proposal. There are some things that I would like to see you were got thinking little bit further into. You were talking about ETFT as material of reference, but I think we have to start thinking about the light control in these materials and ETFT is super material because you can have it in multiple layers and you shift those layer depending on the pressure on these ETFE pillows normally.

Just keep in mind that this material is something that you are spanning in between some structure or it's a pillow that would be filled with the air or gas constantly which means little bit technological from what are you proposing. But I think is absolutely doable and beautiful.

The next thing is that I would like that you include is the exploration on how these structures ventilate and the air is circulating and that they don't have to be there enclosed bubbles and that they have this potential to open those up and get this feeling of the breeze or splashes of water with this boat feeling.

I think all the project is very elegant and I'm really excited to see that.

James Theodore Kalsbeek, PSU:

I love following along your narrative of the vagabond, site that is siteless, the flexibility and the boat imagery. I think that there is the opportunity in the roof that I am concerned more. I wish that you have explored more the image of the boat and being outside and the diversity of the spaces and when I'm on this boat, I am only inside. I will never have that Leo di Caprio and Kate Winslet moment of the prow and be out on the sea and feel the wind and the splash and the storm.

Sailboat Technology 03

COASTAL MOVEMENT

SIZE (XL, L, M, S) 01 MOLDS 02 STRUCTURE 03

FIBERGLASS SHELL 04 DELIVERY 05 ON SITE ASSEMBLY 06

"L'Espiga del Gas, Espiga de Ginebra" Rethinking the Waterfront Infrastructure

So I invite you to diversify this shelter part and make them have different quality and different moments. I would also love to see more on process of construction and what happens with this public space when the boats are not there.

Elena Canovas, the University of Arizona:

I would like to bring the polemic thing just for you to think about it. Barcelona is banning the Cruise Ships and your pavilions are nothing compared to that.

Those are huge machines that pollute extremely. But somehow you bring little micro little brother of this things of arriving to a place and somehow not caring so much about that place. I believe this controversy of your proposal is interesting and this provocation is part of your proposal and it is hidden behind these beautiful drawings but I think it is there.

The private occupation of the public space, the commercialization of the public space and also to use the polluting engines to move it. Of course you can develop more sustainable option to your proposal.

Modularity/Diversity 02

1 UNIT: 1,000 SQ/M 01 2 UNITS: 2,000 SQ/M 02 3 UNITS: 2,650 SQ/M 03 4 UNITS: 3,150 SQ/M 04 6 UNITS: 3,650 SQ/M 05

PROGRAM

INTERIOR RENDER

SECTION

Flexibility 02 03 04

ARRANGEMENT 01 ARRANGEMENT 02 ARRANGEMENT 03 ARRANGEMENT 04 ARRANGEMENT 05 ARRANGEMENT 06 ARRANGEMENT 07

SECTION: DAY

SECTION: NIGHT

"L'Espiga del Gas, Espiga de Ginebra" Rethinking the Waterfront Infrastructure

VAGABOND

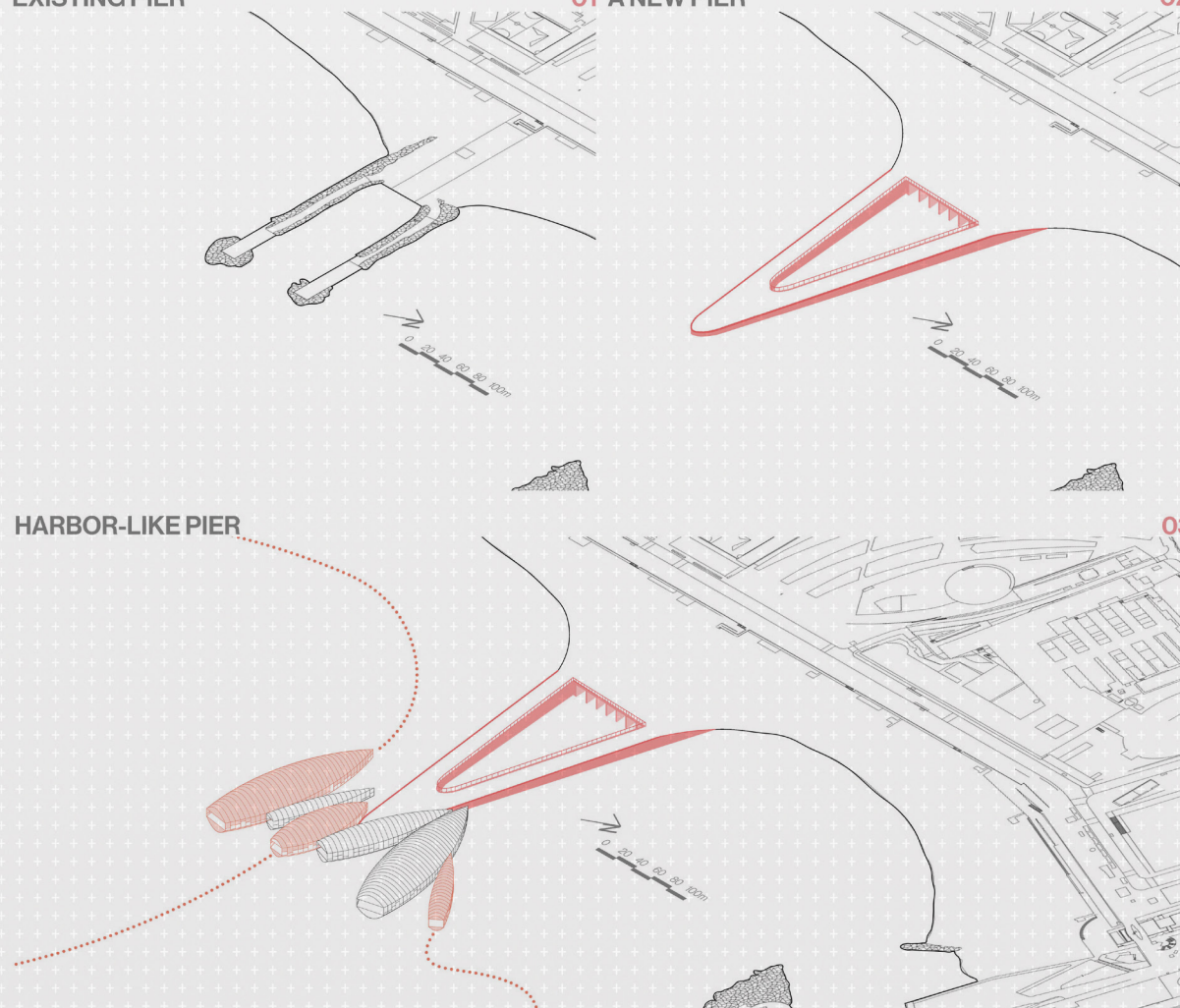
wandering from place to place without any settled home; nomadic.



EXISTING PIER

01 A NEW PIER

02



HARBOR-LIKE PIER

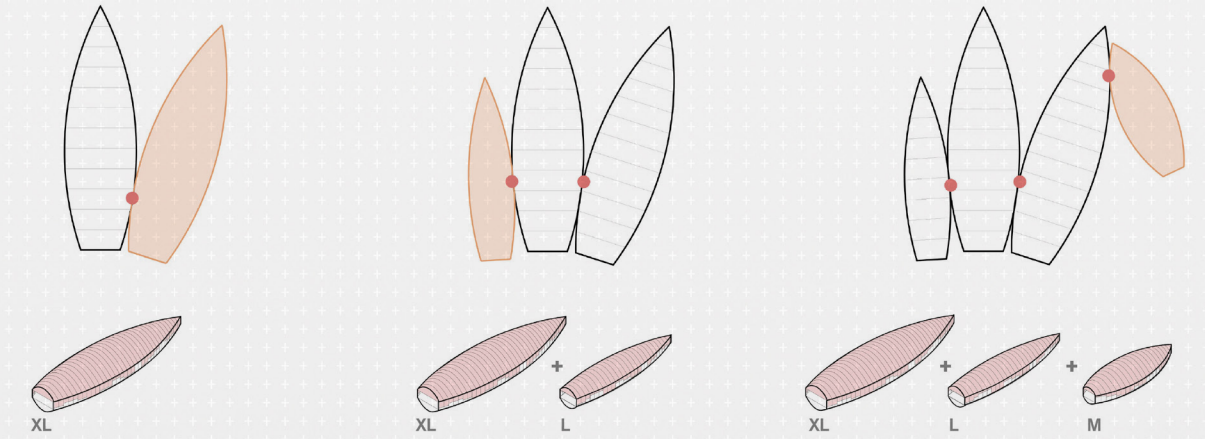
03

1 UNIT: 1,000 sq/M

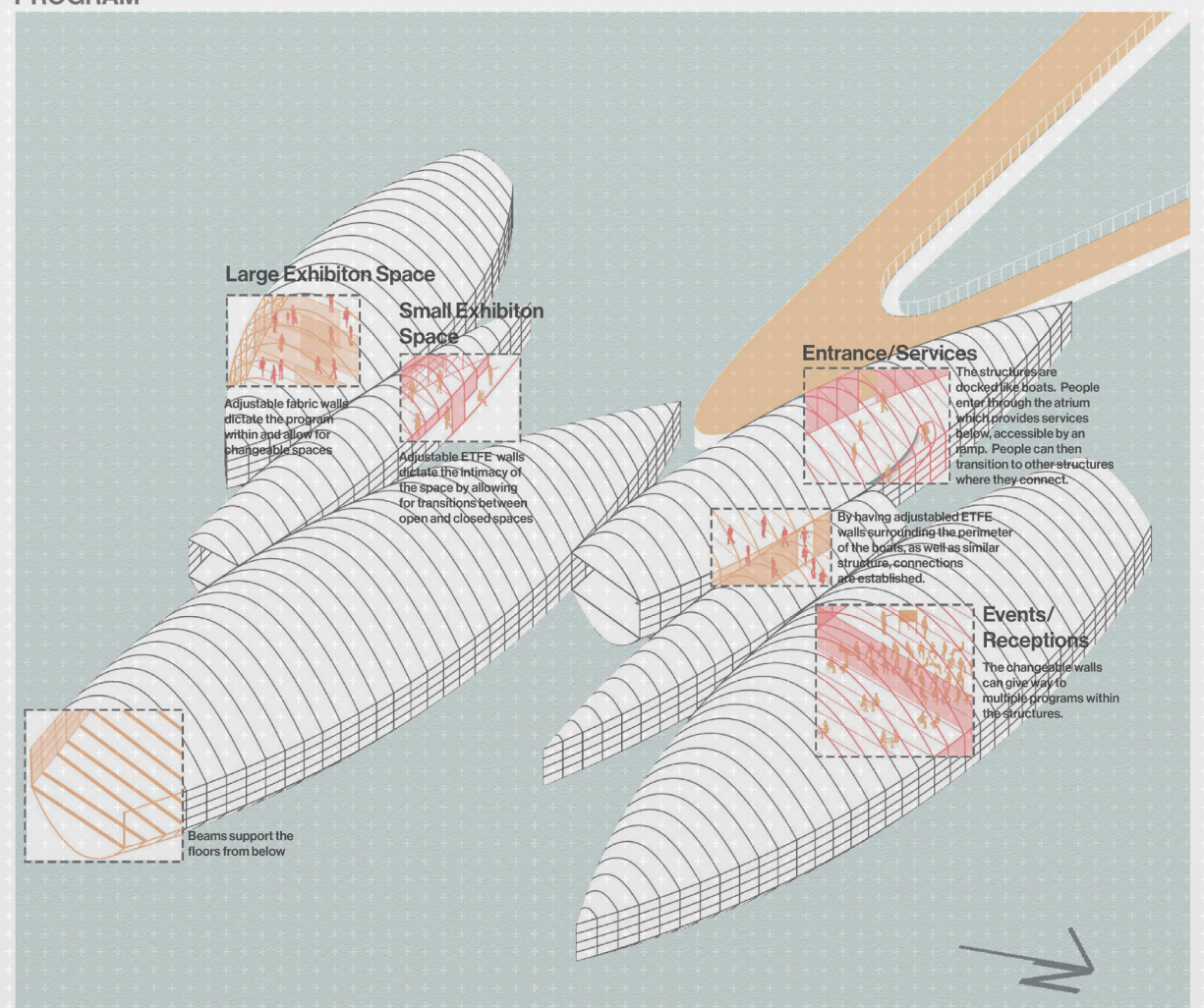
01 2 UNITS: 2,000 sq/M

02 3 UNITS: 2,650 sq/M

03



PROGRAM

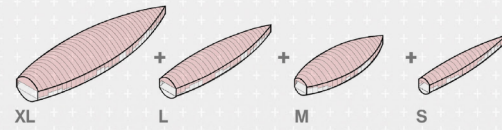
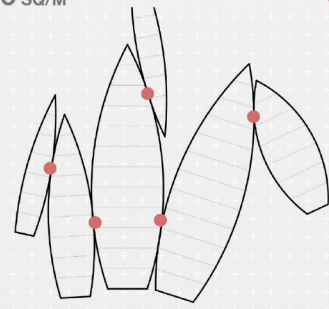
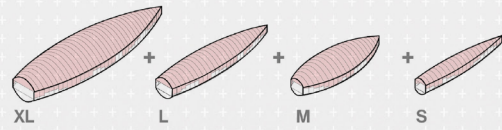
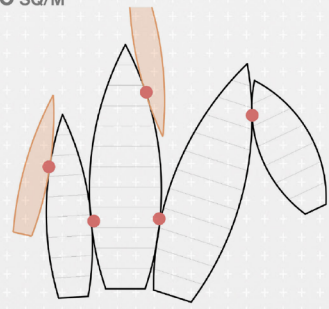


4 UNITS: 3,150 sq/M

04

6 UNITS: 3,650 sq/M

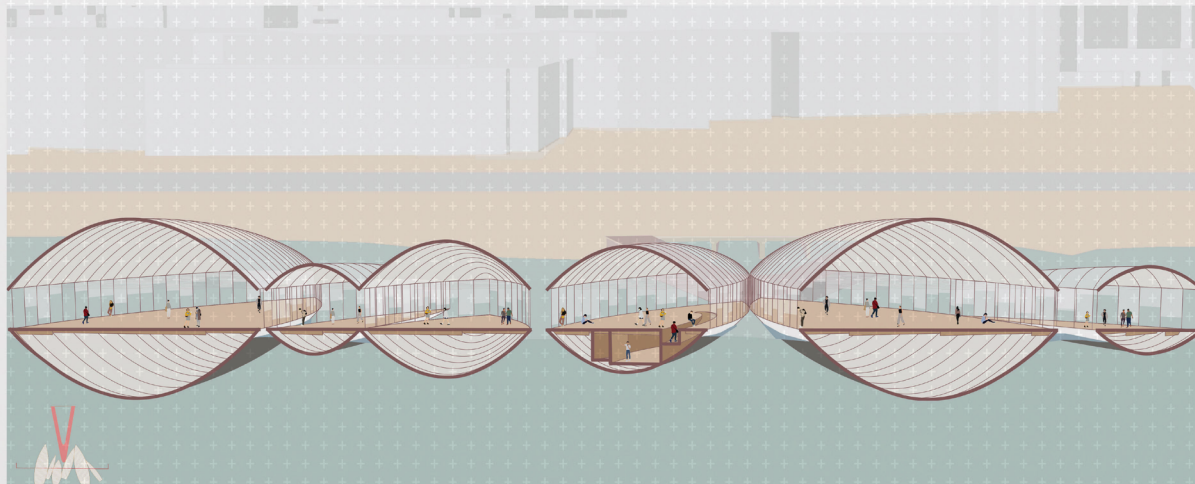
05



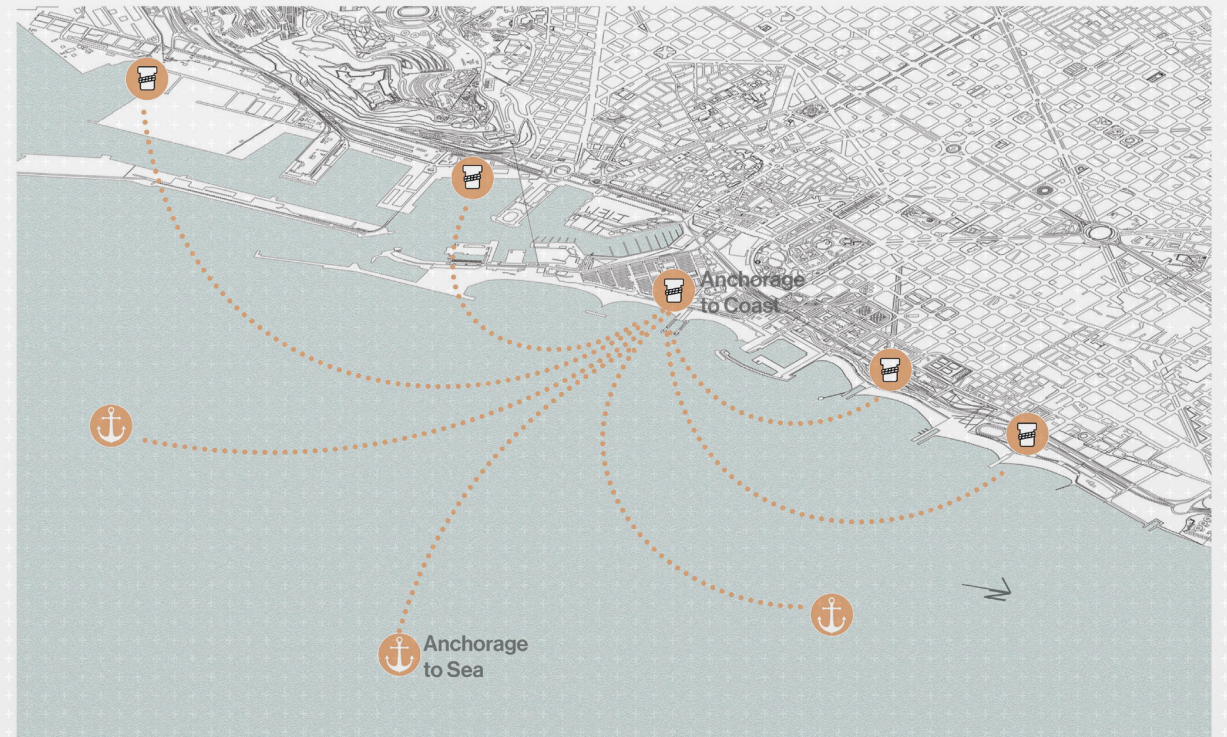
INTERIOR RENDER



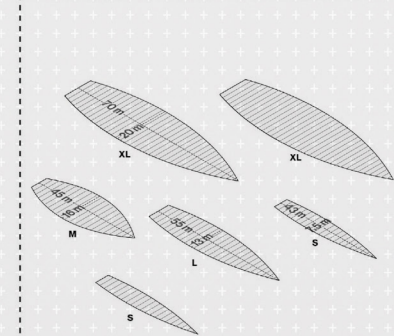
SECTION



COASTAL MOVEMENT

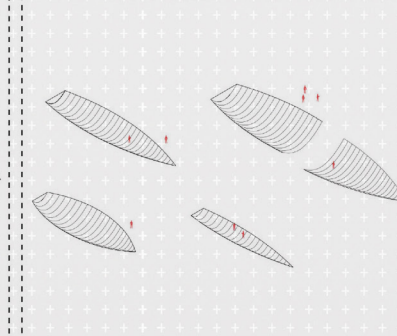


SIZE (XL, L, M, S)



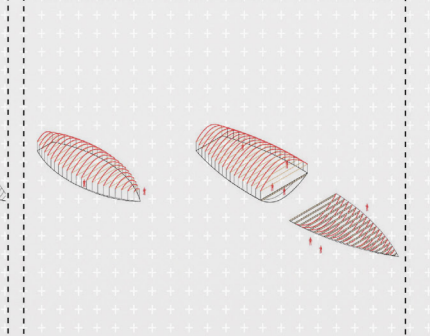
Differently sized platforms and grid are established to serve as the foundation for the boats.

01 MOLDS



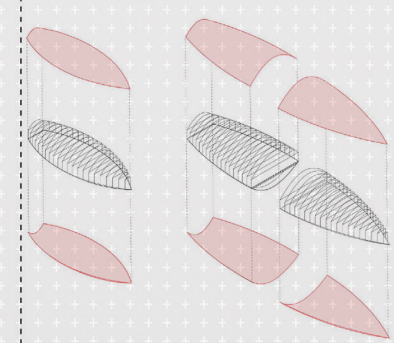
Molds are constructed based off of boat size to create fiberglass shells. Larger boats require multiple molds.

02 STRUCTURE



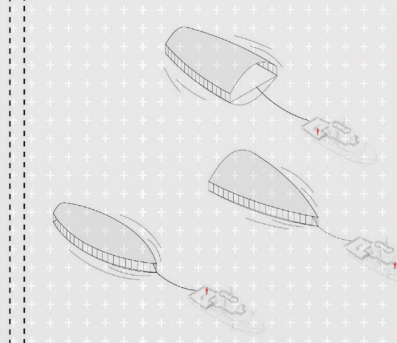
Columns and fiberglass ribs are placed on foundation to support fiberglass shells.

FIBERGLASS SHELL



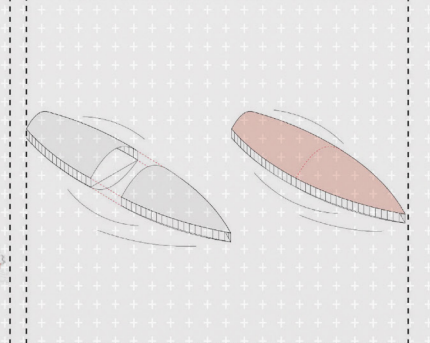
Fiberglass shells are sandwiched and placed on top of structure to form boats.

04 DELIVERY

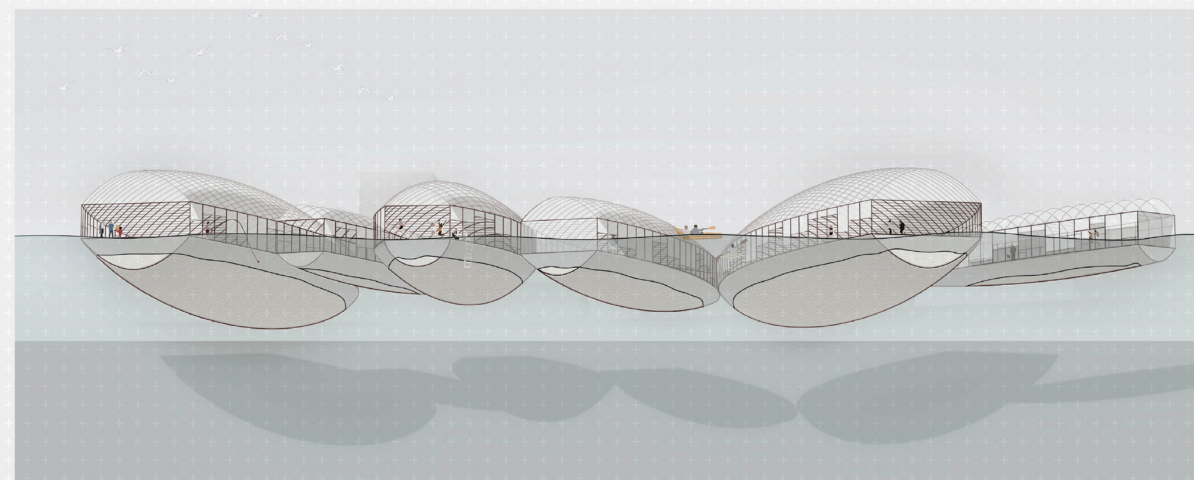
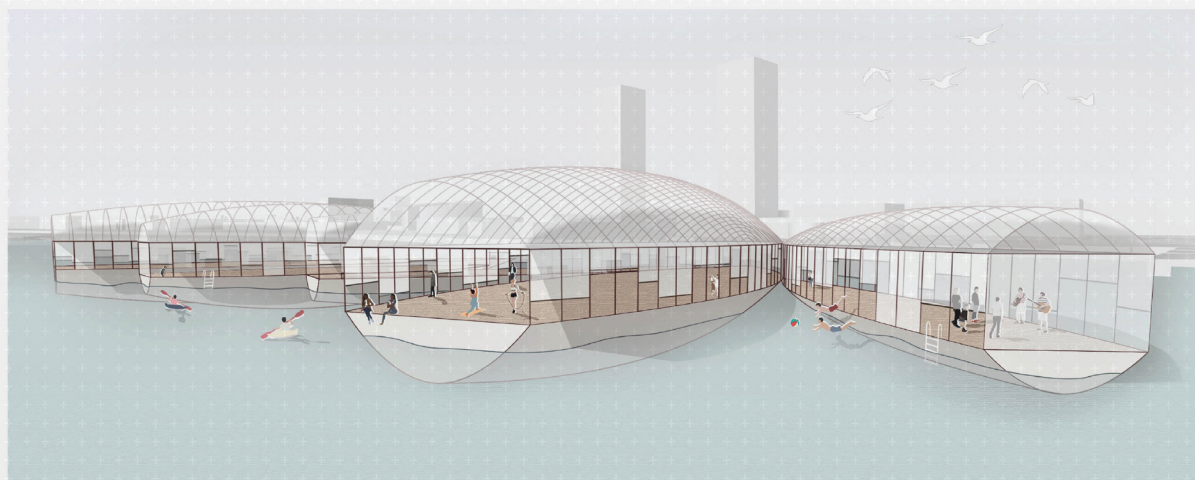


Boats are then shipped in either pieces or whole to be placed in site.

