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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.

Spring 2020 BAC, Barcelona Architecture Center

# 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, Fall 2020  
BAC, Barcelona Architecture Center **01**



# BAC

## BARCELONA ARCHITECTURE CENTER

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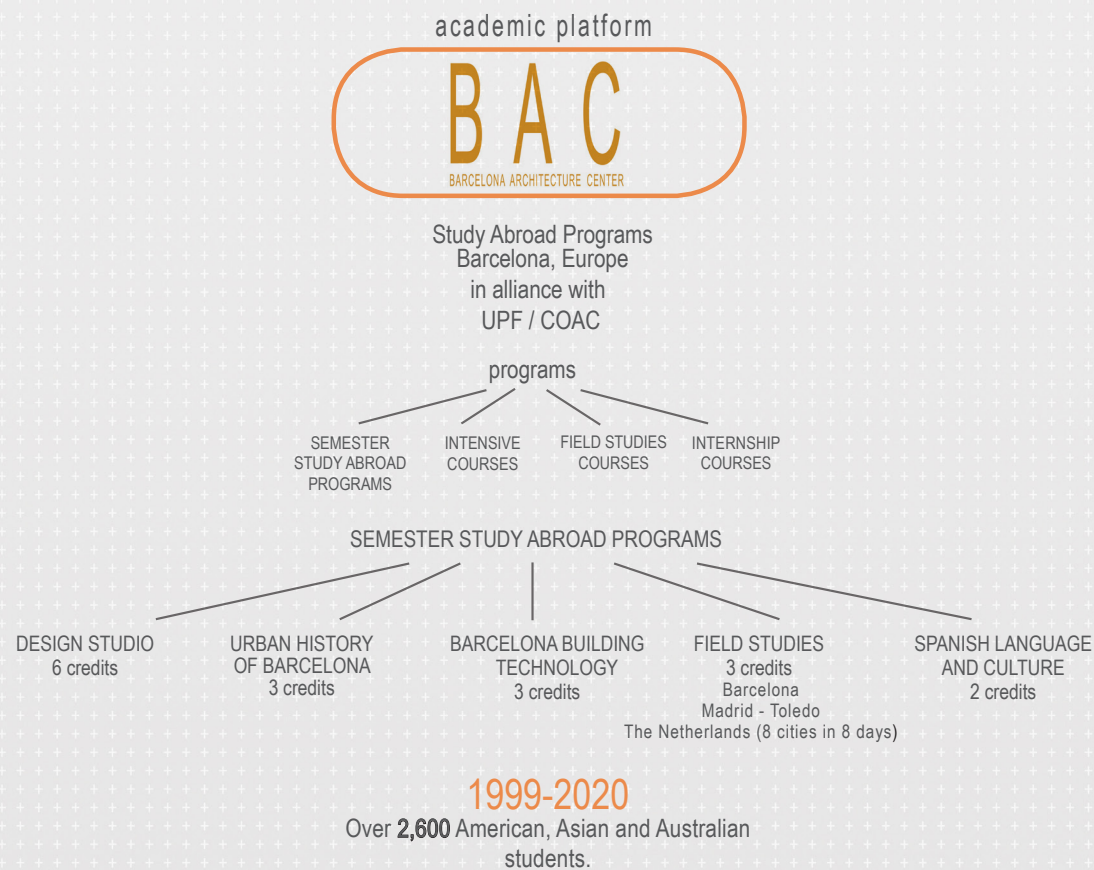
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# Fall 2020

## BCN Urban project

### “L’Espigó de Ginebra”

## Rethinking the waterfront infrastructure#1

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**3. Barcelona Building Technology** | CU - ARCH 4000, ARCH 6000 | TAMU- CARC 311 |