05 ON SITE ASSEMBLY



Fragments of the larger boats are assembled on site.



ARRANGEMENT

01

ARRANGEMENT

02

ARRANGEMENT

03

ARRANGEMENT

04

ARRANGEMENT

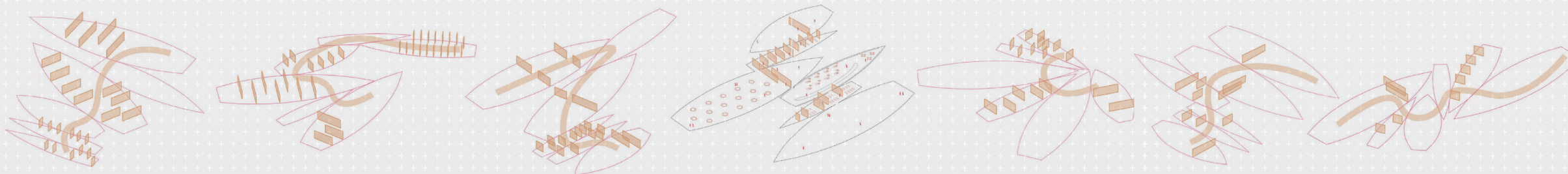
05

ARRANGEMENT

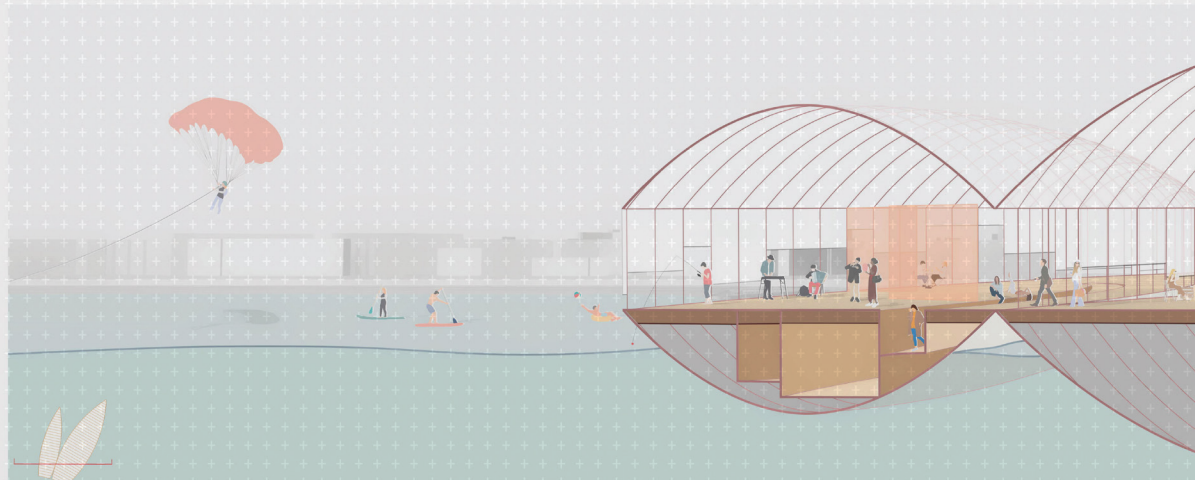
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ARRANGEMENT

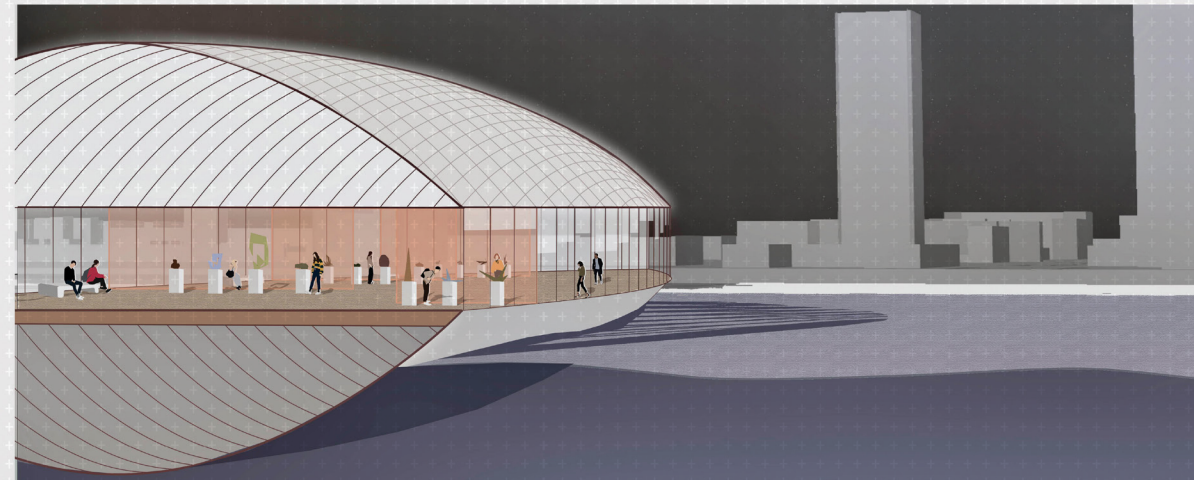
07



SECTION: DAY



SECTION: NIGHT



RECONNECT

Caitlyn Van de Meulebroecke, Clemson University, Land Undergraduate
Ria Naab, Clemson University, Architecture Undergraduate

Our project aims to reconnect the city to the sea by serving as an ecotone that brings together the two breakwaters as well as nature with the built environment. Over the course of history, both the people of Barcelona and the sea have been repeatedly displaced for the sake of the city's development. The beach and breakwaters on the site have a key role in displacing the sea and form a transition space where our design seeks to reconnect nature, the sea, and the people to each other.

The physical design creates an ecotone by connecting the two breakwaters, allowing for a circulation pattern that encourages visitors to cross over the sea and move from one breakwater to the other. Before crossing this bridge, visitors must walk through a tensegrity structure that is covered with plants, forming a hanging ecology in the sky.

This "cloud" is an ecotone in itself in that the structure is built in a way that its parts are in perfect tension, just as the sea and city are in tension with one another. This tension pulls together both environments and people alike and makes the site the rendezvous point. In bringing this ecology onto the site, we reconnect the site to its past before the sea was displaced, as well as reconnect people to nature in a more natural and authentic way than the artificial connection provided by the existing beach. The tensegrity structure represents a nest by literally creating a habitat for birds and figuratively begins the visitors' journey through the life cycle of a bird.

As visitors move from the tensegrity structure and into the pavilion, they enter into a transitional space located between the city and the sea. In this way, the pavilion represents a fledgling that is transitioning from the nest to the sky. The openings in the center of the pavilion and the choice of a translucent ETFE membrane visually connect the city to the sea while filling the interior space with natural light, so that the pavilion facilitates a discourse between the two elements rather than acting as a barrier between them. The open floor plan allows for flexibility of program but also blurs the lines between the inside and out with the flow of circulation.



The planted trusses weaving in and out of the ceiling further blur this line as the natural environment enters the enclosed pavilion. As people leave the space, they return to the city carrying with them their newfound experiences and a reconnection with their built and natural surroundings. This transformation will carry itself into the city and to the world as tourists and locals alike are drawn to our site to find connection with nature and with each other.

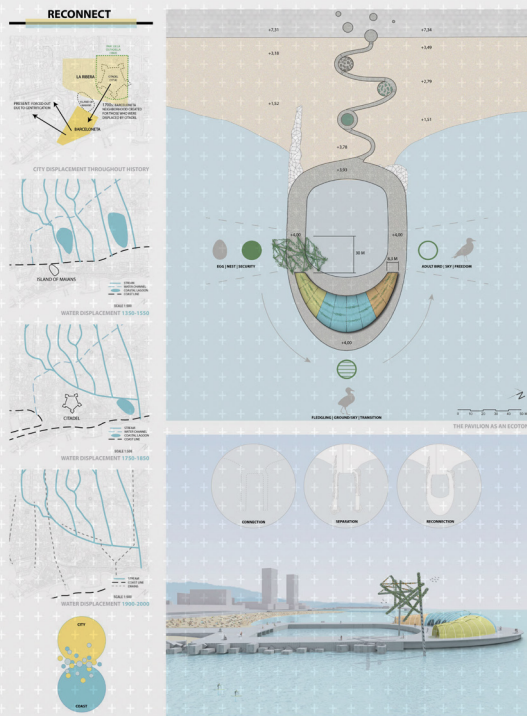
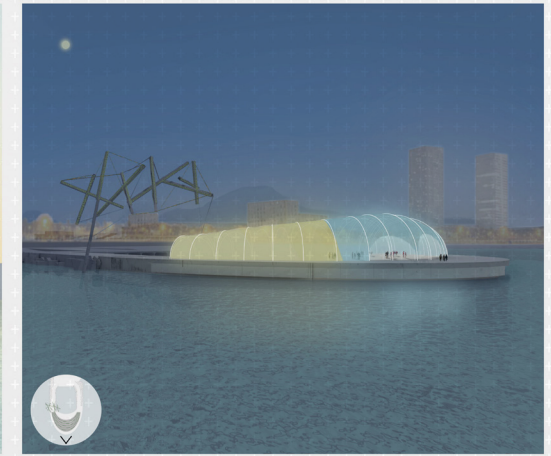
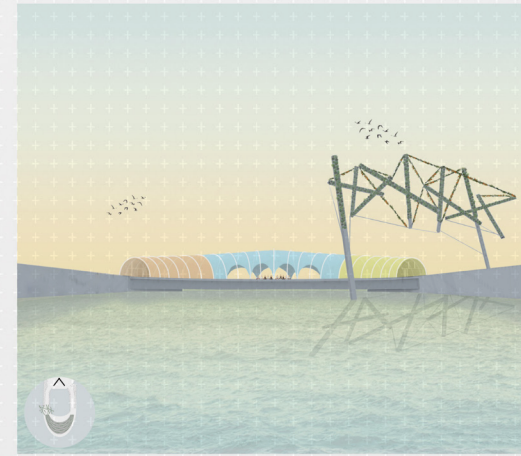
FINAL JURY

Celso Rojas, BAC Alumni:
I think that there is a lot of really good ideas in your proposal, but I'm not so sure on the execution and the tying these two parts together. I can see almost two separate projects, so I'm wondering is there a better way to interact with each other and make the stronger connection. Or maybe the whole pavilion is just a series of these nests. I wish that the connection of your ecotone diagram had stronger and more radical execution in your proposal as well.

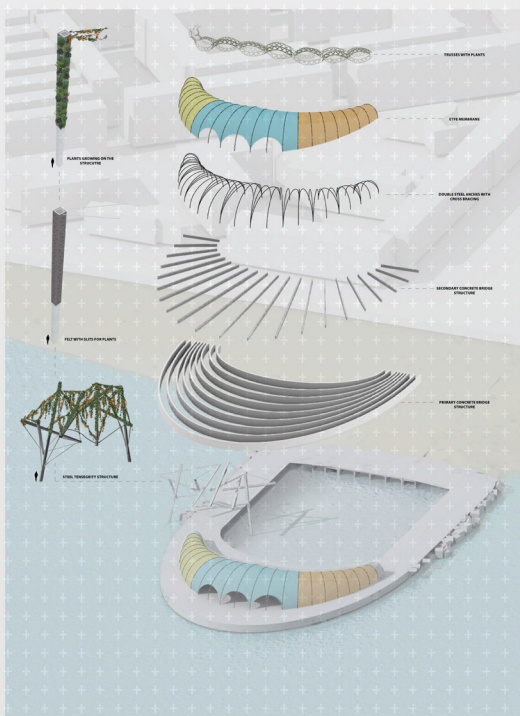


Juan Antonio Sánchez Muñoz, Kauh Architecture and Landscaping:
Your design is very interesting, I love the canopy and the pavilion and the lightness of the architectural solution that for me is very related to the culture of the beach. The colourful umbrellas, the tents, and the contemporary canopy in the public space in Barcelona. So I see lot of connections here, but I don't see the concept of the ecotone, so I'm not sure if the discourse came first or the design. I love to see that you brought the birds into your design, where in spaces like that we always should think about the animal world as well. And sometimes the animals could create the concept like it did in your case as another inhabitants of your architecture.

James Theodore Kalsbeek, PSU:
There is very famous book from 70s on how to play the tennis. Very zen book together with tennis instructions. And there was very famous phrase saying "be the ball". Don't hit the ball, but be the ball. And here I would say to you to be a bird. And in some moment when you say there is a hanging garden, hanging ecology, but then there is another ecology on the ground that bird participates and another on the sea level. So I don't see lot of disconnected elements, but the same orchestra of different instruments. Be the bird, so these tensegrity elements that cover with time and the fragrance, yes, but I don't have the access to it. I want to be a bird, I want to be in that time and I want to smell the ecology that you are designing elevated and only the birds are enjoying it.



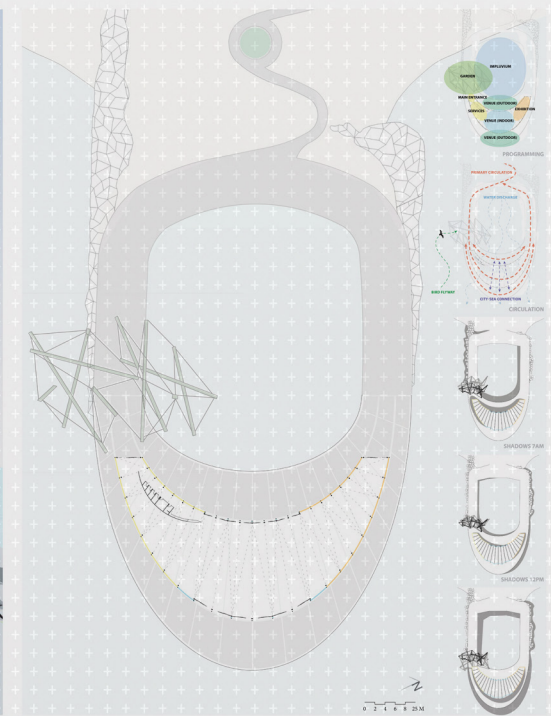
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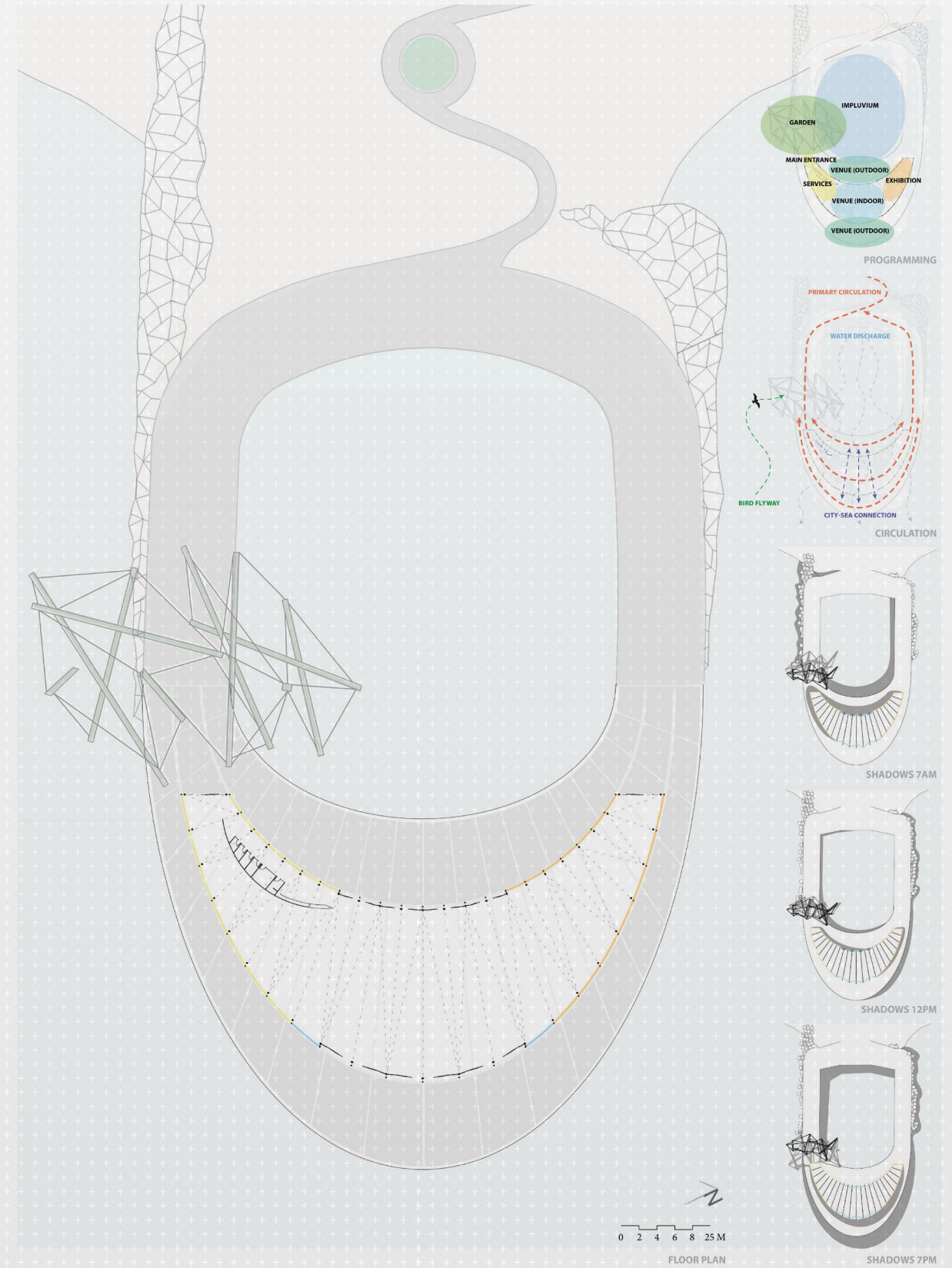
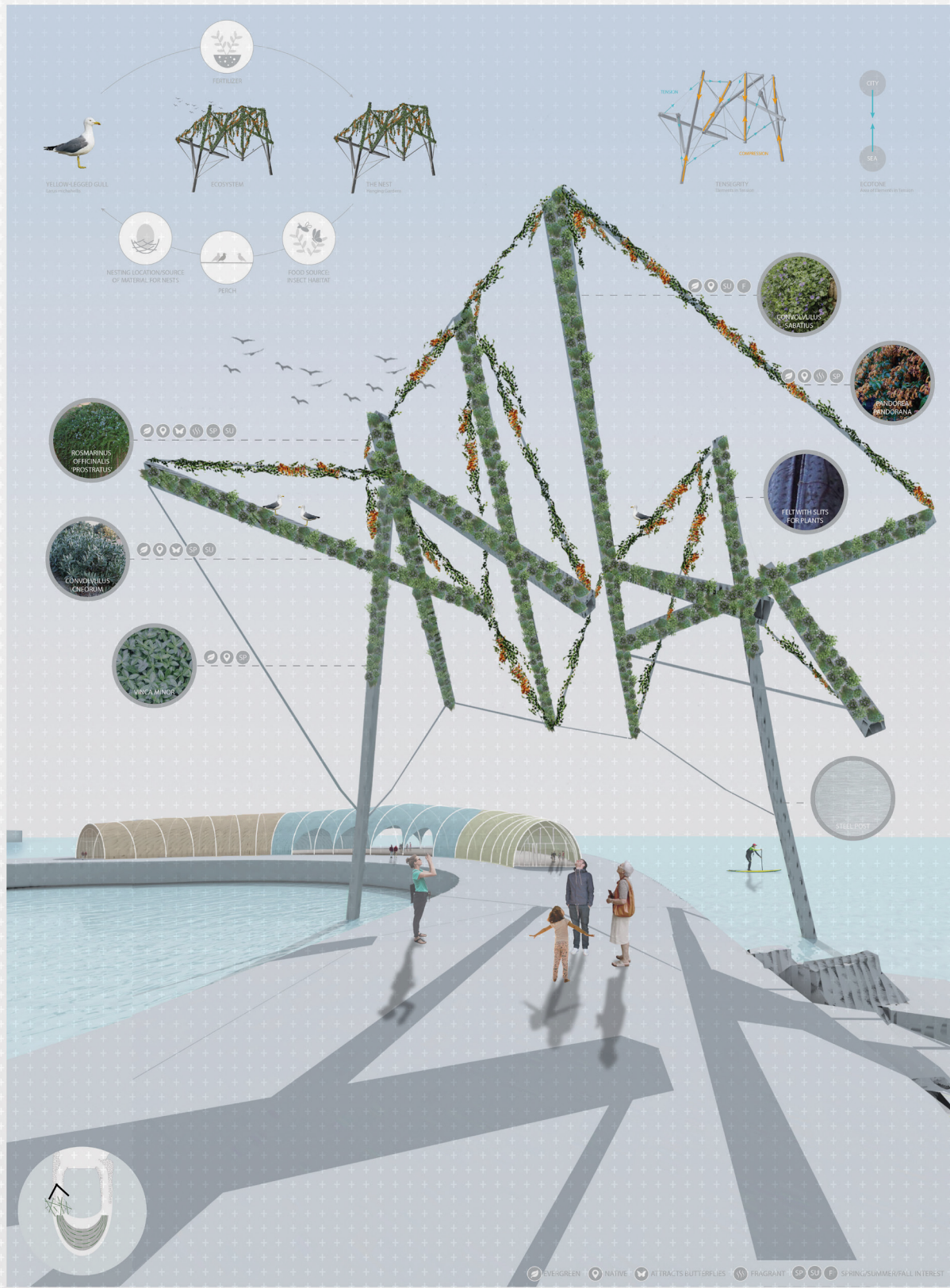
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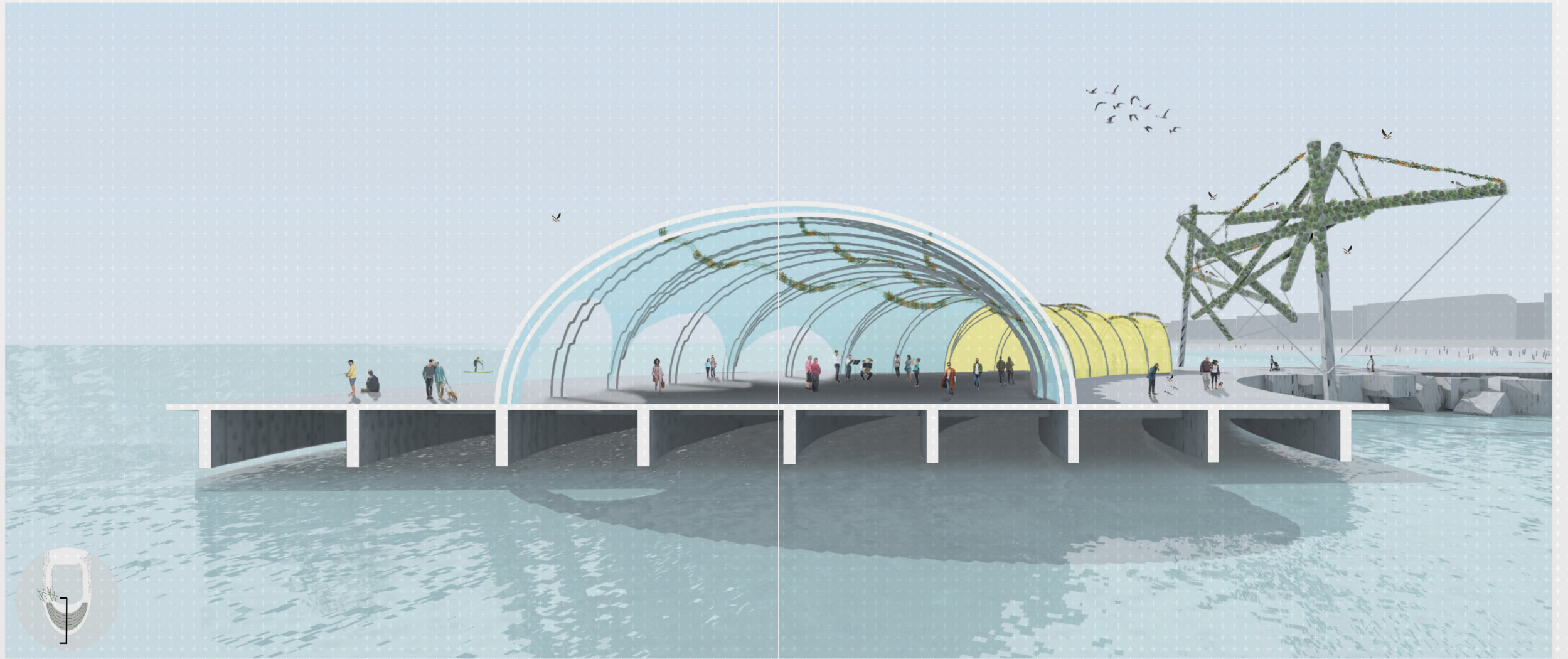


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LOOKING INTO THE PAVILION



GROUND: FLOW

Abigail Claire Stuedtner (Abby), Texas A&M University, Architecture Undergraduate
Kathryn G Emerson, Texas A&M University, Architecture Undergraduate

In the city of Barcelona there is a disconnect between the public spaces because although it is abundant, there is not a cohesive narrative that connects it. This leads to unintentional barriers being created, and one example of this is between the Parc and Playa de la Barceloneta. Our project creates a connection between the city, beach, and water by facilitating a continuous flow of movement and forms. This is accomplished by utilizing ground as circulation, shelter, and material.

GROUND AS CIRCULATION

The existing breakwater was redesigned as a series of platforms connected by ramps that sequentially slope towards the sea level. This creates a zig zag movement of people that combines the strong existing transversal movement of the beach with the lateral movement towards the sea. As a consequence of this pattern, stone micro beaches were created in the spaces between the platforms to provide personal space and direct access to the water.

GROUND AS SHELTER

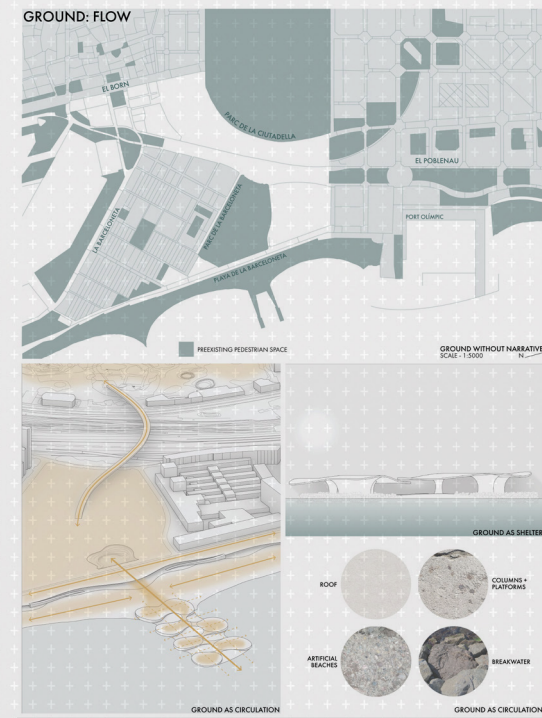
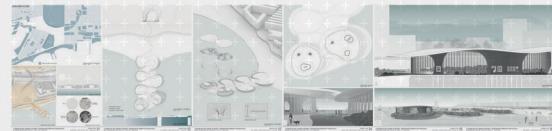
On the beach there is a lack of shade and covering which prevents a variety of programs from taking place. The pavilion was placed at the end of the breakwater to provide shelter that encompasses exhibition space, event space, restrooms, and a kitchen. The main elements of the pavilion are the distribution of programs over two platforms, the curved monolithic columns, and the two overlapping roofs, which continue the fluid movement established by the breakwater without obstructing the views of the Mediterranean Sea.



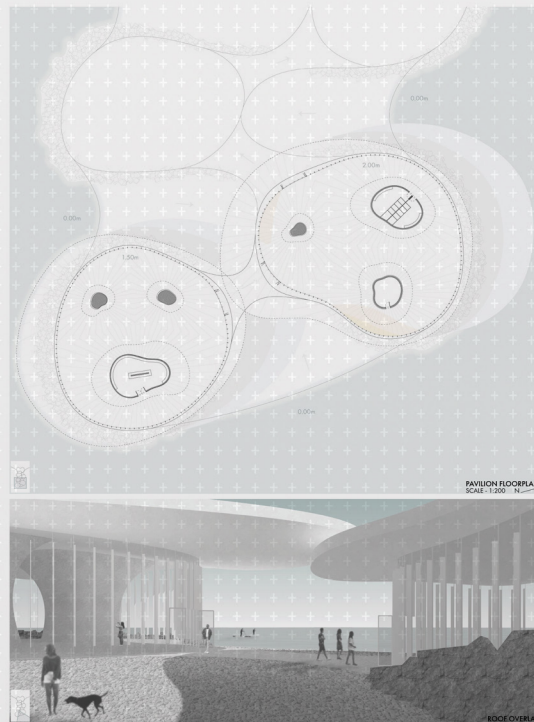
GROUND AS MATERIAL

A variety of materials are being used in the existing breakwater, and this design keeps those materials while assigning a visible hierarchy to ease the transition from breakwater to pavilion. Closest to the water, the breakwater consists of large, dark rocks and the micro beaches implement a coarse, round cobblestone. The platforms and ramps are designed with a medium gray, relatively coarse concrete while the roof of the pavilion consists of a more refined, light concrete. These materials utilize change in color and grain size to facilitate a visual shift between elements.

Overall, the pavilion and redesign of the breakwater more successfully aids the flow of the city to sea by repurposing ground as the circulation, shelter, and material of this project.



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FINAL JURY

Koichiro Aitani TAMU:

Maybe some of your exterior walls are not really needed. Your roof is overpassing the level below and you could have the space that has very nice shelter feeling.

Elena Canovas, The University of Arizona:

I was very interested in your introduction and you were saying about lack of connectivity in some moments in Barcelona. This is clearly one, since the sea front is very new where the elements were made one after the other but sometimes the lack of connectivity is dramatical.

The one that you have shown with Ciutadella park has been there forever. So it think it is very important at the beginning of your presentation the understanding that you are looking at solving the connectivity as well.

I find very beautiful how this connectivity end with this zig zagged wavy surface where you increase much more the moment of this connection to the sea. The image that I very interested to is the image of the panel num2 where we can understand the three dimensional volume in a plan and not only the connectivity but also how the things start to emerge from the ground and generate the space. And I see it very strong.

And then there is a moment when you decide to make buildings, there I think there is little bit of literal transition of extrusion when the design is not anymore connected with the manipulation of the ground as you did in the master drawing I would say and it became more automatic extrusion.

And on the other side is important how to make thresholds and in this climate it is important on how to design those and using the glass it is important how you treat with the transparency. And in your building there is much more to explore in the moments on how to create the shadow, light, the orientation, treat the transparency in glass and so on.

Celso Rojas, BAC Alumni:

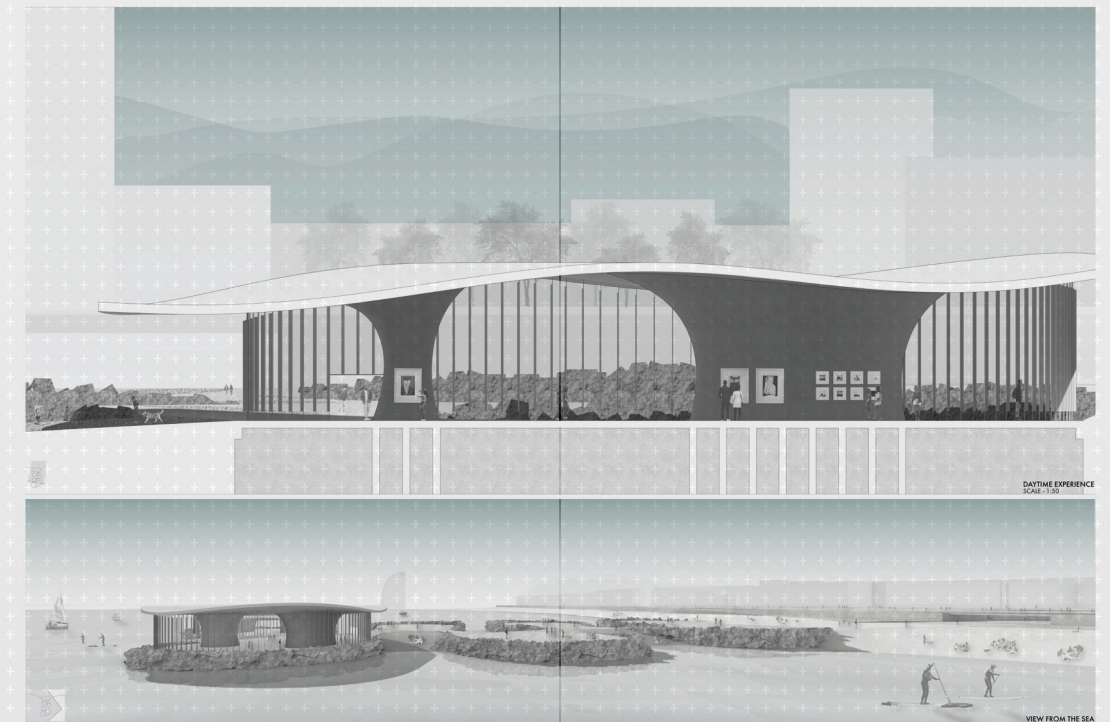
I think that there is a lot of really good ideas in your proposal, but I'm not so sure on the execution and the tying these two parts together. I can see almost two separate projects, so I'm wondering is there a better way to interact with each other and make the stronger connection. Or maybe the whole pavilion is just a series of these nests. I wish that the connection of your ecotone diagram had stronger and more radical execution in your proposal as well.

Ulrike Heine, CU:

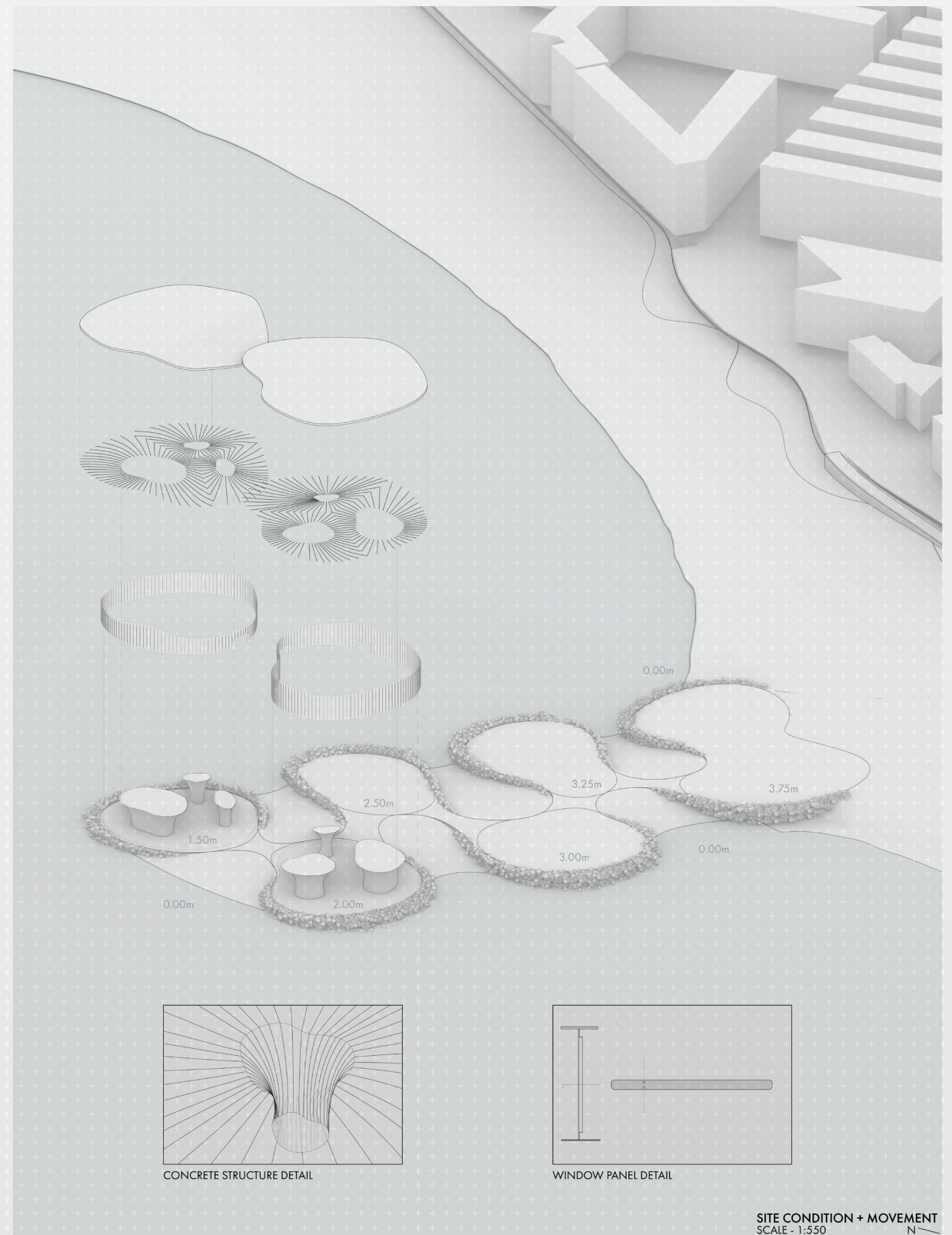
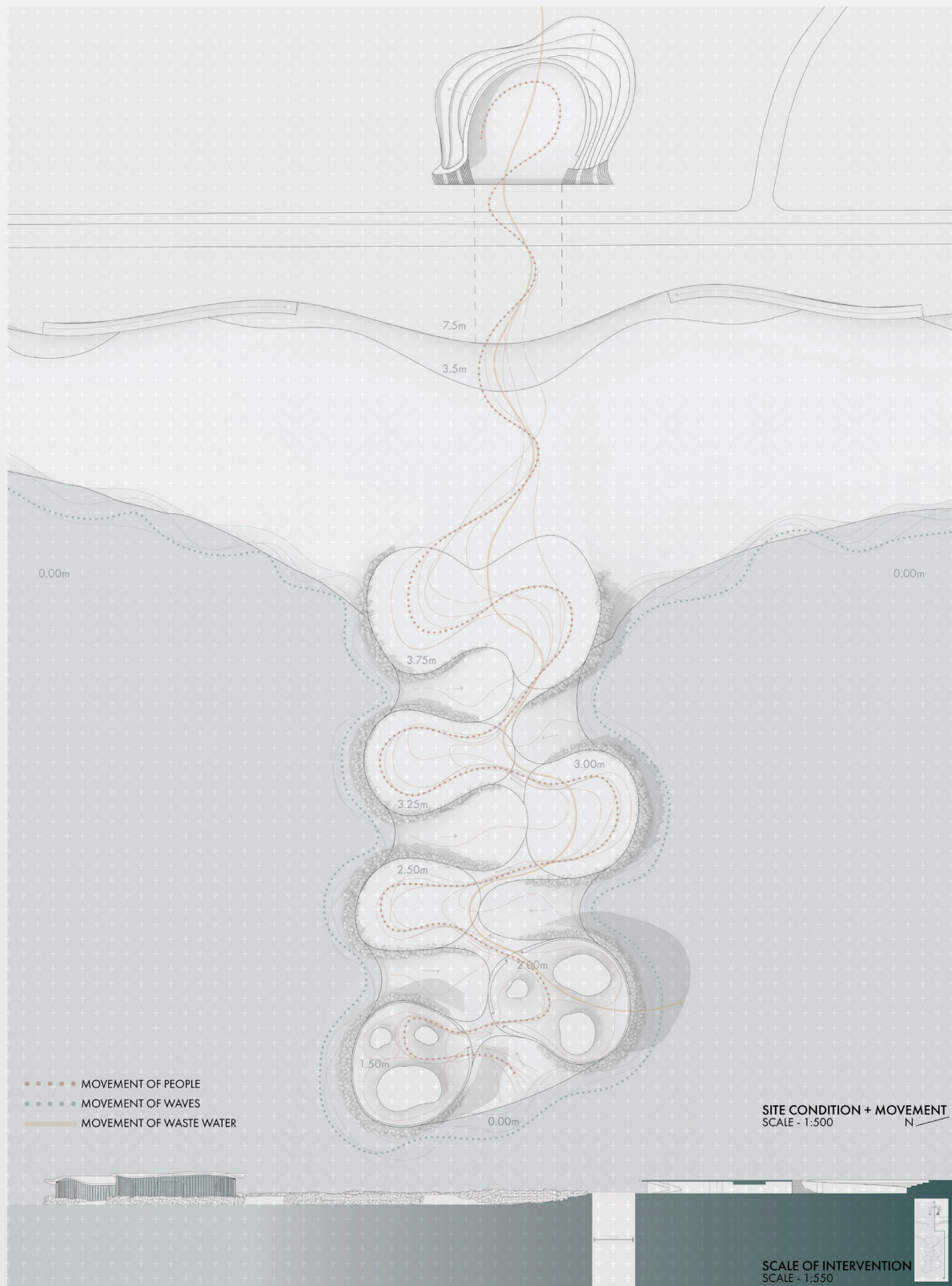
I think it is very beautiful project and very well thought through. I would also vote for removing partially the glass façade. The most intriguing thing I see here is how literally your mushrooms pavilions are growing out of the ground and you are somehow blurring that with this addition of the glass. Spatially you are creating something really beautiful here.

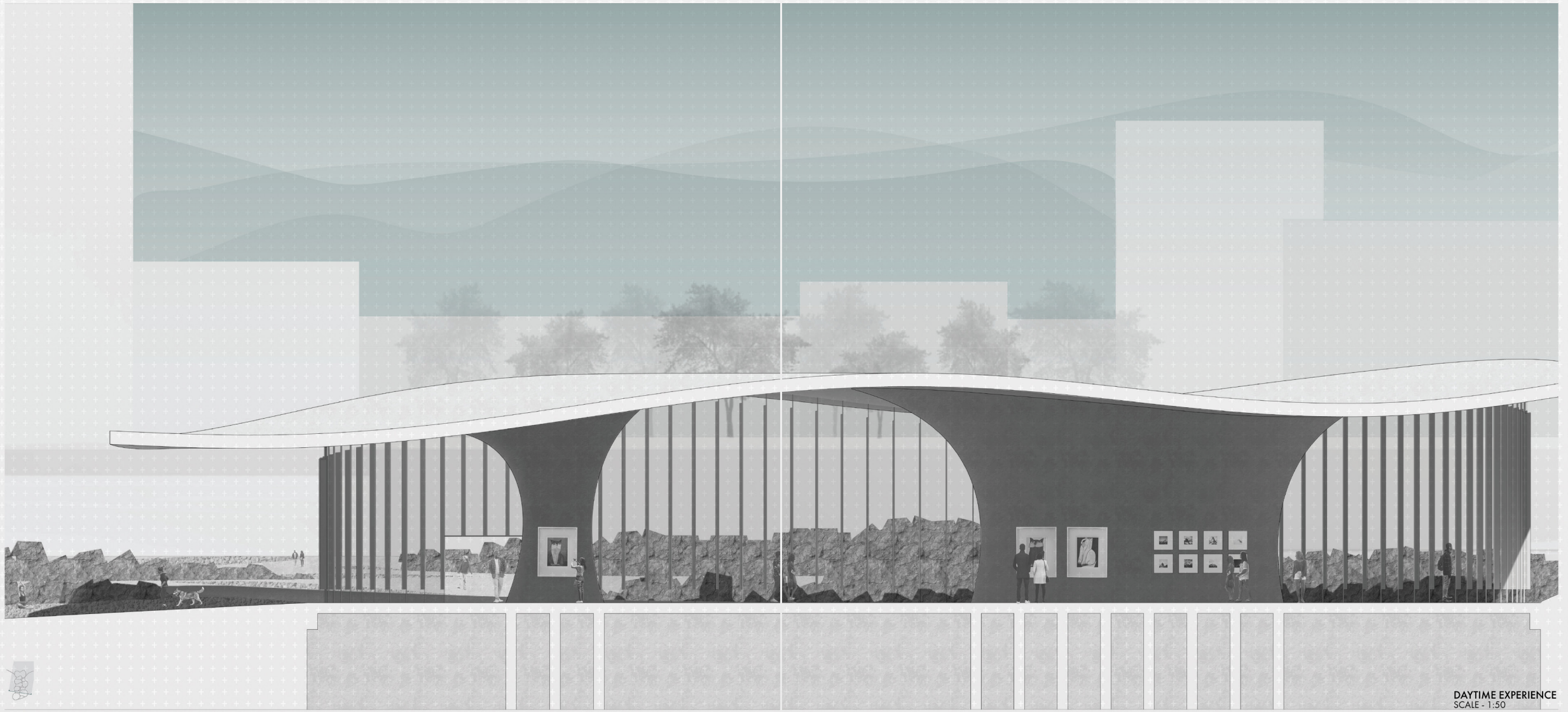
Juan Antonio Sánchez Muñoz:

I agree with Miguel I think that the ground work in this project is very nice. But what I found the more interesting is that you have added another scale to the site. The rest of the place is very open, crowded and suddenly with this intervention you create more intimate and more human scale. The pavilion and the site feel little bit disconnected. but congratulation. it is very beautiful project.

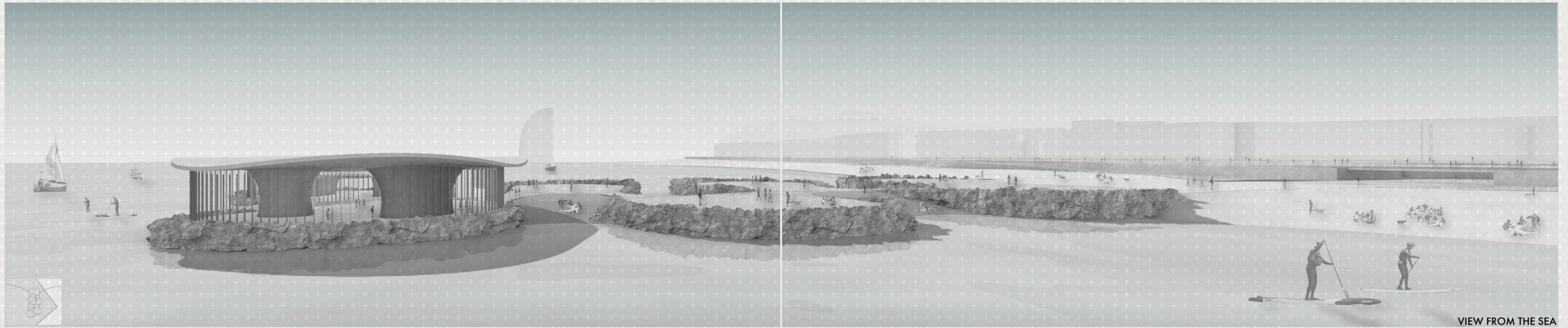


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DAYTIME EXPERIENCE
SCALE - 1:50



VIEW FROM THE SEA



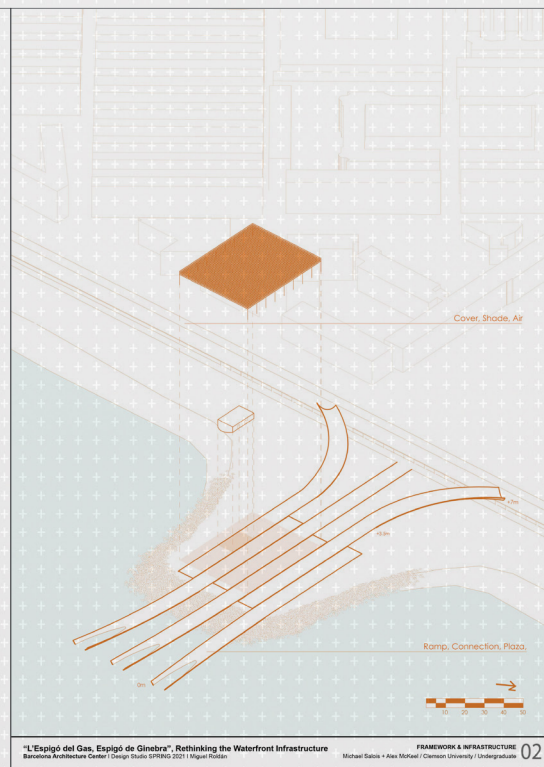
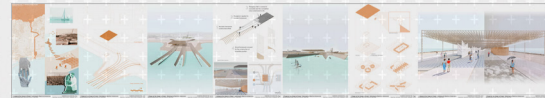
FRAMEWORK & INFRASTRUCTURE

Michael Salois (Mike), Clemson University, Architecture Undergraduate
 Alex Mckee, Clemson University, Architecture Undergraduate

Framework and Infrastructure is a celebration of the history of Barcelona as a port city with a strong cultural connection to the sea. This proposed system of infrastructural elements completes the green corridor from the Collserola Mountains down to the Mediterranean, bridging the gap between la Barceloneta Park and the beach. To connect from the sea to the land, the design of the pavilion itself is derived from the traditional Catalanian envelats, large ephemeral tent structures made from repurposed sailing materials. These structures were often used for celebratory events such as dances and balls.

This project consists of two sets of ramps. The first moves people from the marina down to the beach; The second brings them beyond the breakwater into the sea. These two sets weave together to create the foundation of the pavilion. The prefabricated construction of the concrete ramps is derived from shipyard production technology. Fiberglass molds are created on a set of wooden frames to cast various concrete ramps shapes in. The wooden framework is reused to construct an interior space under the pavilion for amenities and storage.

The pavilion is a large steel space frame that provides a grid from which to hang vertical textiles that act as ephemeral spatial divisions. Light is diffused through both these vertical divisions as well the horizontal space frame above. The grid creates a flexibility of program that allows the user to reinterpret the space using their own designs and materials. Thus, the project serves as a framework through which the community can impose their own free will.



FINAL JURY

Jelena Prokopljivic:
 Fantastic, I really like your project. I appreciate this temporality and this idea and capacity of changing that you propose here. I think the beach of Barcelona needs some kind of infrastructure that can vary in time and use. and you are very sensible with this in your project.

James Theodore Kalsbeek, PSU:
 What Miguel was suggesting that the spaceframe might not hang only temporary curtains and there is a much larger scale possibilities what that spaceframe in terms of variety of kind of spaces and activities. Because right now if its only hanging the curtain, it becomes only the giant American convention hall.

But when it becomes the infrastructure where the variety of temporary spaces are creating, then is well beyond of just hanging curtains. I saw your little hook detail, and immediately because you did the hook detail, I'm asking what is the equivalent of the hook detail on the ground? Because it has to be the equivalent of this on the floor or these things will just be flying all over everywhere. So there has to be some anchor on the ground. And then I start thinking of the ground as the infrastructure of having the flexibility to serve elements that are not just curtains.

Variety of other possibilities that could be provided in a infrastructure where both the overhead and underfoot is this engineering flexible systems to build the prefabricated temporary elements. When you talk about cranes and the port, I'm just fascinated, what this space can be as structural tool, a machine that is constantly serving a variety of spaces that could be dances, events, protests, global warming events, who knows. But it is really quite exciting.