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Seminar  
Virtual travels

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Executive  
Director



MIGUEL  
ROLDAN

## BAC PROGRAM

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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 Fall 2020 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 FALL 2020 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 that constitute a scenario of enormous complexity to deal with. Our Fall 2020 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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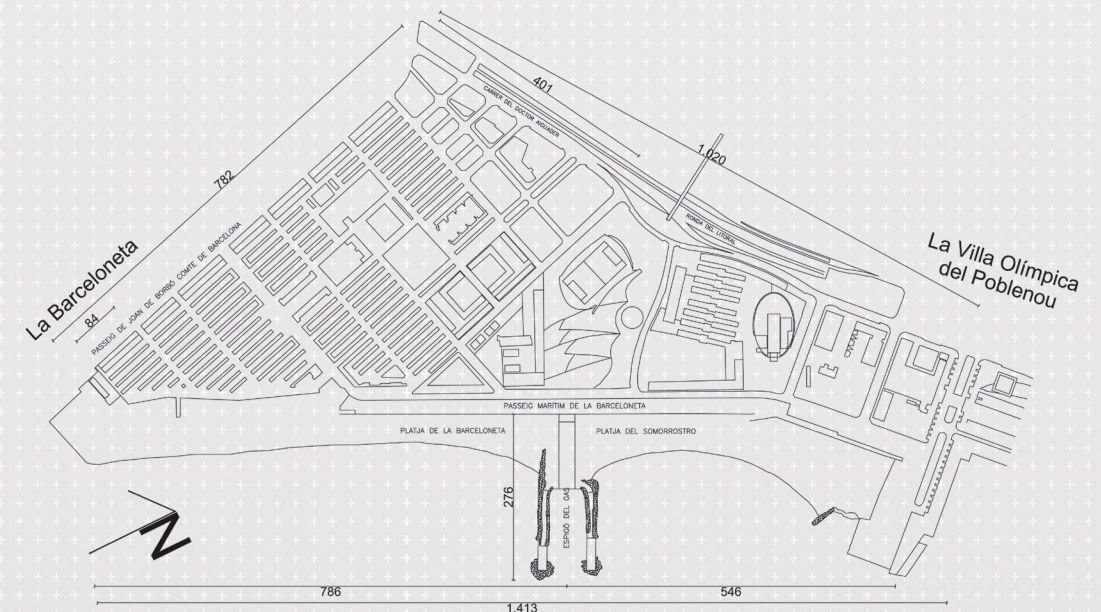
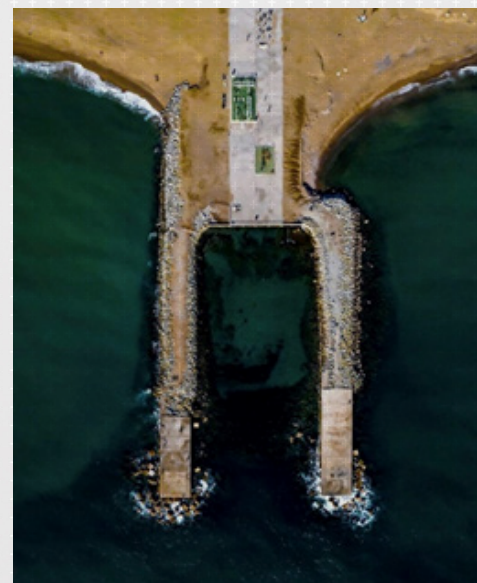
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\_google link: <https://goo.gl/maps/ScPkQnQ1jTCLzvVA>  
\_bcn map link: <https://w33.bcn.cat/planoBCN/en/guia/address/Esp-Gas/zoom/3/angle/44.4/position/432630,4581451/>



#### 4. 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 FALL 2020 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 Trencaones"**, 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.**

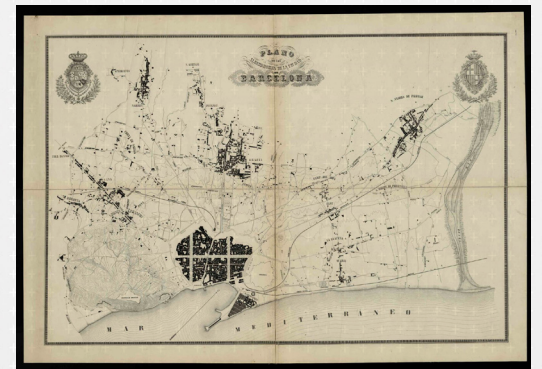
Most of the times these essentials artifacts are hidden, remain invisible pieces of the urban scenario and the urban memory. In this specific case, the breakwater, due to its position, out of the strictly condition of the 'urban', became part of the **geography**.

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 above the sea level.