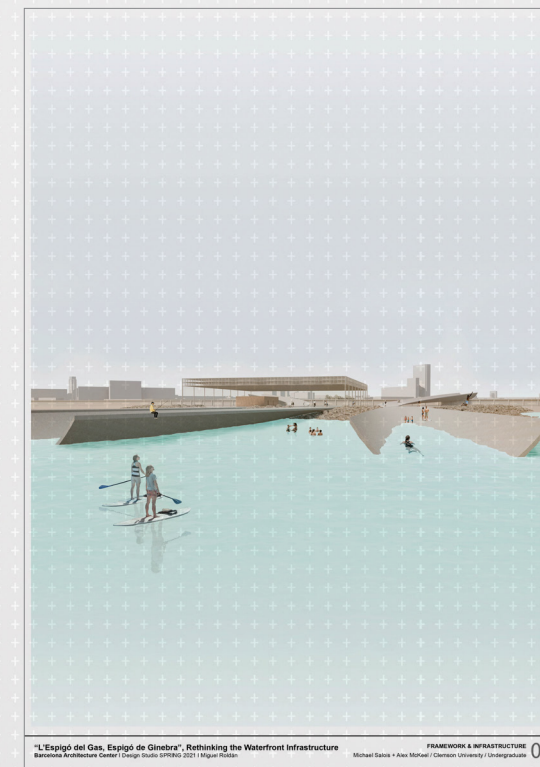
Ulrike Heine, CU:
 I think this is great proposal. But what I loved the most about it is actually is kind of life cycle idea that you are setting here, the materials that you are using to build your half pipes is material that you are building your pavilion with. And I think that this life cycle thinking is very mature and I really enjoyed seeing that.

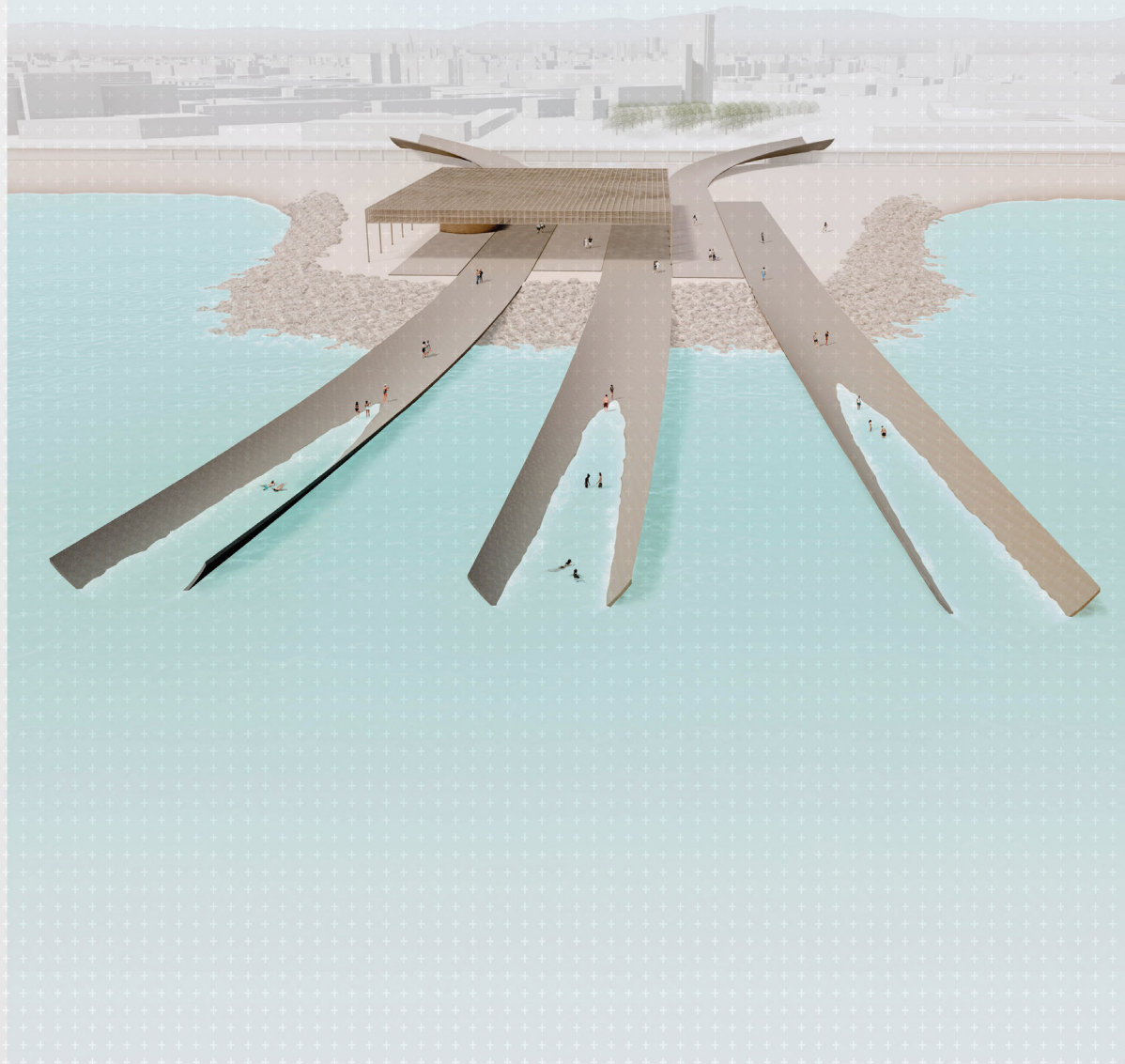
I love the flexibility of the structure, but I think you can make it little more elegant that it is right now. For me it looks little bit over structured. I would more the structure little bit inside so there is a bit of uplift of the roof. Some minor changes that would maybe give it more personality in your pavilion.

But what I love in the flexibility that you are opening the big range of spaces that everyone can start dreaming of happening there and there installations that are made so quickly and so beautiful and create special spaces through that. I can totally see this serving the culture of Barcelona. I think it is fantastic proposal and very bold gestures that I'm not usually fan of, but you are making them very elegant and accurate that are beautiful. So congratulations.

Juan Antonio Sánchez Muñoz:
 I want to underline here the idea of memory that you brought here. When we have to design these new lines of the city we need to dig into those memories. And especially for Barcelona, it think it is very important what you brought here. Elena has mentioned this before, that part of the city was completely different before the Olympic games and there was a lot what we see in your first introduction panel image. That kind of informality, the elements that are very connected to the daily life that after the Olympic games were erased from this area.

So I think its great that you bring this to your conversation. And your design solution, I found interesting that you are not only designing what is happening on the site and on the coast, but you are designing the activities that are happening as well in the water. you underlined with your drawings your lecture of the site, your interpretation and even the speculation of what that site is going to be. The project is very beautiful and it is perfect and with some more time, maybe you could also refine little bit the solution foy our pavilion structure. Probably going back at the beginning and thinking again about this references.





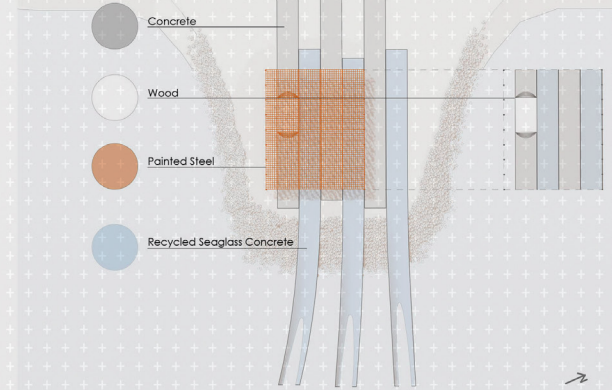
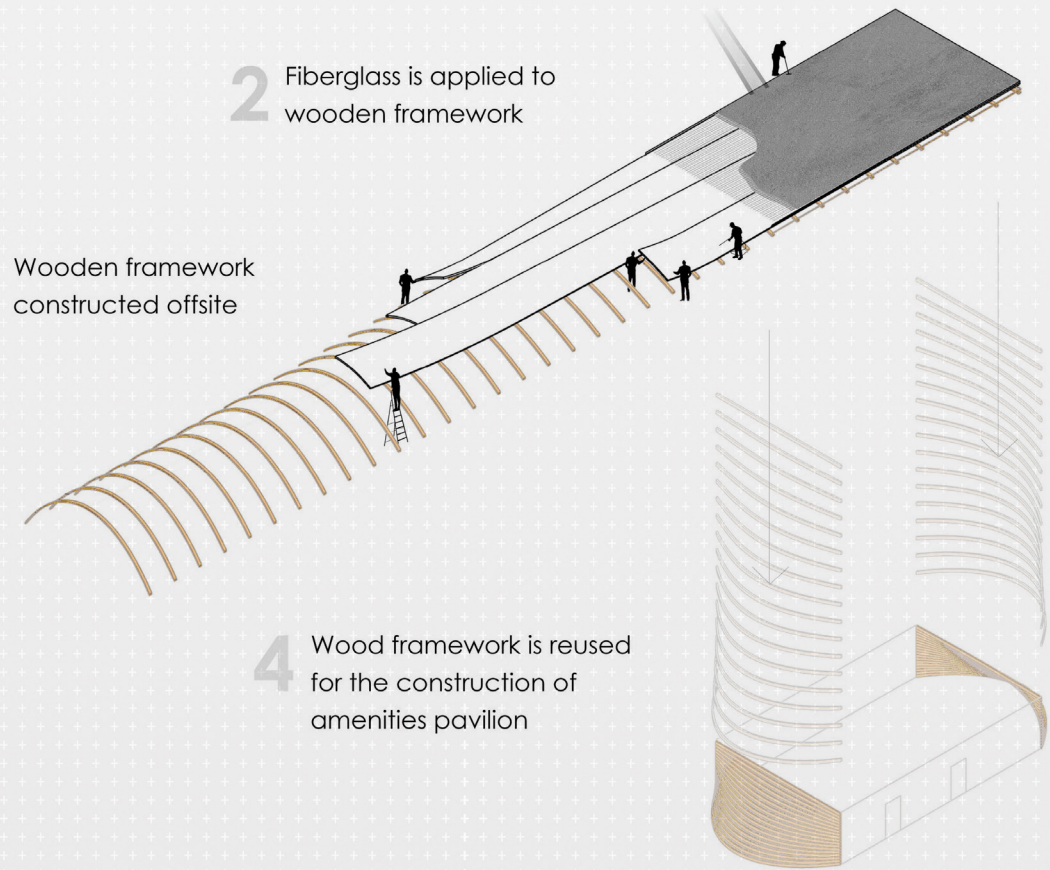
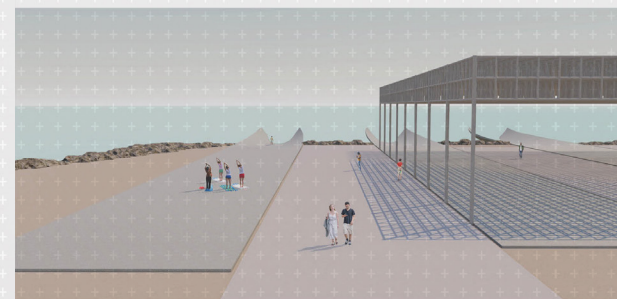
1 Wooden framework constructed offsite

2 Fiberglass is applied to wooden framework

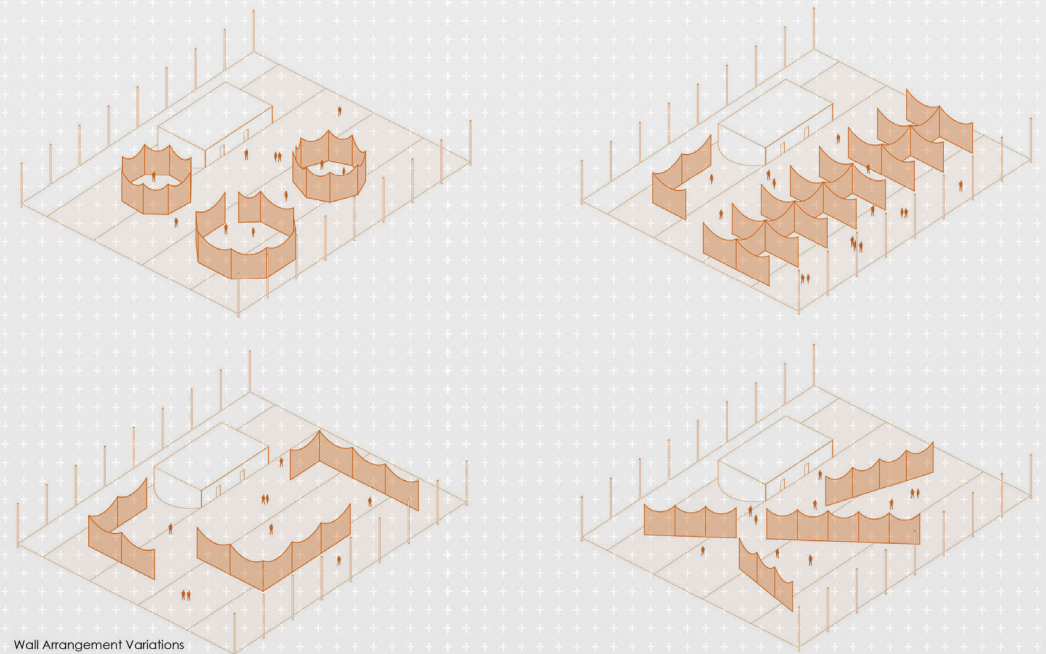
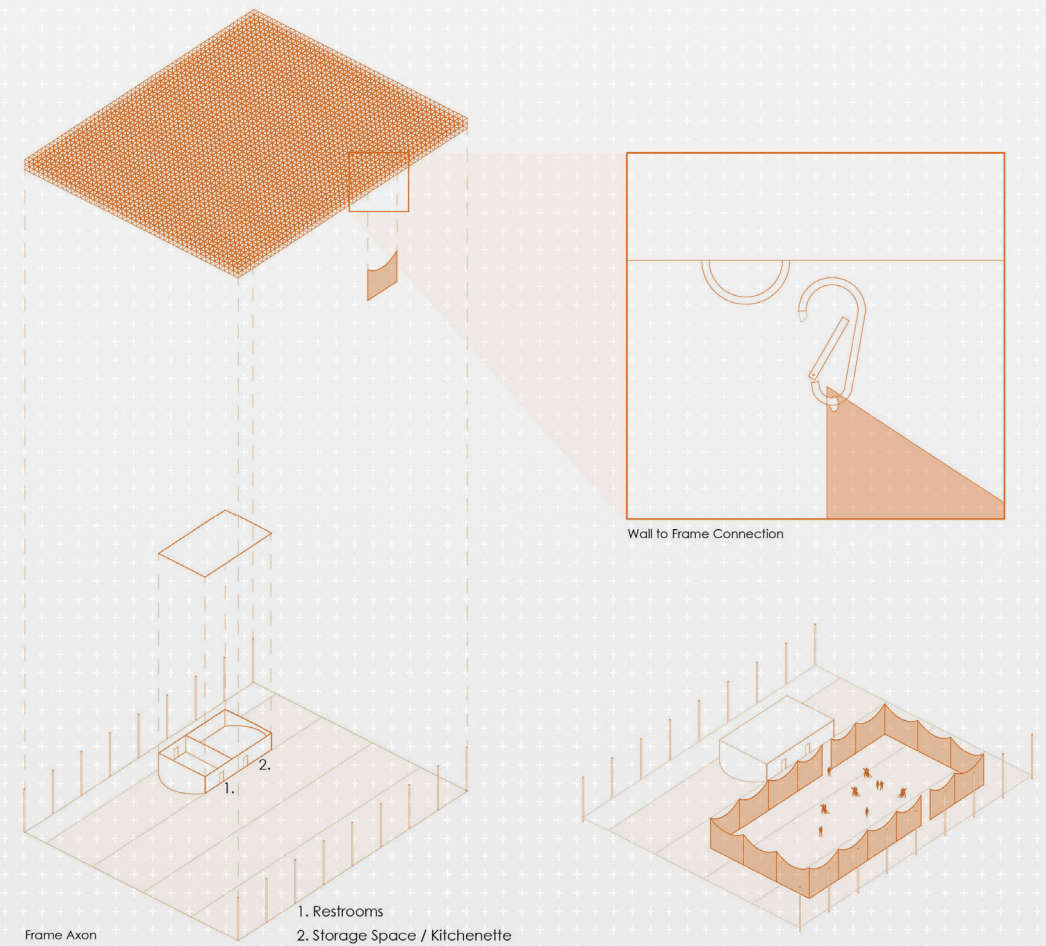
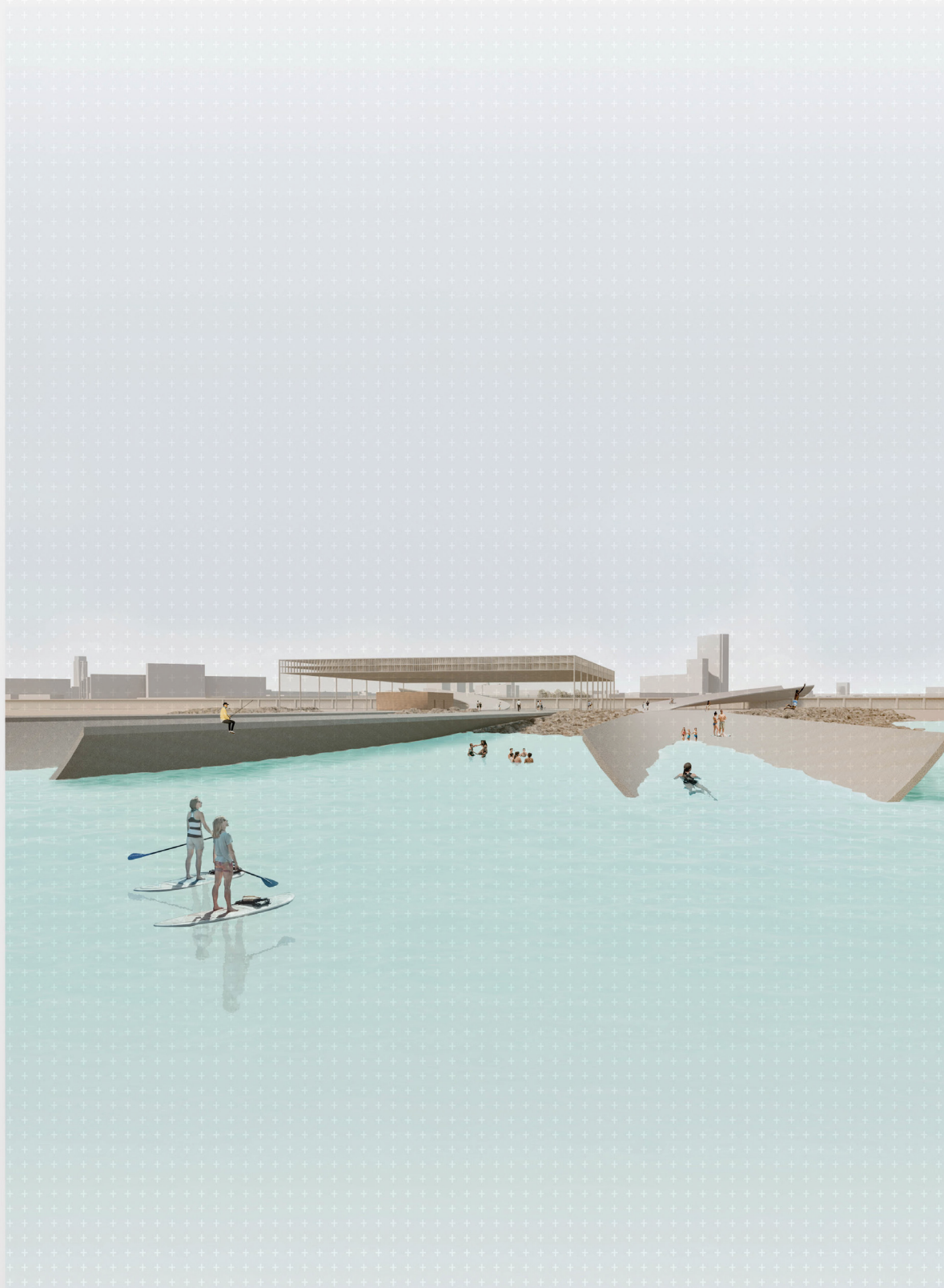
3 Fiberglass shell is covered in concrete and the completed ramp is delivered to site

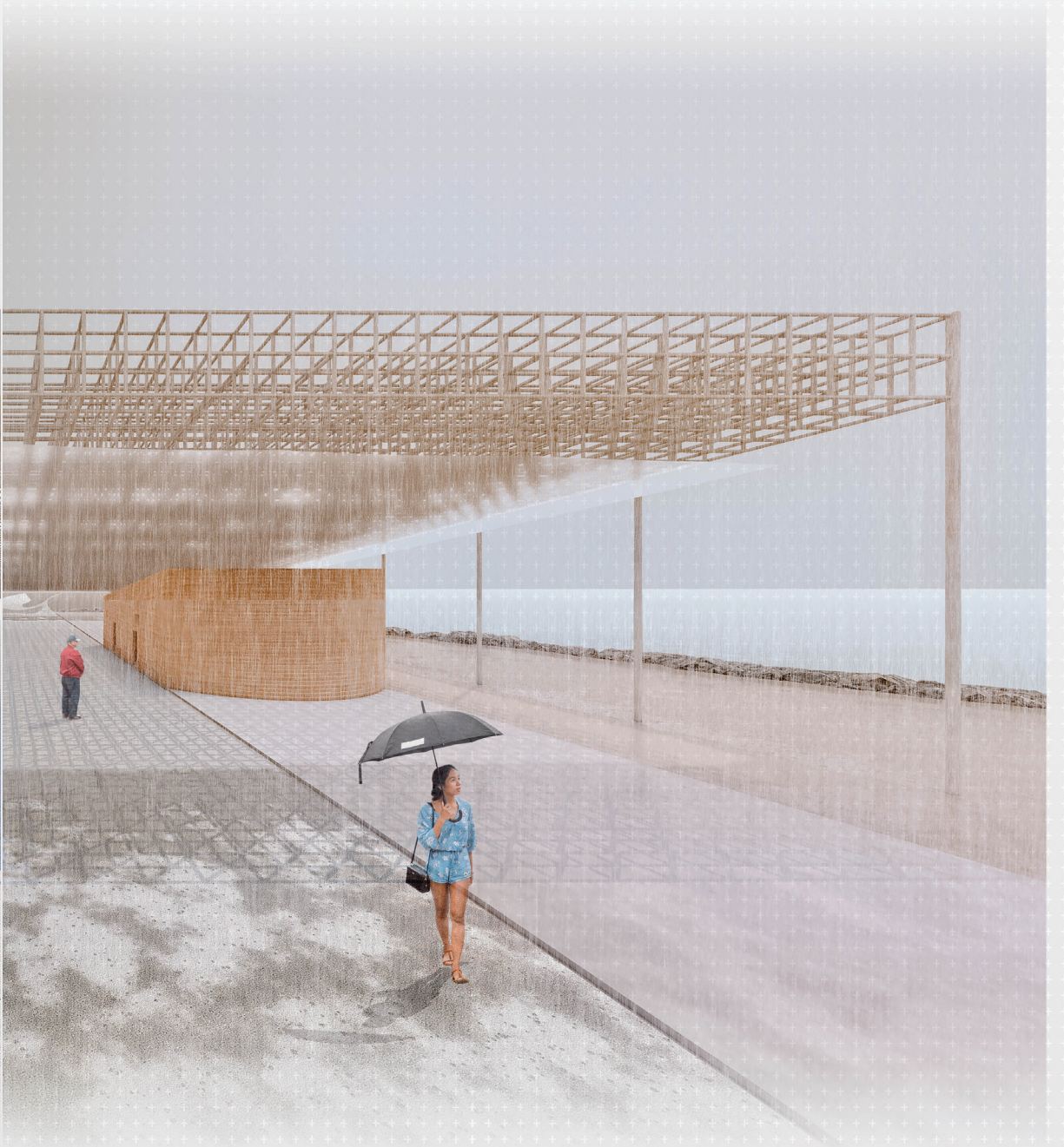
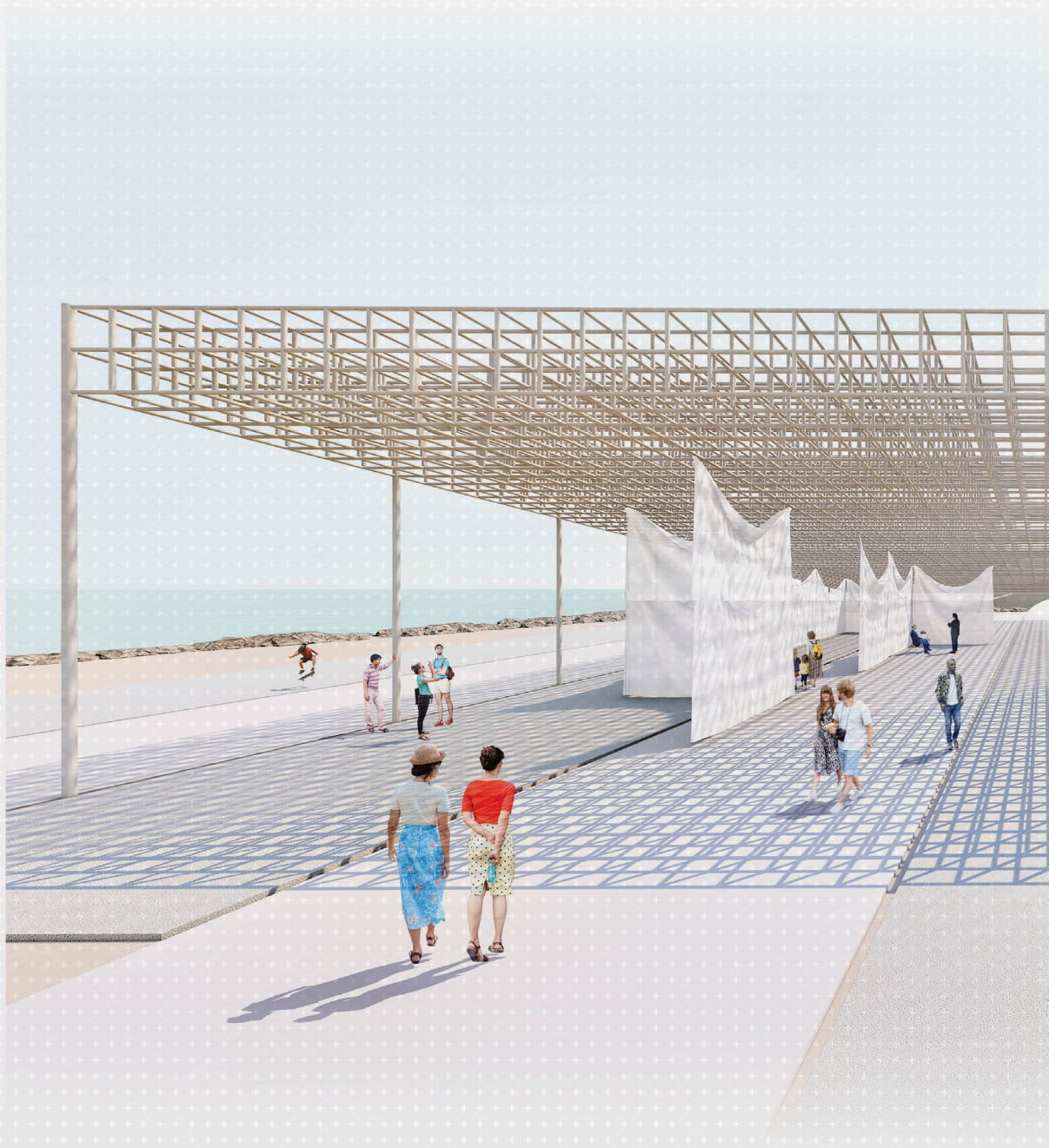
4 Wood framework is reused for the construction of amenities pavilion

Ramp and Pavilion Construction



Plan and Materials





GROUND: FLOW

Abigail Claire Stuedtner (Abby), Texas A&M University, Architecture Undergraduate
Kathryn G Emerson, Texas A&M University, Architecture Undergraduate

In the city of Barcelona there is a disconnect between the public spaces because although it is abundant, there is not a cohesive narrative that connects it. This leads to unintentional barriers being created, and one example of this is between the Parc and Playa de la Barceloneta. Our project creates a connection between the city, beach, and water by facilitating a continuous flow of movement and forms. This is accomplished by utilizing ground as circulation, shelter, and material.

GROUND AS CIRCULATION

The existing breakwater was redesigned as a series of platforms connected by ramps that sequentially slope towards the sea level. This creates a zig zag movement of people that combines the strong existing transversal movement of the beach with the lateral movement towards the sea. As a consequence of this pattern, stone micro beaches were created in the spaces between the platforms to provide personal space and direct access to the water.

GROUND AS SHELTER

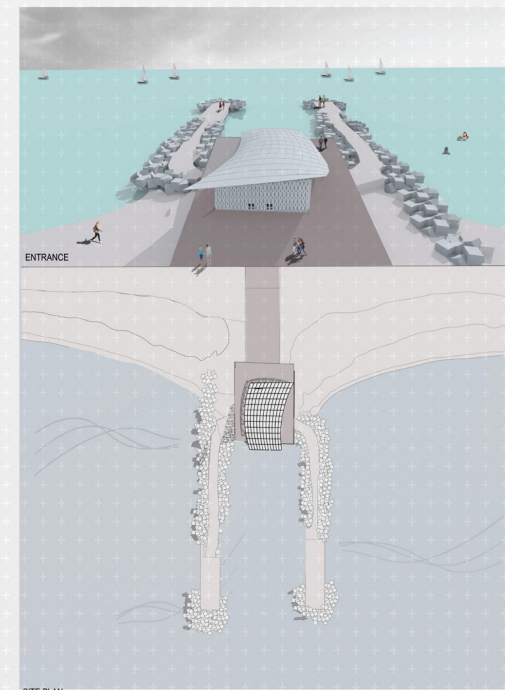
On the beach there is a lack of shade and covering which prevents a variety of programs from taking place. The pavilion was placed at the end of the breakwater to provide shelter that encompasses exhibition space, event space, restrooms, and a kitchen. The main elements of the pavilion are the distribution of programs over two platforms, the curved monolithic columns, and the two overlapping roofs, which continue the fluid movement established by the breakwater without obstructing the views of the Mediterranean Sea.



FINAL JURY

Micheal Maher

I would encourage you to explore the idea of filtering the view of the sea through the architecture that you're designing and the materials that you're using with the site. As well reveal the river that it used to be underneath this site and connecting this material that you are using with the geology of the place. I'm seduced by the project that is designed around the material, and in particular the material that is so essential to lot of the expression of the architecture in Barcelona and to make this pavilion about that material.

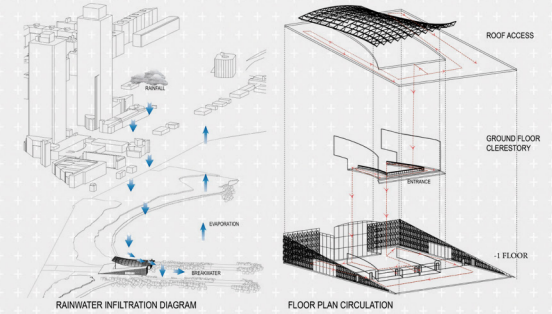


SITE PLAN
1 : 1000

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Barcelona Architecture Center | Design Studio SPRING 2021 | Miguel Rodón



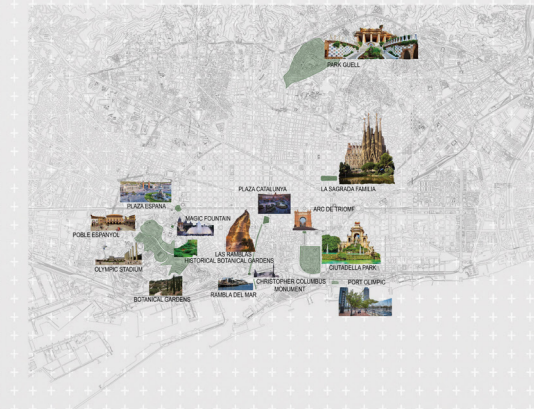
EXHIBIT HALL FACING THE BREAKWATER



SECTION ALONG THE BEACH
1 : 50

"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure
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PUBLIC SPACES OF BARCELONA



MATERIAL IDENTITY OF CERAMIC USES IN BARCELONA



**ROOF
SANTA CATERINA MARKET**
Paste of white ceramic to work with transparent glossy glazes
87 colors
three types of pieces defined



**FAÇADE
MASSANA SCHOOL**
White stoneware with contribution of iron oxide to obtain the desired intensity of color
Extruded and fired at high temperature in an oxidizing-neutral atmosphere, they achieve a water absorption of less than 4%



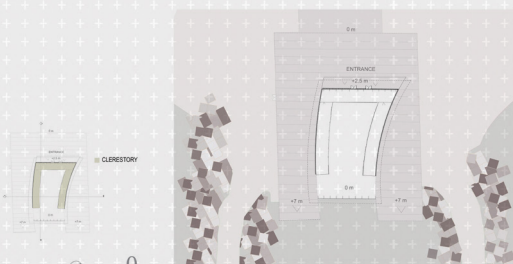
**FAÇADE
HOUSING CASP 74TH ST.**
Randomly glazed with a transparent glass glaze so that the mix of shiny and matt tiles gives the facade a vibrancy that in turn lends it complexity



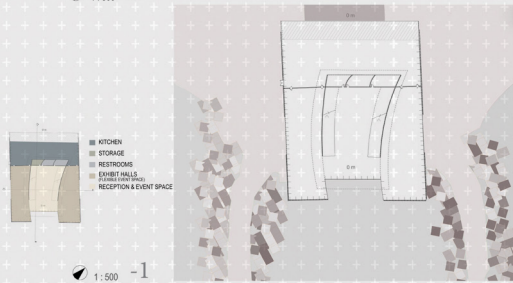
**FLOORING
POBLENOU**
Merges historic terra-cotta tiling with wood floors to achieve subtle warmth and to blur the barrier between indoor and outdoor living



CORRUGATED BENCH IN PARC GÜELL
Technique of trencadis, consisting on re-using bursts of recovering ceramics to make decorative motifs



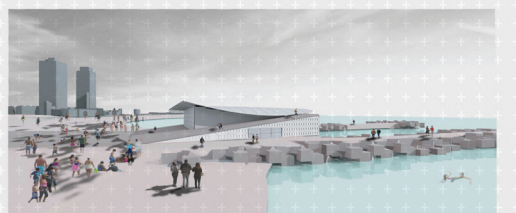
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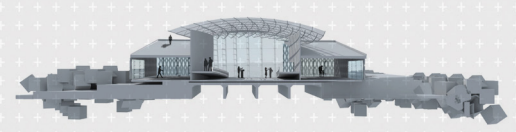
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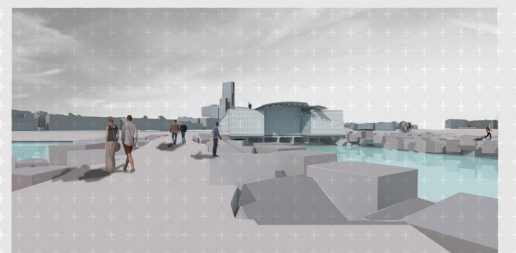
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SIDE VIEW OF PAVILION



SECTION ALONG THE BREAKWATER
1 : 50



VIEWING THE PAVILION ALONG THE BREAKWATER

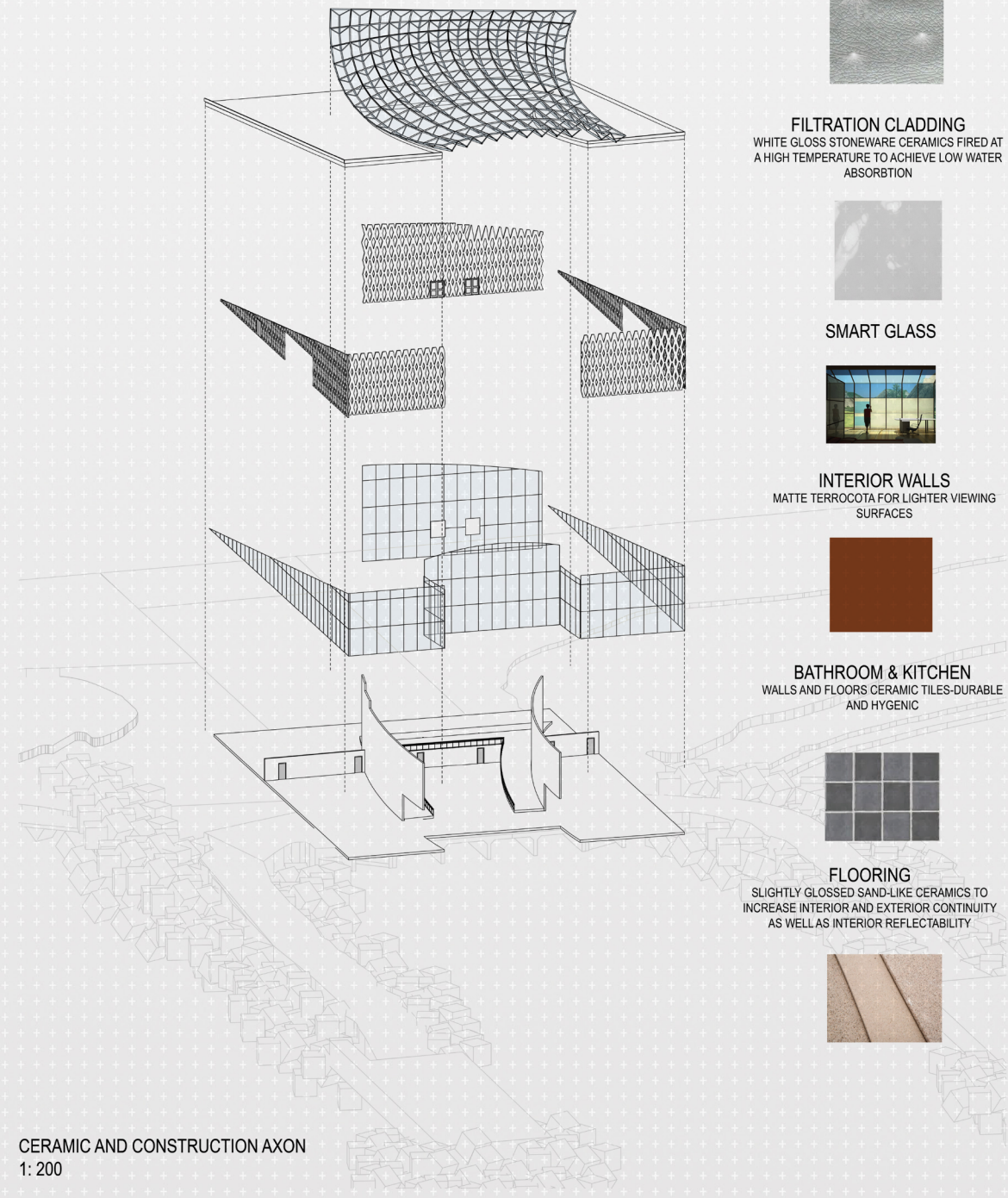
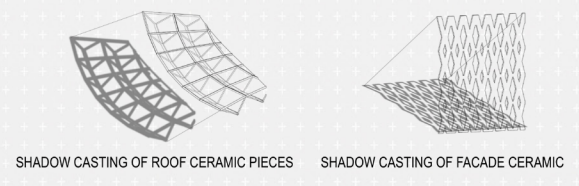
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ROOF
CRACKLE-GLAZED ASH GLOSS CERAMICS WITH A GLASS POROSITY



FILTRATION CLADDING
WHITE GLOSS STONEWARE CERAMICS FIRED AT A HIGH TEMPERATURE TO ACHIEVE LOW WATER ABSORPTION



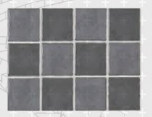
SMART GLASS



INTERIOR WALLS
MATTE TERROCOTA FOR LIGHTER VIEWING SURFACES



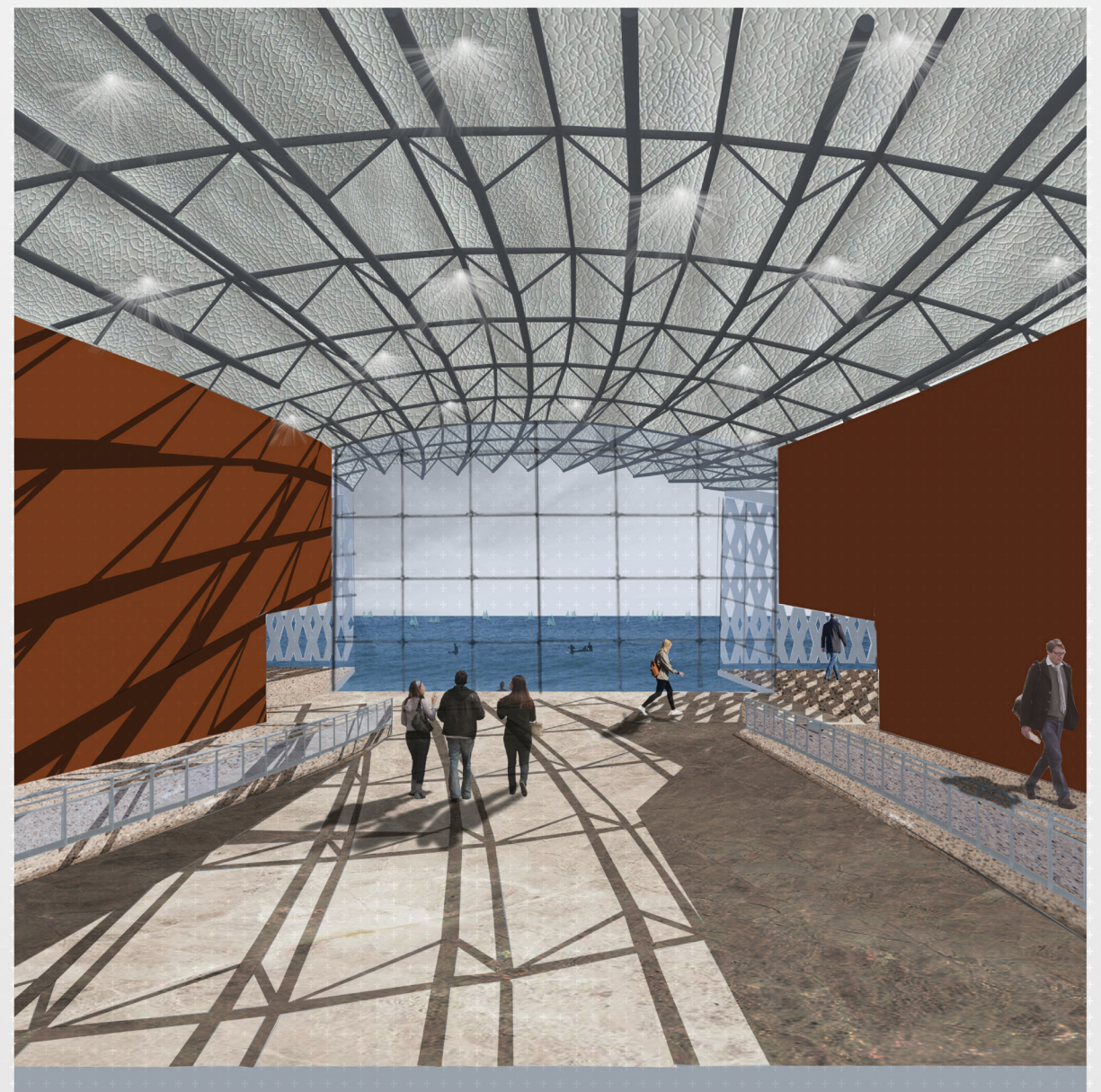
BATHROOM & KITCHEN
WALLS AND FLOORS CERAMIC TILES-DURABLE AND HYGENIC



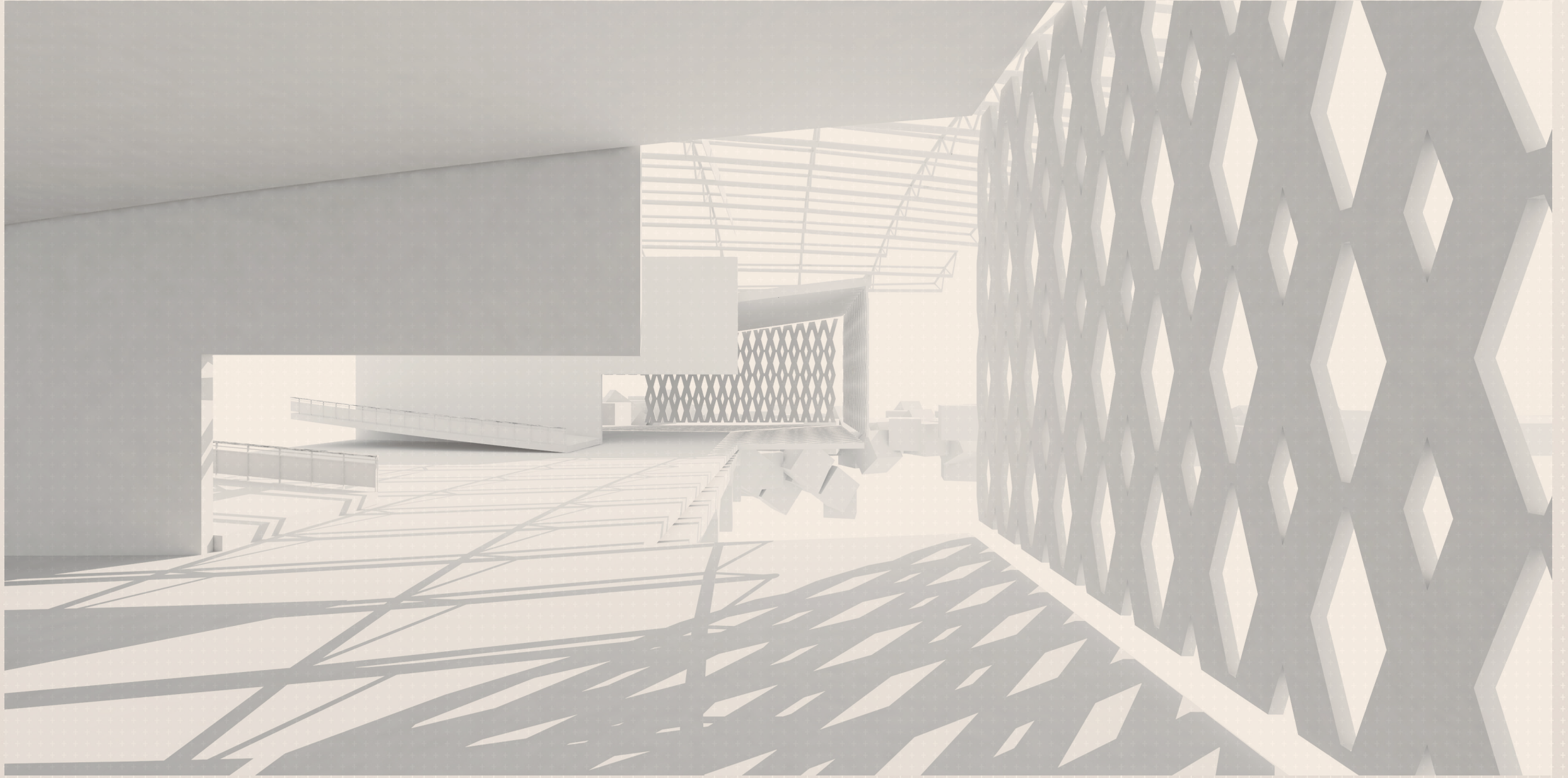
FLOORING
SLIGHTLY GLOSSED SAND-LIKE CERAMICS TO INCREASE INTERIOR AND EXTERIOR CONTINUITY AS WELL AS INTERIOR REFLECTABILITY



CERAMIC AND CONSTRUCTION AXON
1: 200



MAIN HALL



RODEANDO DE AGUA

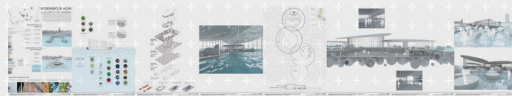
Adrianna Spence, Clemson University, Architecture Graduate

The man-made breakwaters off of the coast of Barcelona help to keep the slowly eroding beaches intact. One of these breakwater sites, the Espigó de Ginevra (Espigo de Gas) also serves as a dumping site for wastewater in the form of excess rainwater. This action that occurs a few times a year is harmful to the surrounding ecology because of the pollutants in the water. This project proposes a transformation of the breakwater into a spongelike filter that will improve the environmental quality of the site, reintroduce wildlife and provide a more immersive context of being surrounded by water.

The inspiration for the pavilion can be found simply in the current state of the site. The area is defined by the beach and the activities that occur at and around it. One of these activities is not frequent but very impactful; the dumping of wastewater and rainwater at the Espigó de Ginevra. From my research, I've found that the city of Barcelona redirects excess rainwater to underground retention tanks to prevent flooding of the city. These tanks directly drain into the sewage and after being mixed together is not useful so the wastewater is dumped out at the Espigó de Ginevra.

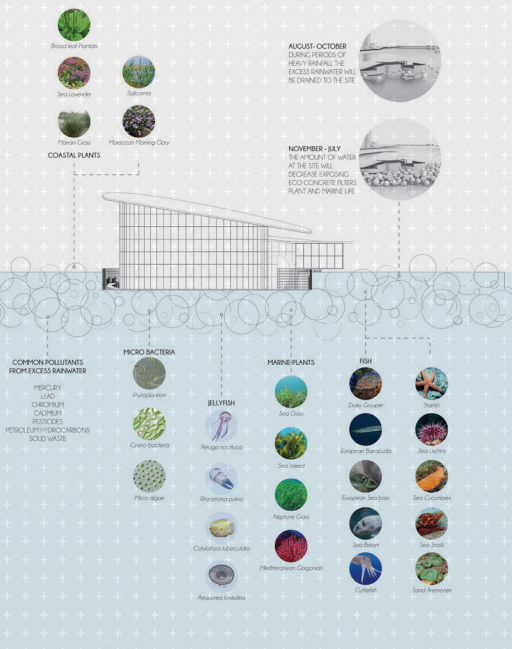
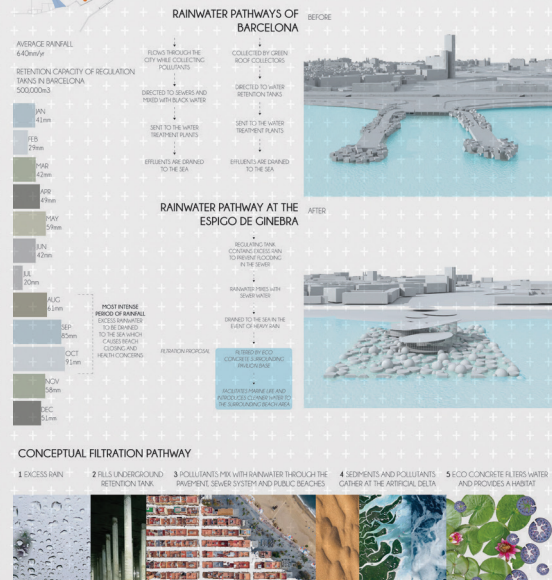
On average Barcelona gets about 640mm/year of rainfall. Aside from being collected for flooding concerns, rainwater is also directed to the multiple regulating tanks spread around the city shown in the map provided. These tanks have the capacity to carry 500,000m3 of rainwater. The most intense period of rainfall is during the beginning of fall from August to October. During these times when the water is dumped into the sea the beaches have to be closed due to health concerns. This project aims to protect the beach while filtering the water in the area so that patrons can use the beach and wildlife can make its way back to the site.

Eco concrete is the foundation of the filtering mechanism on site. The eco concrete is custom shaped to the site and allows plants to grow on it and water to pass through it. Plants with natural filtering properties will grow on the eco concrete base in order to create a new ecosystem with cleaner water. This cleaner water will provide a home for native animals like jellyfish to return back to the habitat that is usually heavily polluted.



RODEANDO DE AGUA a la ESPIGÓ DE GINEBRA

The man-made breakwaters off of the coast of Barcelona help to keep the slowly eroding beaches intact. One of these breakwater sites, the Espigó de Ginevra (Espigo de Gas) also serves as a dumping site for wastewater in the form of excess rainwater. This action that occurs a few times a year is harmful to the surrounding ecology because of the pollutants in the water. This project proposes a transformation of the breakwater into a spongelike filter that will improve the environmental quality of the site, reintroduce wildlife and provide a more immersive context of being surrounded by water.



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"L'Espigó del Gas, Espigó de Ginevra", Rethinking the Waterfront Infrastructure
ADRIANNA SPENCE | CLEMSON UNIVERSITY | GRAD 02



FINAL JURY

Ulrike Heine:

I love the research behind the project and that you are proposing something good for the environment. I think the form of your pavilion together with concrete bubbles, are beautiful spatial imagination there. It looks little bit light on the structural side for me. It might be the way you are representing them little bit skinny and the roof is extremely skinny. If I wanted you to change something, it would be little bit stronger representation of the structure.

James Theodore Kalsbeek PSU:

It is such a wonderful project and all the research you have put into it. I encourage you to change the metaphor image of your project and change it in real didactic project of real filtration and all the knowledge that you have assumed in your research. I applaud you for the project and all this studio subject that has didactic quality that is really critical. I think that all the quality of the project and being as such is poetic. I think we need more metaphor perspectives and imaginary perspectives from the fish point of view.

Elena Canovas, The University of Arizona:

You are explaining well what happens to the water and that is this is not sewage exit but only rain overflow point. This does not deny anything from your proposal. I think that the bubbling that is formalization of this filtering system is very valuable.

One thing that I think you could think on another step is on the element that separates the inside with outside and that shapes the volume. I think it comes very automatic and the curtain glass concept and it can be more physical that can be operable, that provides shadow, etc. I appreciate that you note in your drawings that the water moves and maybe would add another third diagram with the storm

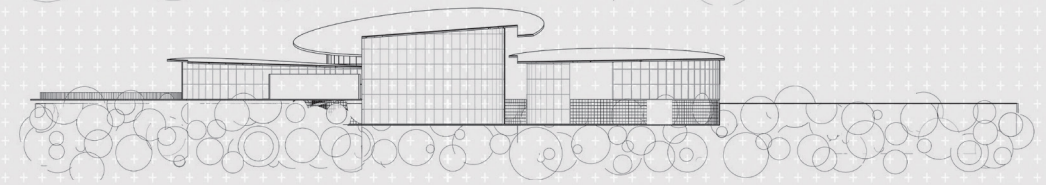
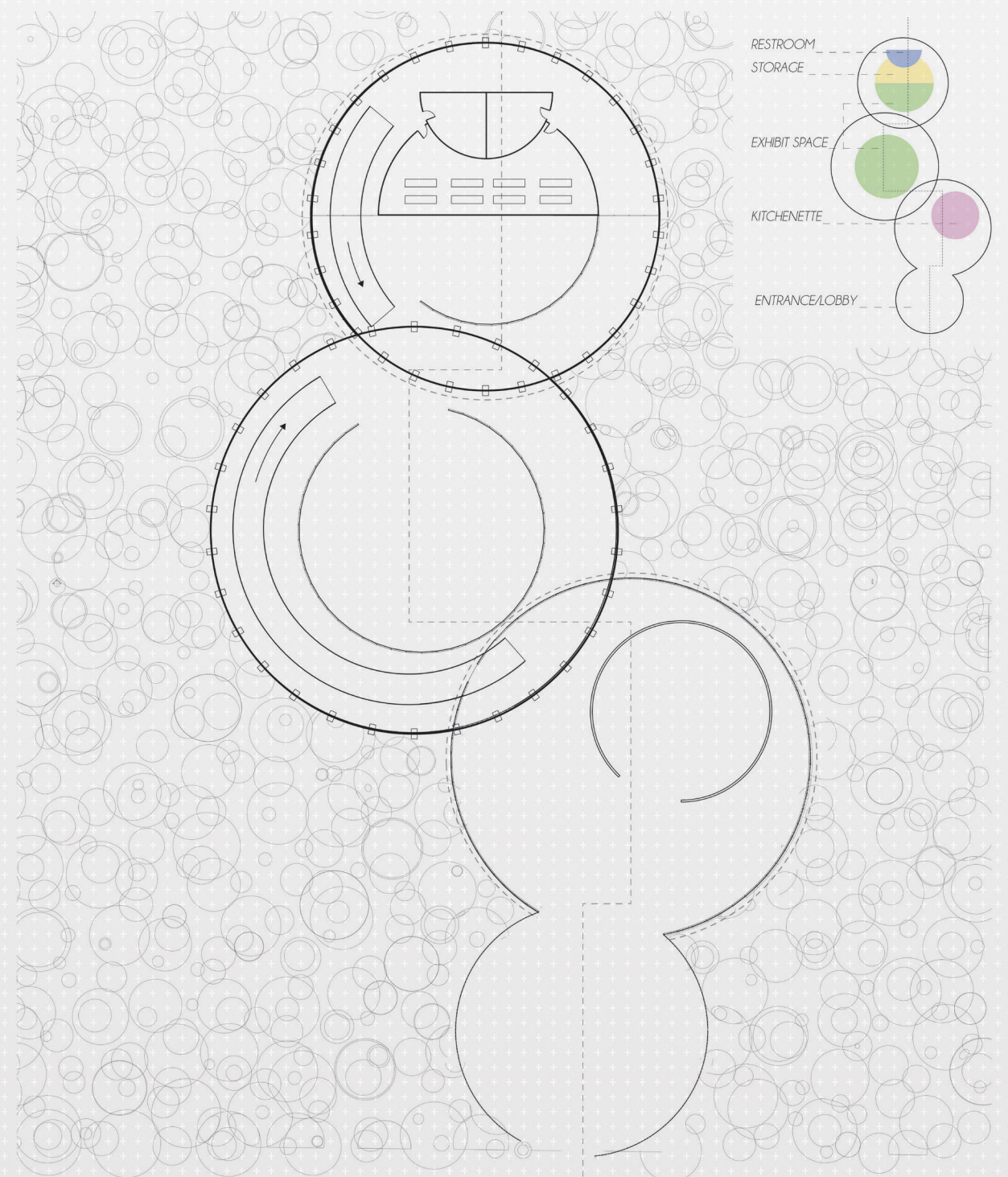
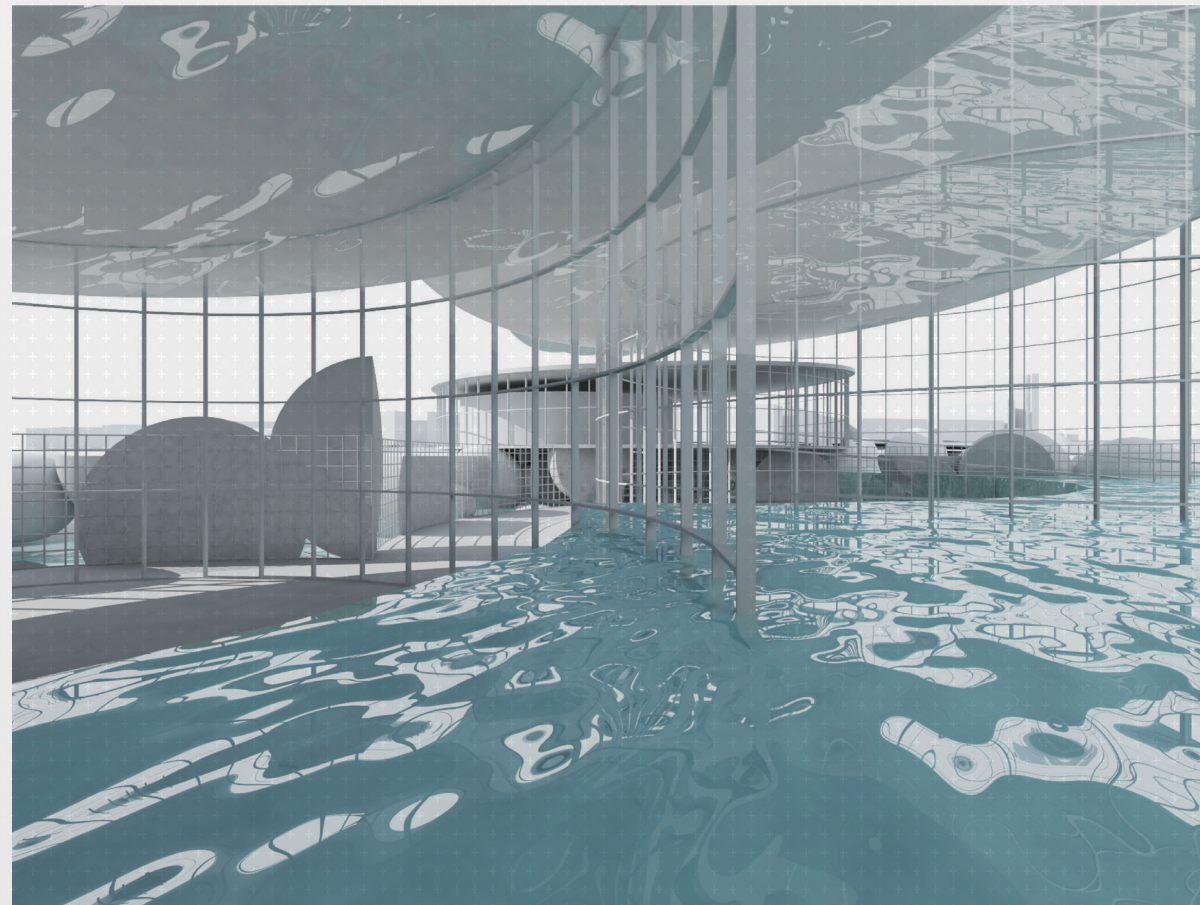
Celso Rojas:

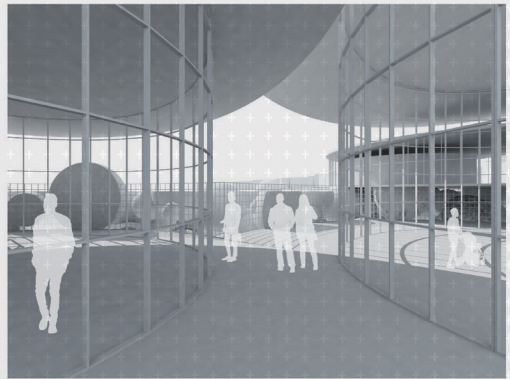
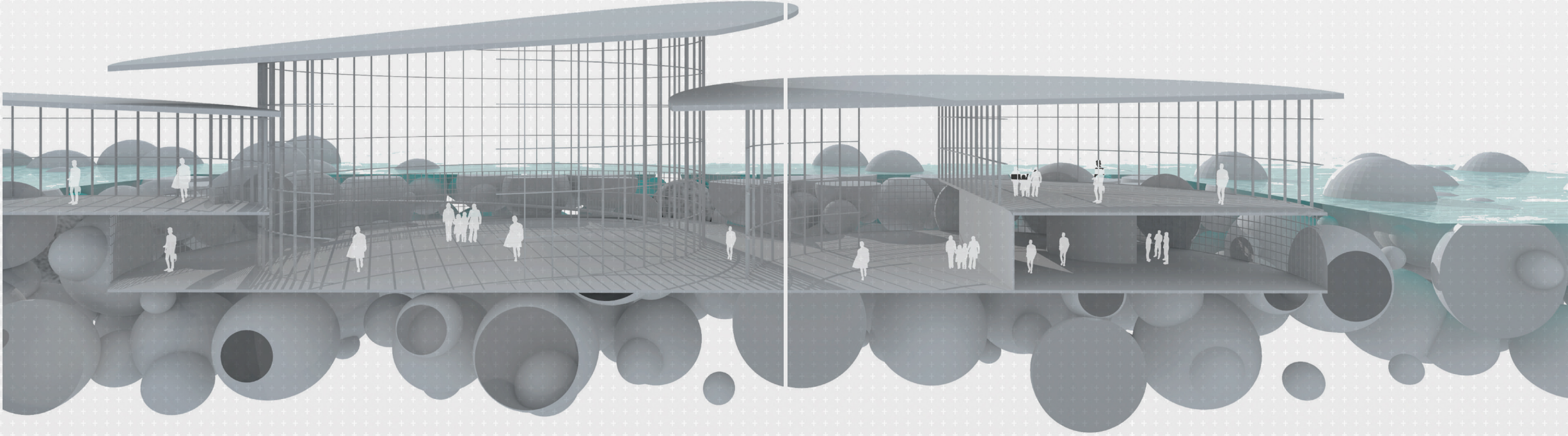
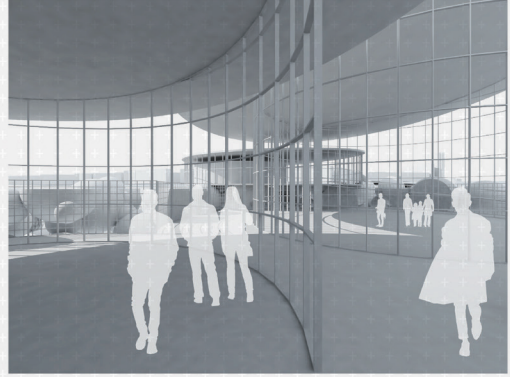
I would invite you to explore the section and the geometry of architecture and study the pavilions in three dimensions and that space can be informed by the intervention of the spheres. . and not just circles. in that way if you take an idea to take the pavilion in 3 dimension and half of the sphere is submerged below the sea, you would be able to watch as the tide come in.

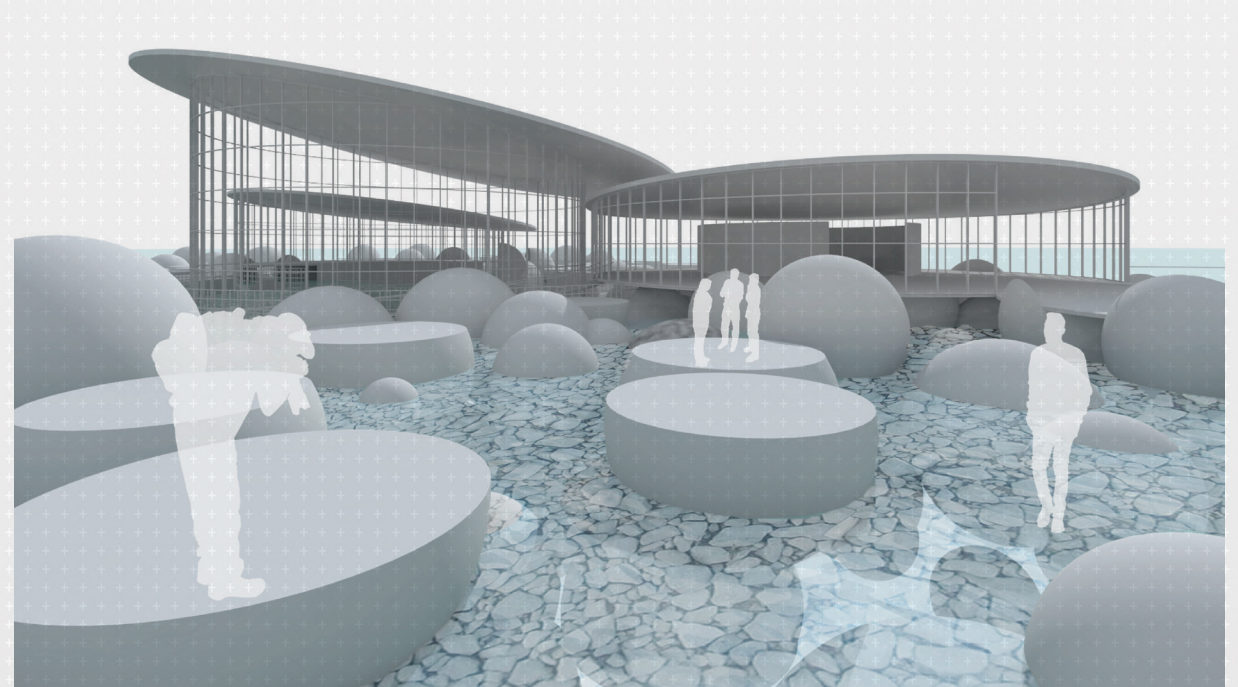
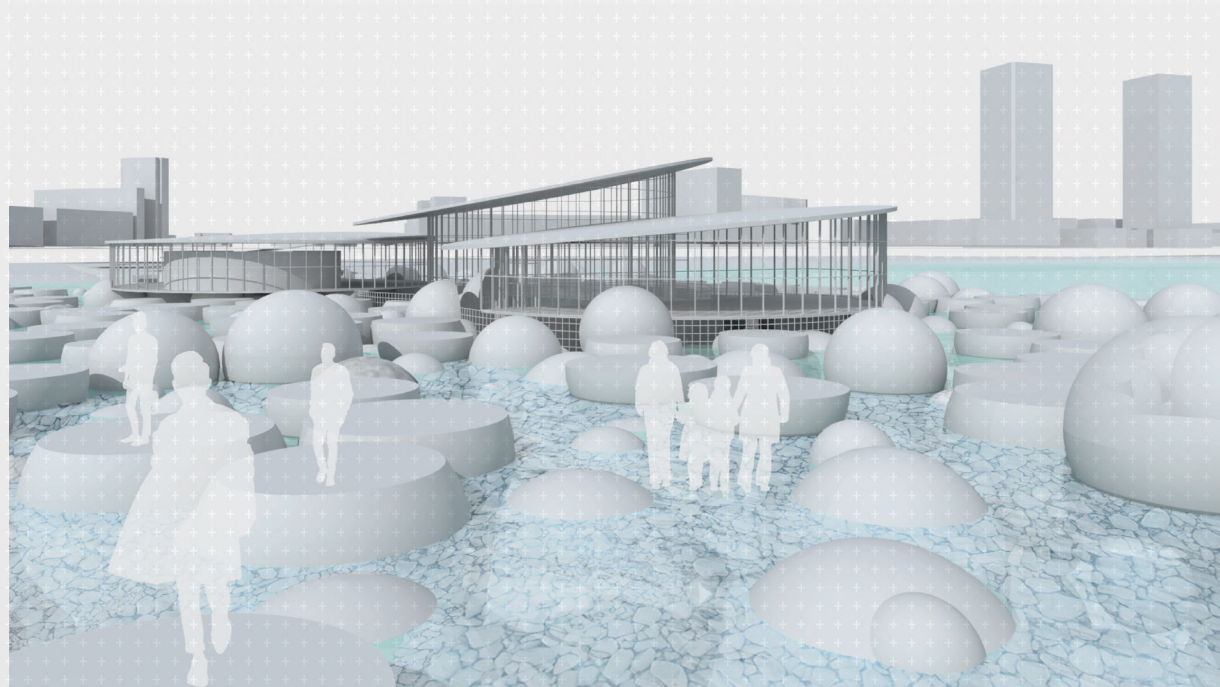
It seems to me that the architecture is little bit foreign to the language of these landscape filters and I'm wondering if they could speak to each other little bit more. But very nice work..

Koichiro Aitani:

I wish that the flat surface of the interior of the pavilion wouldn't be this big plain surface but more as a collection of plane sphere surfaces as you have them in the exterior of your pavilions. That way your







B A C

BARCELONA ARCHITECTURE CENTER

DESIGN STUDIO LECTURES FALL 20 / SPRING 21

The Barcelona Architecture Center Fall 20 and Spring 21 Lecture Series. The conferences will take place from September 2020 until April 2021 at the "Barcelona Campus"; a network of architects, landscape architects, designers, projects, universities and centers which comprise the professional and academic context of the BAC architecture community. The lecture series seek to trace these connections, bringing students, professionals and local institutions into contact to create a forum for conversation and debate on current topics in architecture and related professions.

1_BCN WATERFRONT



JOSEP BOHIGAS

Josep Bohigas Arnau (Barcelona, 1967) is an architect. In 1990, together with two partners, he founded the architectural studio BOPBAA. He is the director of the Urban Development Agency, Barcelona Regional, since 2016 and the Agency of Urban Ecology since 2019. He is an associate professor at the ETSAB, co-director of the Master degree in Lighting Design at the UPC Foundation.

2_GREEN BARCELONA



MIGUEL ROLDAN

Founder and Director of BAC program.
Leads together with Merce Berengue Roldán + Berengué arqts multidisciplinary practice awarded nationally and internationally.

3_WATERFRONT PROJECTS IN EUROPE



IVAN BLASI

Architect and profesor at the BAC since 2005. Coordinator of the field study travels at the BAC .
Coordinator of the Mies van der Rohe Foundation and Prize since the 2000.
Colaborator of Docomomo Ibérico since 2007 and is Secretary General of Docomomo International since 2010..

4_CIUTADELLA, PASSOS CAP AL MAR



ENRIC BATLLE

Enric Batlle i Durany combines the practice of architecture and landscape architecture as a founding partner of Batlle i Roig Architects, an office based in the metropolitan area of Barcelona. His internationally recognized works covers a wide range of projects, always developed from the perspective of the landscape and the environment.

5_COASTAL PROCESSES



JOAN VIDAL

Joan Ramon Vidal, Marine Biologist, Director of Consultancy area in Technoambiente, Environmental Consultancy.
<https://www.technoambiente.com/>. Technoambiente is an Environmental Consultancy with its own accredited Laboratory.
Together with onshore environmental advisory services, Technoambiente is specialized in the marine environment and offshore projects.

6_ENCOUNTERS WITH INFRASTRUCTURE



PABLO VILLALONGA

Phd DPA ETSAB UPC. Theme: "Encounters between high linear infrastructures and the architecture of the European sedimentary city".
Associate Professor DPA ETSAB-UPC.
SON estudi Founding partner with Gerardo Pérez de Amezaga Tomás. (Mallorca) www.sonestudi.com

7_URBAN SPACE IN THE US AND IN EUROPE



JELENA PROKOPLJEVIC

Architect by the Belgrade University, School of Architecture (1998) and PhD by Polytechnic University of Catalonia, ETSAB-UPC (2006).
Co-curator and co-designer of the Catalan Pavilion for the Venice Biennale of Architecture 2016. Member of the experts committee of the European Prize for the Public Space, CCCB.

8_SUSTAINABILITY AS DESIGN SUBJECT



PASQUAL BENDICHO

MArch from ETSAB. Co-founder and principal at SUMO Arquitectes
whose architecture is focused on zero energy consumption and materials of low ambient impact.
Professor at the BAC since 2019.

9_MATERIALITY



MIQUEL RODRIGUEZ

ETSAB Barcelona, 1995 specialized in envelope technologies and materiality of the buildings.
works as architect and building envelope consultant and founded xmade.eu in 2011 in Barcelona and xmade.ch, Basel in 2016.
Professor of "building scale: energy & envelope" in the ETSA La Salle, Barcelona since 2015. Professor at the BAC since 2015.

10_DESIGNING STRUCTURES



XAVIER GUARDIOLA

Xavier Guardiola Co-Founder - G+R Consultors d'estructures. Architect working as stucture specialist.
He worked as project leader of BOMA estructures headquarters in London England.

Design studio lecture series

The Barcelona Architecture Center hosts the fall 2020 BAC Lecture Series. The conferences will take place at the "Barcelona Virtual Campus"; a network of architects, landscape architects, designers, projects, universities and centers which comprise the professional and academic context of the BAC architecture community.

The lecture series seek to trace these connections, bringing students, professionals and local institutions into contact to create a forum for conversation and debate on current topics in architecture and related professions.

Invited Professors



JOSEP BOHIGAS



JOAN VIDAL



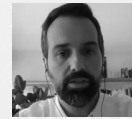
PAU VILLALONGA



PASQUAL BENDICHO



MIQUEL RODRIGUEZ

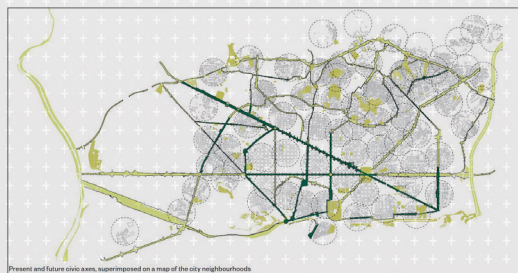
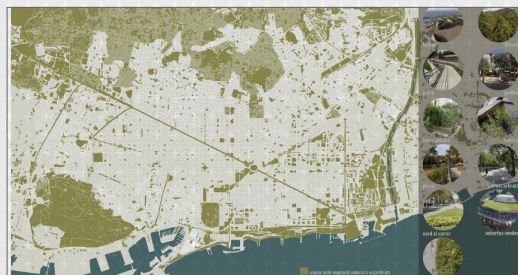


XAVIER GUARDIOLA

Lecture

Green Barcelona Miguel Roldan

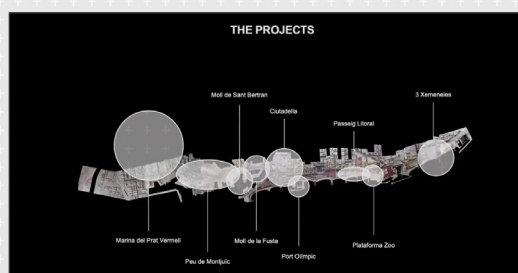
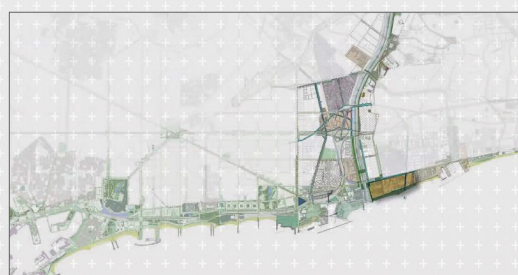
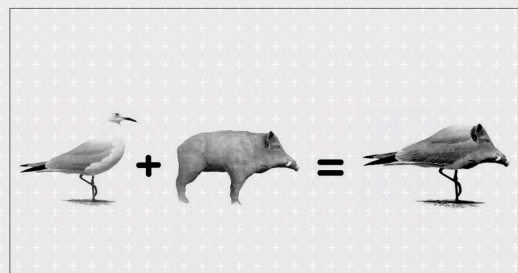
The lecture discusses the importance of green spaces in Barcelona. As they are right now, the green spaces are not connected to each other or always immediately accessible to each other. Cerda's masterplan made this more of a priority than what the city currently proposes. It is not as simple as just putting a tree in the middle of the pavement, the city needs to create an ecosystem. In order to be effective, an ecosystem needs biodiversity. Some of the ways that environmental interventions have been successful are with traffic pacification of the roads organized by the city, "smart city" infrastructure (wifi, LED lighting, icons on the roads), and green superblocks



Lecture:

Barcelona Waterfront Joseph Bohigas, Municipality Barcelona

Josep Bohigas defines our relationship with the coast as a balanced ecology. He talks about "connectors" in the city that have an opportunity to relate the mountains to the sea. The Besos River was one project where the Municipality had an agenda to recuperate the entire river, but also to create a new municipality river around the whole area, which included 179 different projects. The Municipality proposes this paradigm shift that instead of placing five star hotels or commercial hotels, we propose this reconquering of the seacoast to create the transversality of the city and the sea coast.



Lecture:

Waterfront Projects in Europe Ivan Blasi, Mies van der Rohe Foundation

A lecture on the challenges architects can face when designing, in general, but especially in our case on the Barcelona waterfront. Some of these considerations include urban bubble, touristification, urban zoning, cultural consumption, and the issue of a visitor economy. Ivan Blasi through the European examples, explained two concepts that can help to avoid those dangers which were contextualization (social + cultural characteristics) and strategy slowness (appropriating space + allowing adaptability).



Lecture

Coastal Processes Joan Ramon Vidal

Joan Ramon Vidal discusses the main features of the coast of Barcelona, because whatever we do not only affects the landscape, but the subsversive structures on this coast as well. It is important to maintain the natural ecosystem on coastal infrastructures because the role of vegetation provides coastal protection. In the case of his example, the seagrass reduces flood distance. Other impacts on coastal infrastructures is that waves wash over seawalls, and cause damage to the boats, docks, piers, and breakwaters. Every time there is damage to a breakwater or pier, the damage increases each year. the lecture as well explained different typologies of the piers that exist on Barcelona coast.

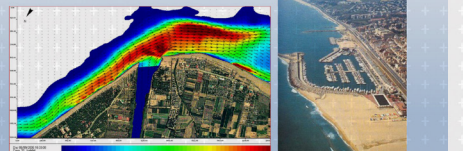
The coast of Barcelona. Main features

- 15 kilometers of coastline, located between 2 rivers (Llobregat SW and Besòs NE)
- A large commercial port and 5 marinas (recreational)



Marine dynamics and maritime climate

- Wave and current simulation
 - Sediment transport processes
 - Coastal erosion



Coastline protection: typologies

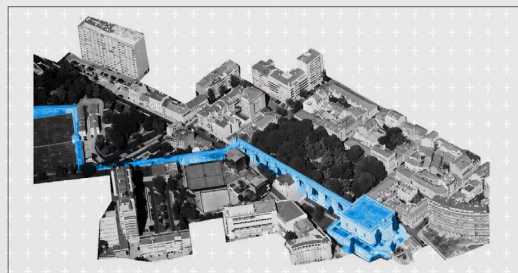
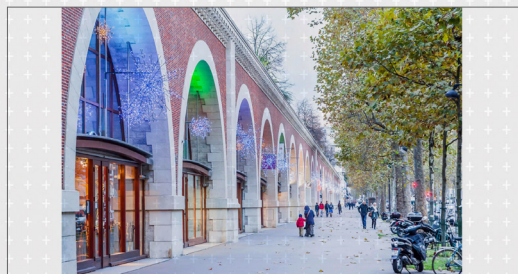
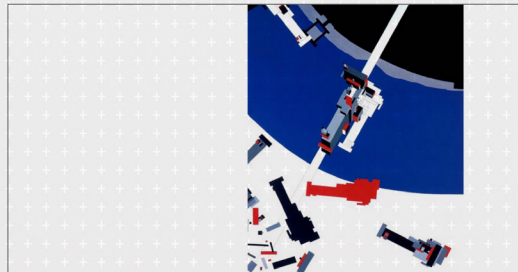
- Emerged and submerged non-connected breakwaters
 - Focused on "break" the waves to protect the coastline



All texts of this chapter are written by our Graduate Architecture Students: Adrianna Spence from Clemson University and Ashleigh Thoele Texas A&M University

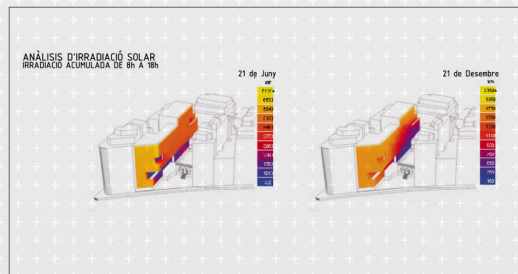
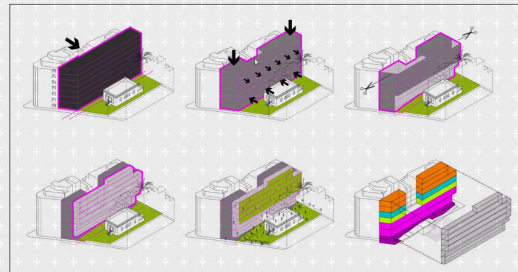
Lecture
Encounters with infrastructure
Pau Villalonga

Pau Villalonga led an interesting presentation and discussion on the idea of the Inhabitable Bridge. This being the concept that architecture can come from or take advantage of existing structures. One of the examples Pau illustrated was the Borough Market in London where the ever-expanding transit system became the roof of the market and added an innovative architectural element to the roof itself.



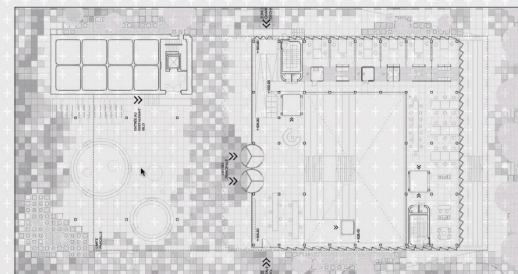
Lecture:
Sustainability as a Subject
Pasqual Bendicho

Pasqual Bendicho discusses the energy consumption of the past in order to relate it to the present. He gives examples of structures of using natural materials in certain situations like a straw hut from the local surroundings. He then moves on to more recent examples of architecture to show an evolution of the construction and a development of technologies in these techniques. The relation between the localization of the main material and the built is a constant reinforcement that he presents in various projects. In order to reduce the energy demand, one must study the site and its potentiality: the orientation, winds, a solar radiance, and so on.



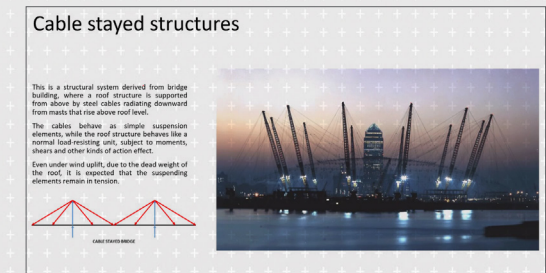
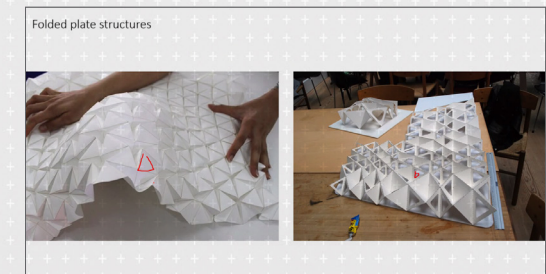
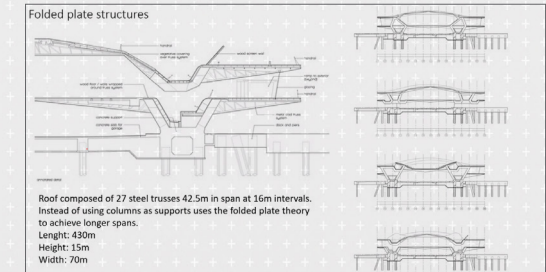
Lecture:
Materiality
Miquel Rodriguez

Miquel Rodriguez discusses previous projects, defining the materials and the structures of each. One project he discussed was this project of Ecology, where he tried to reduce the materials by using wooden structures and facades, as well as glazing. He used local spruce glue laminated timber and the system is used of wood instead of steel, with everything being prefabricated for less time on site. He talks about reasonings for the cantilever structure for example, and the reasoning to block the rain and the sun. The design is inspired by the efficiency of everything, the facade, the layout, the materials, and more.



Lecture:
Long-Span Structures
Xavier Guardiola

Xavier Guardiola talks about long-span structures and their loads within a project. The first kind is a portal frame. Portal frames work because they have very strong, rigid joints that transfer the bending moment from the rafters to the columns, which are often deep at the top and tapered as they get closer to the ground. Long-span trusses are the next type of structure he discusses and they are an efficient means of supporting a roof covering for spans upwards of 20m.



2. Barcelona History Research

Urban History of Barcelona – Layers of urbanity

Instructor: Jelena Prokopljevic

This course pretends to explain the development and the urban history of Barcelona by linking it to the general urban planning concepts and strategies and changes that took place simultaneously throughout Europe. The accent will be placed on concepts rather than on specific historical facts in order to provide the students with the general relations and analytical tools that can be used in the process of rethinking and intervening in the existing urban tissue. Benefitting from the multi-layered urban history of Barcelona, visible and tangible in today's city, the course will drive special attention to the memory sensible projects that enhance the coexistence of structures from different times, often built for different uses.

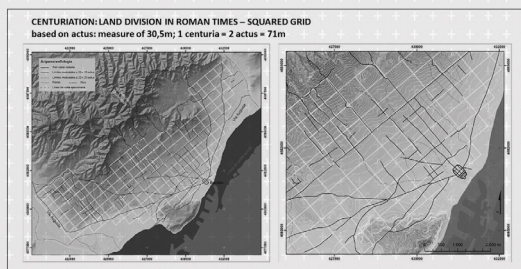
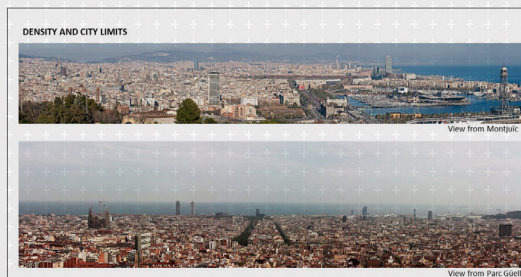
Just as Parthenon was once used as an ammunition storage or a Cristian church was built in the centre of the Roman Emperor's palace in Split, several residential houses of Barcelona or Tarragona have absorbed portions of Roman walls as their supporting structure or 19th century factories have been converted into education o cultural facilities, maintaining and adapting the original structure. This idea of juxtaposed layers of urban history: of material and sensible rests that form part of contemporary city, will give us an insight of the ways of envisioning the future cityscape by Catalan architects. The last part of the course will address the current problems and new solutions for re-naturalization of the urban space.

Part ONE. ORIGINS OF MODERN CITY

Session 1. Introduction and Roman city

Urban history as a links between the past and the future. Tools for analysis and project.

Structure and urban layers of Barcelona and its place in the European context. Legacy of Barcino: rationality, functionalism, infrastructures, spaces of power. Forms and materiality of Roman walls. Roman housing typology.



Session 2. Defining urban referents

Medieval densification of the roman structure; spatial concentration and fragmentation of power. Definition of public space and its dynamic use; the city's formal referents. The cultural diversity of medieval walled city. Catalonia as a Mediterranean power. Relations with Spain and Europe. City's expansion and structure. Catalan gothic and typology of public and private spaces.



Professor



JELENA PROKOPLJEVIC

Session 3. Industrial city

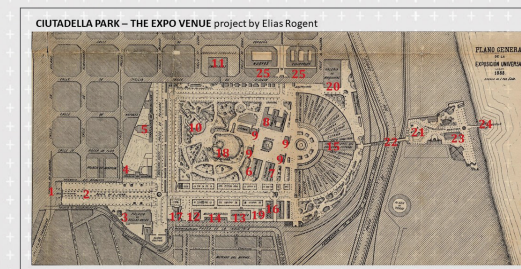
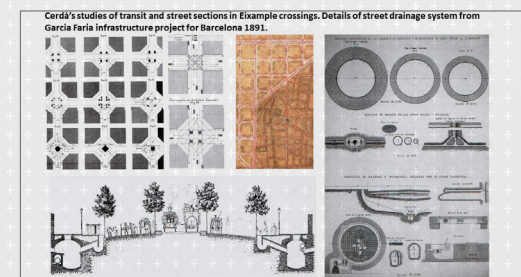
Urbanization of Ramblas: the new city centre. Industrial revolution and the appearance of the new bourgeoisie. Their impact on the cityscape and creation of secular referents: factory – market place- railway station. The new connectivity: roads and railroads. Expansion outside the city walls: Barceloneta urban plan and building typology.



Part TWO. FUNCTIONALIST UTOPIA

Session 4. Expanding the city. City as Stage

Outgrowing the walls- Paris, Vienna and Barcelona – advantages and problems of Pla Cerdà; parallel projects and colonial cities. 1888 Exhibition, Modernism, Art Nouveau, Secession – identity expressions at the turn of the century. Gaudí and structural experimentation.



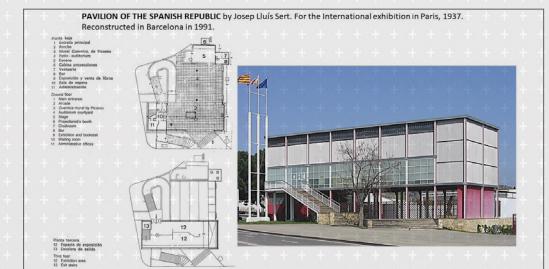
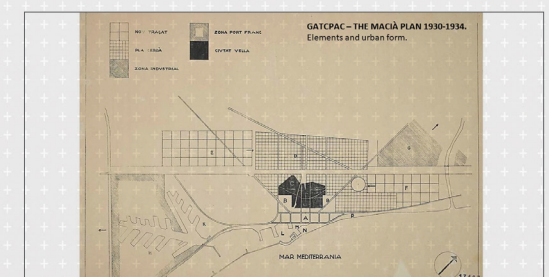
Session 5. The New Century

New connections and public spaces. Re-organization of city's functions: transit, green spaces and squares. Plan Jaussely, Plaza Catalunya, Via Laietana. First metro line. Big events urbanism 1: international exhibition of 1929. Housing crisis.



Session 6. The International style

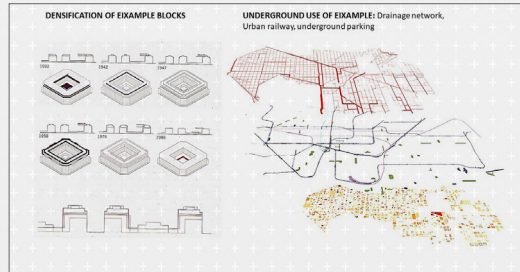
Modern movement and the civil war: GATCPAC, GATEPAC and CIAM. Functional city, collective housing and public facilities. European models and Spanish tradition. New functionalities: public buildings and housing models.



Part THREE. THE CITY OF ARCHITECTS

Session 7. Postwar reconstruction and new models

Post-war regime architecture in Spain and parallels to the post-war Europe. The new deal, the city reconstruction and the population growth. Mass housing, new neighbourhoods and polycentric city. Collective housing models of 70s and 80s and international models. Pre- Olympic interventions in public spaces.



Session 9. New challenges

Naturalization of city limits: river-bank projects Besós and Llobregat; Connections with Collserola Mountain. Naturalization of the centre: future of Glòries square. New ways of organization of planning and construction: participation processes, self-managed communities, and new housing models. Challenges of tourist industry.

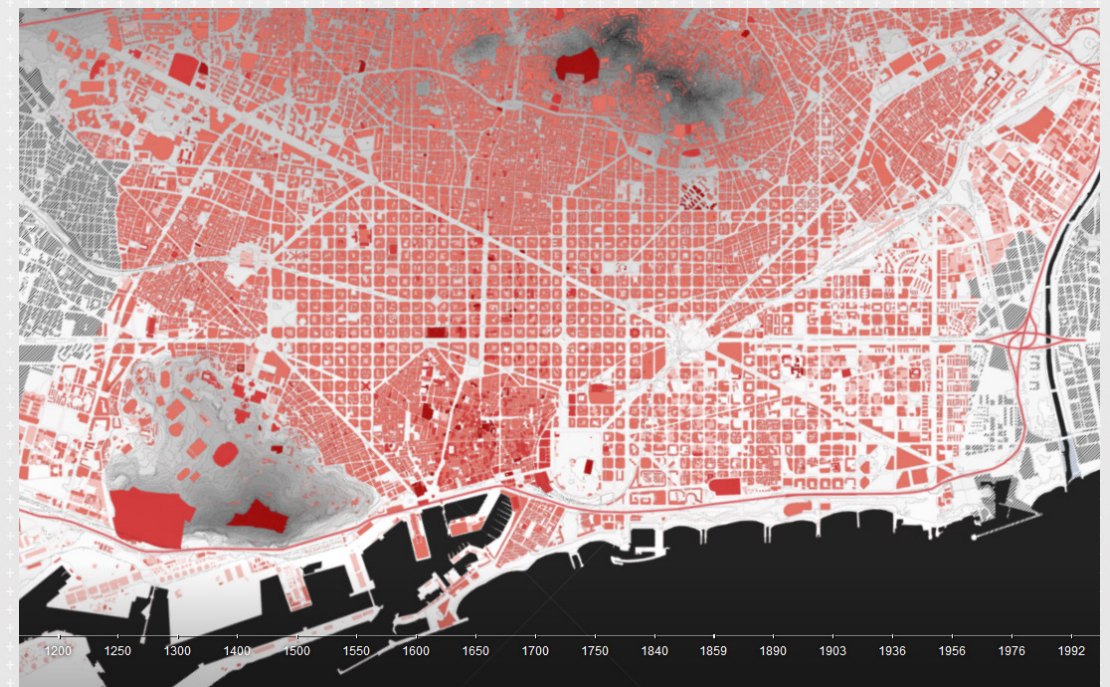
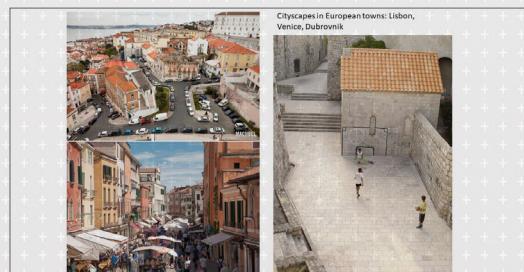
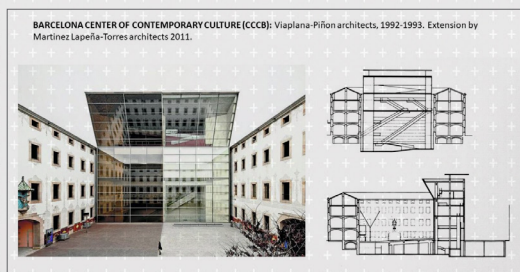
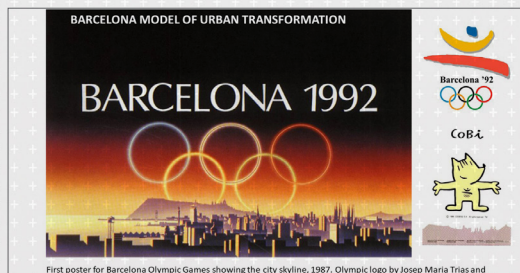


Session 8. Barcelona model

Big events urbanism 2: 1992 Olympic Games and Forum 2004. Structural benefits for the city and the base for the tourist industry. Large public facilities and public spaces as centres of urban reform. Crisis of the model and new sensibilities.

Session 10. "Urban space in the US and in Europe: Why are our cities different?"

In order to understand the different character of our urban culture, the lecture focuses on specific questions and moments in the history of American and European large cities. Foundation and planning, impact of industry and transportation methods, relation with natural environment, urban density - construction and population-, functional and social zoning as well as image of the cities in popular imaginary are analyzed as key factors that have shaped our cities.



Historic map of Barcelona, Muhba
<https://ajuntament.barcelona.cat/museuhistoria/cartahistorica/index.html?lang=en#map=13.332976925895442/240026.59/5069579.76/2010/0/0/0/0>

3. Barcelona's Building Technology

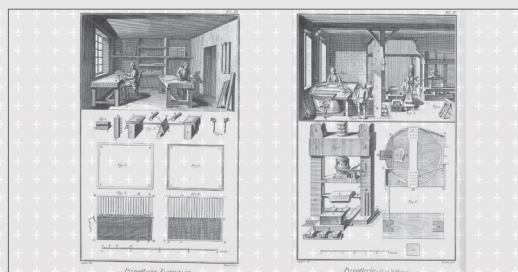
Barcelona Building Technology course in Barcelona will be a sum of lessons learned through three different approaches to examining the diversity of topics related to the principal theme of materials, construction and technology. The intention of the course is for the student to build a map of methods for identifying, contextualizing and analyzing buildings and their construction in order to apply these concepts to the design process.

The course will be structured into 3 blocks. Within each block, there will be lessons, each directed at critically examining the topic of discussion. Students are expected to inform the classroom discussions with outside knowledge gained through library research and visits to sites and buildings.

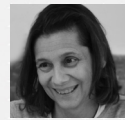
BLOCK B: Barcelona Building Technology - BUILDING SCALE

Instructor: Pia Wortham

The introduction of this block will be the signature of the timeline and dictionary of Barcelona building technology. Following the introduction this block will look at 7 buildings in Barcelona from a technological point of view. We will examine the materials and technology of each period in history, as well as the kind of tools the builder/craftsman, and later architect had at his disposal. We will place the buildings in their historical context in terms of structural analysis and innovations in building technology. We will explore how all buildings fit into a social and economic context by looking at the history that surrounds these five examples. How were the programmatic needs of each project met in terms of appropriateness of structure? Architectural history is often taught as a timeline of changes in style, without taking into account the scientific side to architecture. This class hopes to answer the question of how architecture is built to inform and reinforce what the architectural student faces in the design studio.



Professor



PIA WORTHAM

Session 1.

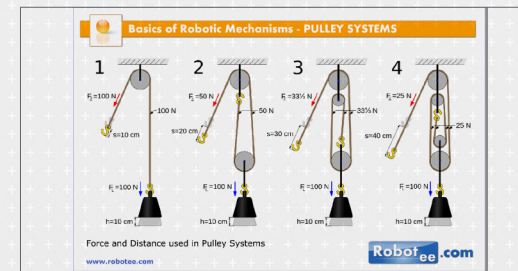
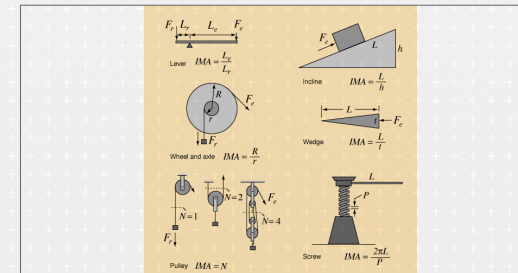
Intro - Technology: a brief history

Introduction to human collective learning and it leads to innovation; a historical point of view.

Session 2.

Intro - Structure: basic building elements

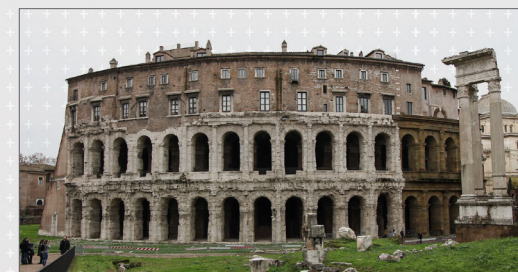
Introduction to technological advances beginning with the six simple machines and their application to salient technological breakthroughs throughout history.



Session 3.

Ancient structures: Egypt Greece and Rome

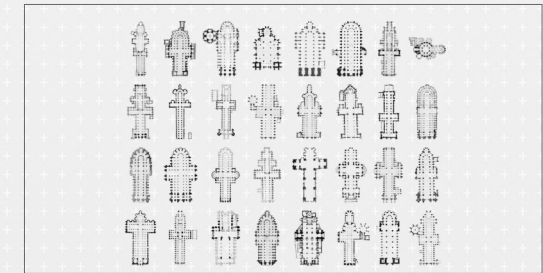
Egypt, Greece and Rome. How the process of construction reflects each culture as well as the technological advances that contributed to the success of each civilization.



Session 4.

Gothic: Santa Maria del Mar to the enlightenment

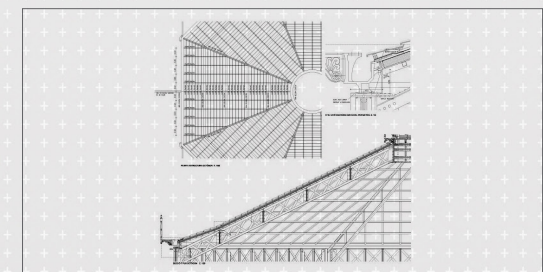
The Romanesque and the middle ages; how are technology and innovation affected by a radical change in the political structure of Europe. A close look at the advances in technology that will lead to the



Session 5.

Mercat del born and the industrial revolution

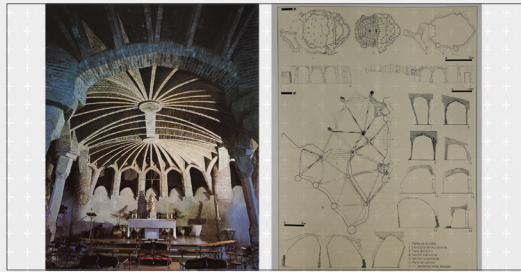
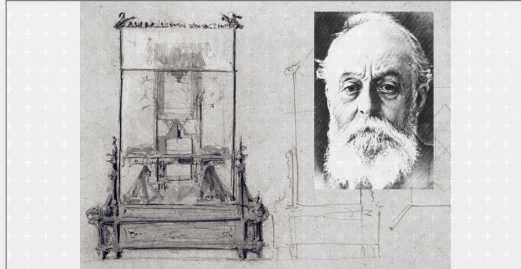
The Renaissance in Italy to the industrial revolution in England following closely the changes and progress in the production and use of iron.



Session 6.

Gaudi: Geometry and Structure

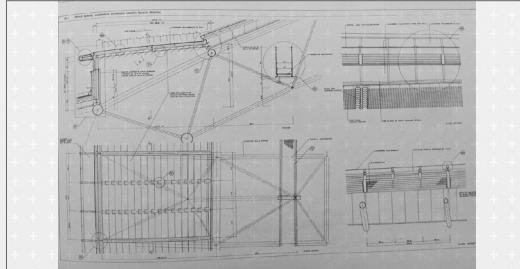
The art nouveau movement in Europe with a concentrated focus on Gaudi and Catalunya, how Gaudi fit into the Modernista movement and most importantly his structural innovations.



Session 8.

Palau Sant Jordi and a history of domes

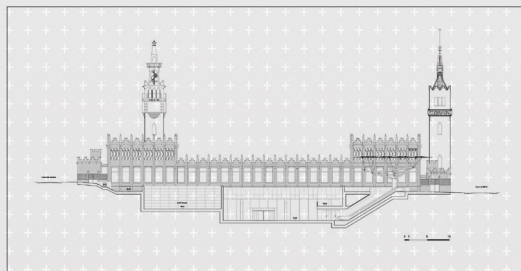
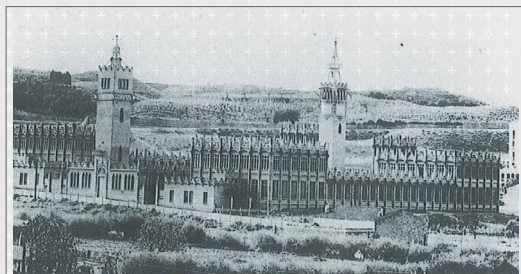
A focus on domes, from the Pantheon first discussed in lecture three to Palau Sant Jordi and the Pantadome system of construction.



Session 7.

Caixa forum: industrial buildings and the catalan vault

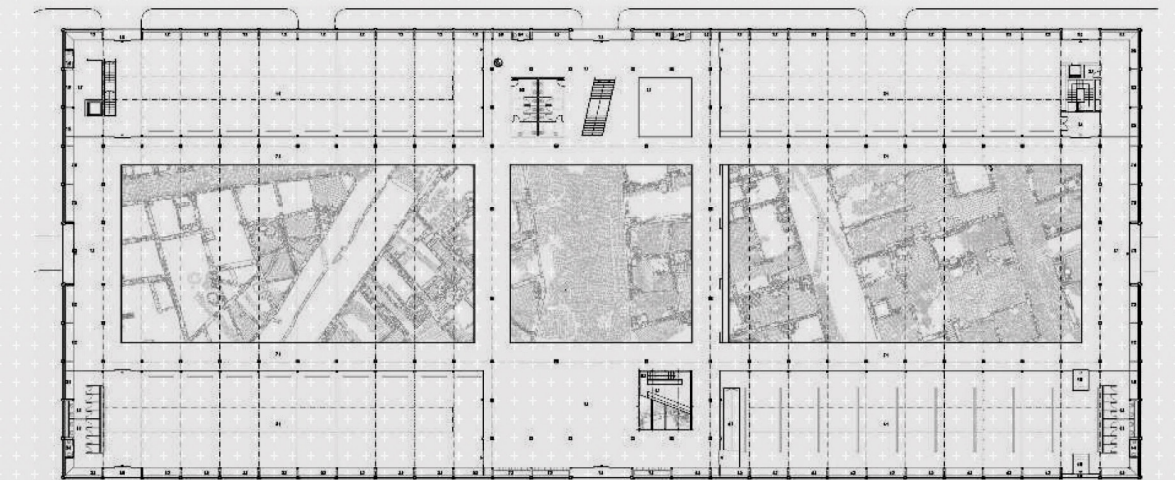
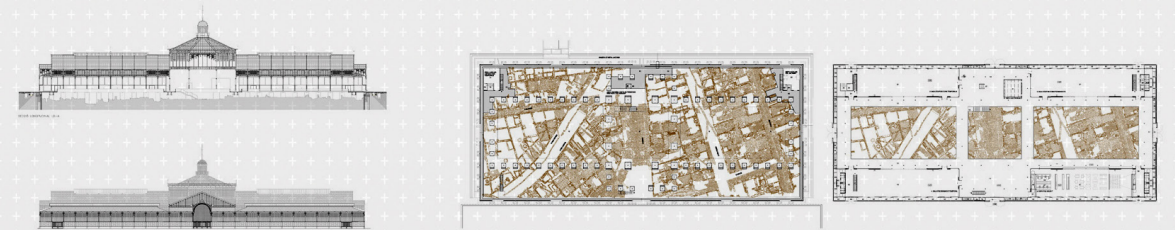
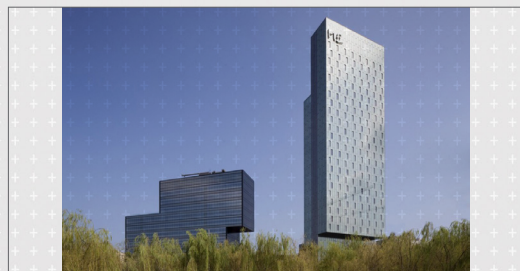
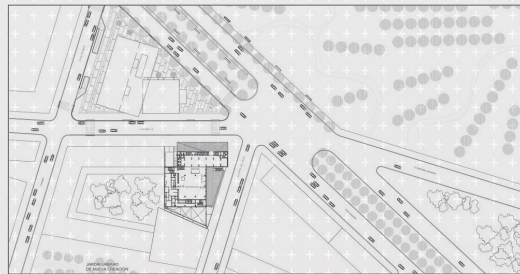
The Catalan vault! Structural innovations in brick industrial buildings in Catalunya and Guastavino's contribution to hundreds of iconic buildings in the United States.



Session 9.

Hotel Me and a history of towers

A focus on towers and skyscrapers, with a detailed discussion on wind loads, dynamic, static loads, top down construction and finally a focus on cantilevers with the Hotel Me by Perrault.



Mercat del born and the industrial revolution

4. Field Studies in Architecture and Related Arts

The European territory is rich in history, culture and architecture. A certain common identity is perceived from outside its borders but it is difficult to detect from within. Public facilities, competitions and spaces are not exclusive of Europe but they have shaped the continent's territory over the centuries. The last years have brought important changes and cities have adapted according to political, economic, cultural and above all social transformations. European towns continue being attractive mostly because of their history but also because of their vibrancy. In the last years, one in ten enterprises in the European non-financial business economy belonged to the tourism industries. These 2.3 million enterprises employed an estimated 12.3 million persons. Students participating in the BAC program will become locals while they live in Barcelona and tourists while traveling around the territory and they will always be architects, with a specific awareness for how others live and how to understand different realities.

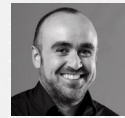
Cities have historically constituted a strategic area of intense exchange, dialogue and conflict. This space continues to play a key geopolitical role at a global scale. While in Europe, students will be able to travel to different locations on their own with some tools provided in Field Studies. Film makers, musicians, writers, painters and photographers among many others have created different perceptions of cities. As architects, all these visions together with the actual experience of a place help us understand it and design a project. All our previous life experiences will also be part of this personal relationship with a place. This is the aim of Field Studies: be aware of our role as architects at all times and make the most out of our discoveries.

Barcelona is the departure point to understand how visiting a city can be done in many different ways. Visits to its periphery: plaça Europa, Forum and Vall d'Hebron; to its elevated areas: Montjuïc, Parc del Laberint and Turó de la Rovira; and to its infrastructures: port, airport, "rondes" and Rambla de Sants-train system; will complement different ways of interpreting European cities such as London, Paris, Berlin, Vienna and Prague among others.

Visiting Madrid and Toledo will allow us to learn about part of Europe's Southern history, a culture of Arab, Jewish and Roman origins which built a capital (Toledo) which today is nearly a neighborhood of one of Europe's biggest metropolises (Madrid). A city growth focused on territorial expansion confronted with the territorial organization of the Randstadt, the Dutch conurbation of 7,100,000 inhabitants (Amsterdam, Utrecht, The Hague, Rotterdam), with a similar population to metropolitan Madrid and Toledo (6,600,000 inhabitants).

Address the current problems and new solutions for re-naturalization of the urban space.

Professor

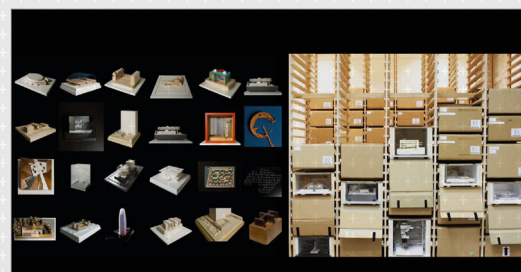


IVAN BLASI

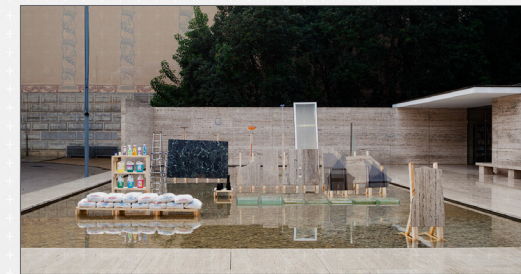
Session 1.
Documentary Mies on scene



Session 2.
Identifying architecture – identity in architecture



Session 3.
Interventions Barcelona Pavilion



Session 4.
EU Mies Award + documentary + test



Session 5.
Culture and architecture: The New Rijks Museum film



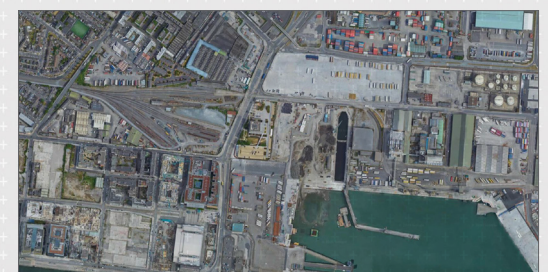
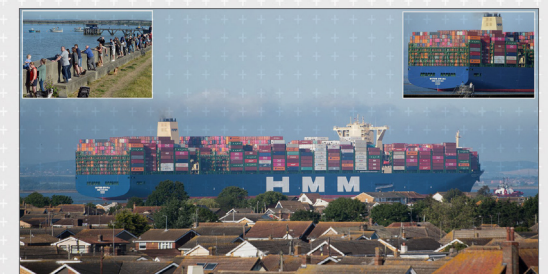
Session 6. New extensions and consolidations:
from Forum to Plaça Europa, Barcelona



Session 7. Infrastructures: train stations, Barcelona (>Sants and Sagrera)



Session 8.
Industrial transformations in cities



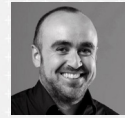
Virtual Study Travel Europe:

Barcelona is the departure point to understand how visiting a city can be done in many different ways. Visits to its periphery: plaça Europa, Forum and Vall d'Hebron; to its elevated areas: Montjuïc, Parc del Laberint and Turó de la Rovira; and to its infrastructures: port, airport, "rondes" and Rambla de Sants-train system; will be complement with visits to some of Europe's most important cities such as Amsterdam, Berlin, London, Madrid and Paris.

Visiting Madrid and Toledo will allow us to learn about part of Europe's Southern history, a culture of Arab, Jewish and Roman origins which built a capital (Toledo) which today is nearly a neighborhood of one of Europe's biggest metropolis (Madrid). A city growth focused on territorial expansion confronted with the territorial organization of the Randstadt, the Dutch conurbation of 7,100,000 inhabitants (Amsterdam, Utrecht, The Hague, Rotterdam), with a similar population to metropolitan Madrid and Toledo (6,600,000 inhabitants). Berlin, a city devastated by WW2 and the construction of the Wall and how it has become once again a reference for everybody around the world for its culture and specifically its architecture. London was also destroyed and from its ashes, one of Europe's biggest metropolis faces enormous challenges in a post Europe context, giving more power to Berlin and Paris, the latter, the city of continuous change and beauty, another capital of culture and knowledge.

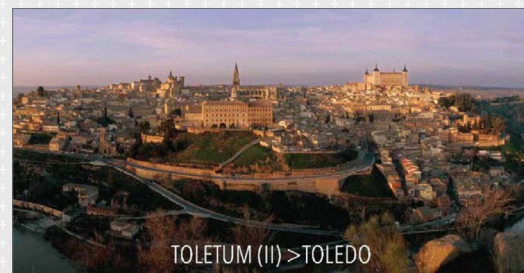
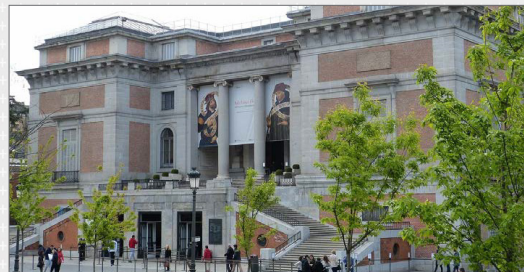
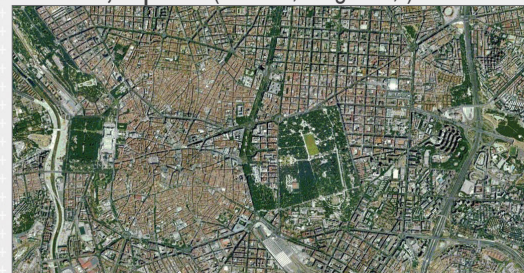
European Capitals:
 Session 1_Madrid, Spain
 Session 2_Berlin, Germany
 Session 3_Amsterdam, the Netherlands
 Session 4_London, United Kingdom
 Session 5_Paris, France

Professors

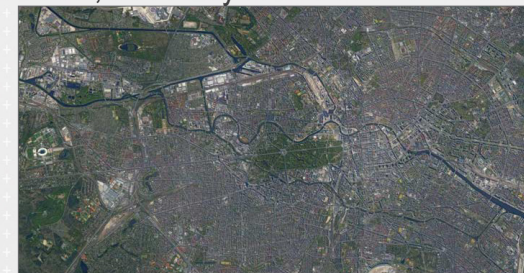


IVAN
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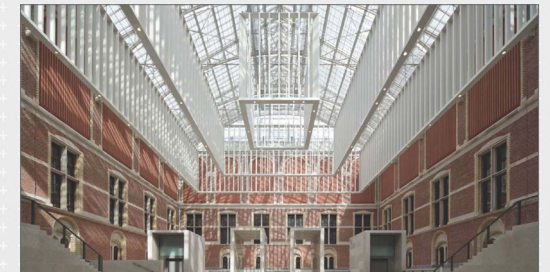
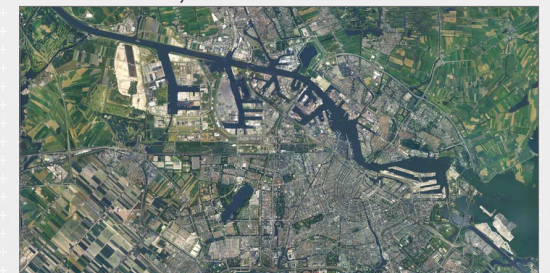
Session 1. Madrid, Spain (Toledo, Segovia,)



Session 2. Berlin, Germany



Session 3. Amsterdam, the Netherlands

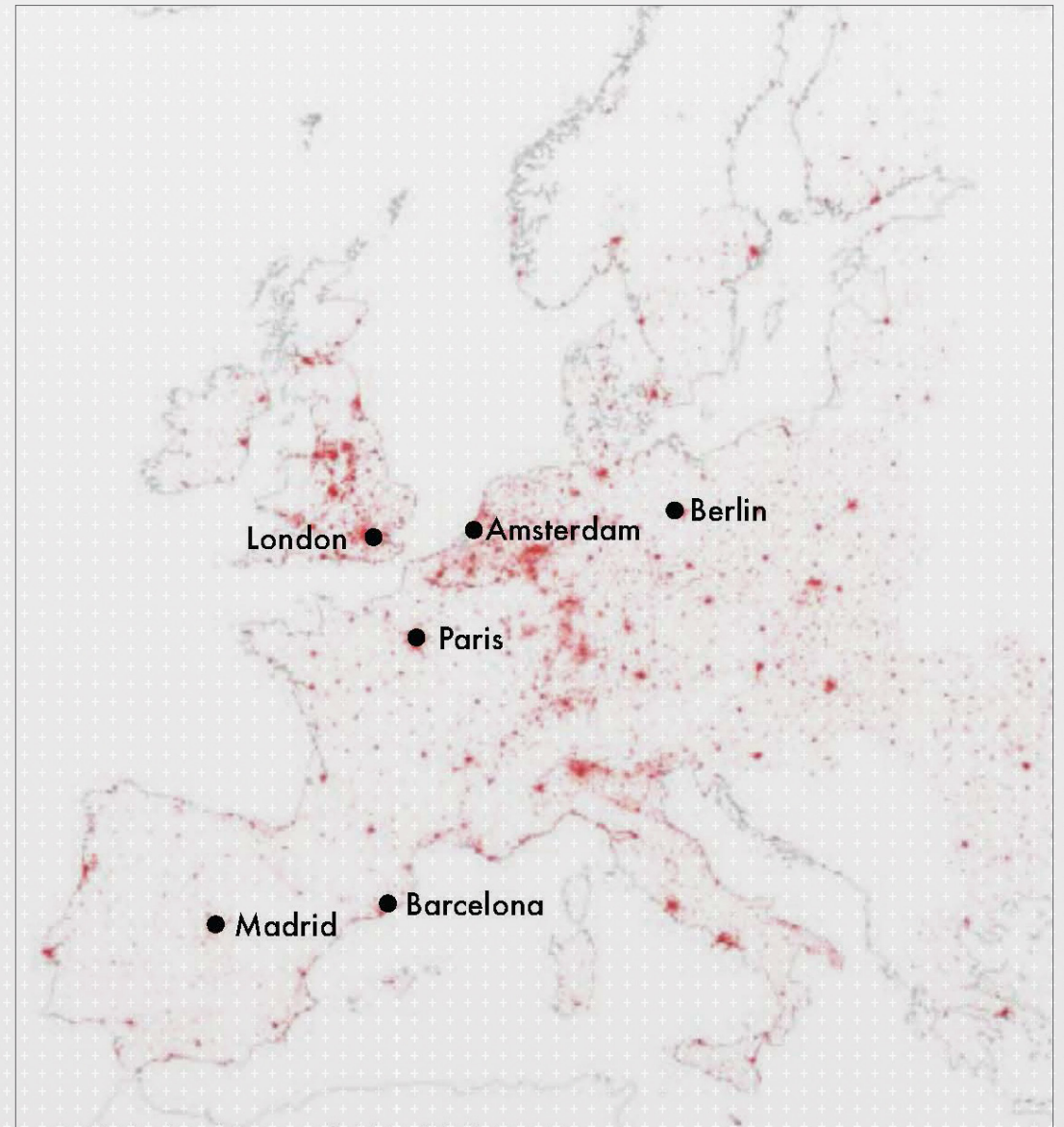
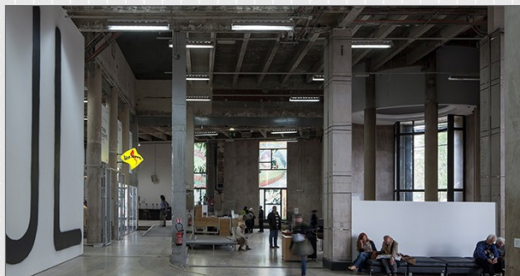
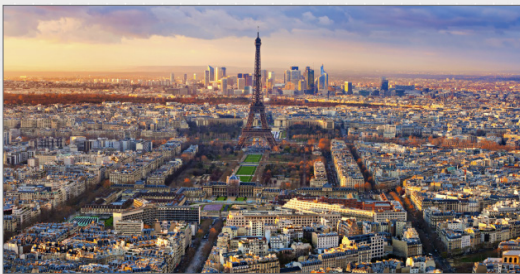




Session 4.
London, UK



Session 5.
Paris, France



Moments in Barcelona:

(Texas A&M University group)

Site visit, Ginebra breakwater, Barcelona



Site visit, Ginebra breakwater, Barcelona



Palau Guell, Barcelona



Sagrada Familia, Barcelona



Mies van der Rohe Pavilion, Barcelona



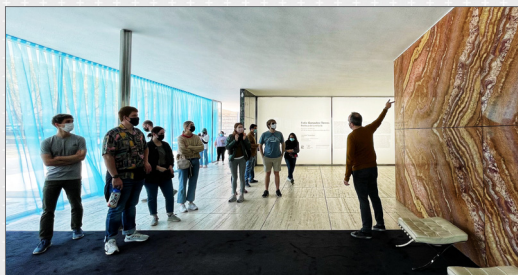
Mnac, Montjuic, Barcelona



Montsacopa volcano, Olot



Mies van der Rohe Pavilion, Barcelona



Mnac, Montjuic, Barcelona



Les Colls, RCR, Olot



Mirador del alcalde, Montjuic, Barcelona



Seminar lecture at BAC studio



Seminar lecture at BAC studio



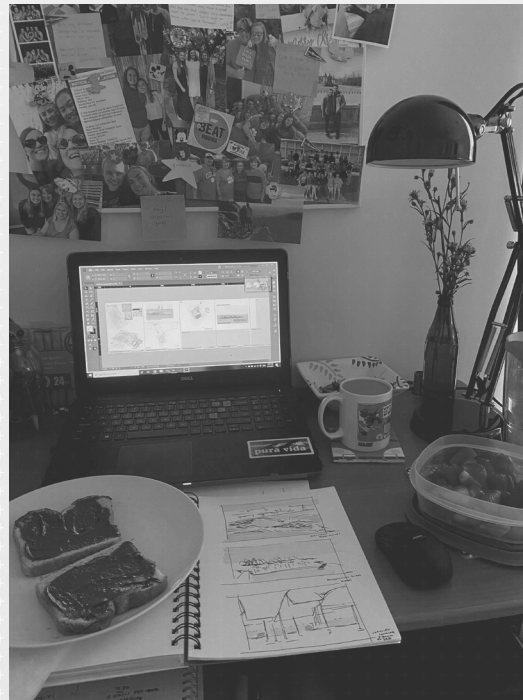
Roldan + Berengué arqts studio visit, Barcelona



Roldan + Berengué arqts studio visit, Barcelona



behind the zoom scenes:



Thank you all!

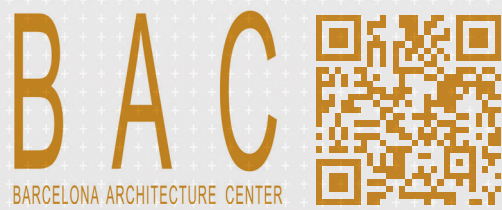
BAC Spring 2021



Thank you all!

BAC Spring 2021





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BARCELONA ARCHITECTURE CENTER is an educational organization founded in 1998 and chaired by Miguel Roldán. The BAC was created with the aim of developing academic and research collaborations with other universities and higher education institutions across the globe.