**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.



TOPOGRAPHIC MAP, 1855



## 7. 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 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.

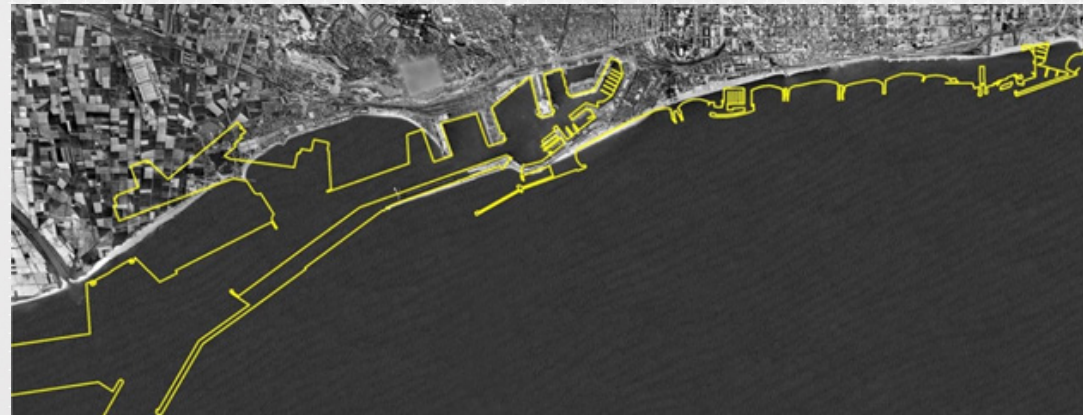
The availability of water and the city's condition as a port, among other strictly economic and social reasons, facilitated industrial development and diversification, with a large part of the industry concentrated near to the port. Industrial infrastructure, such as docks and warehouses, were built 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.



## 8. 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.

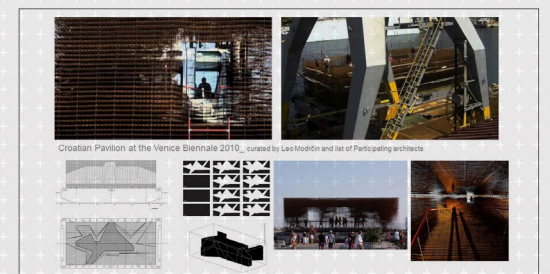
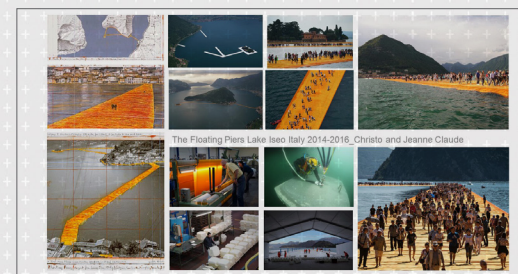
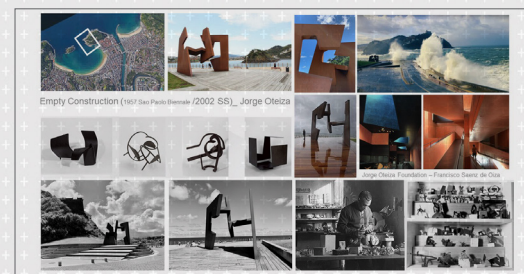
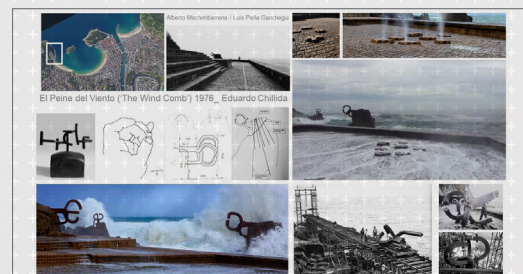
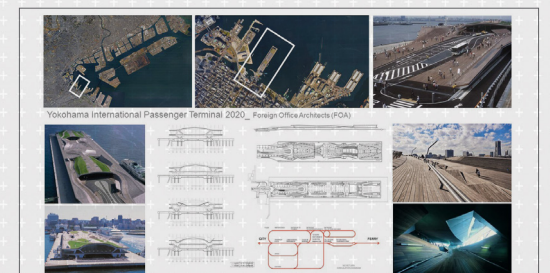
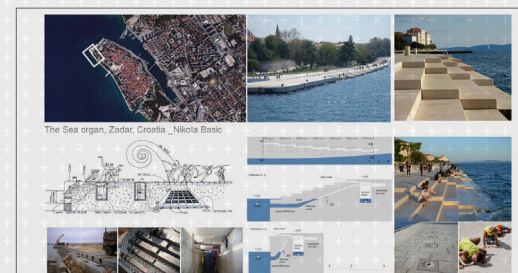
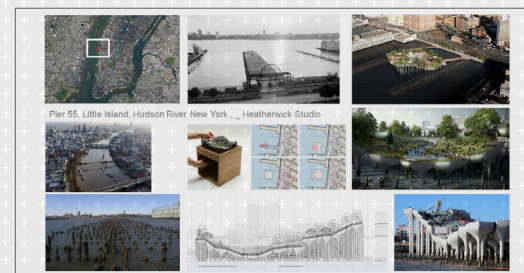
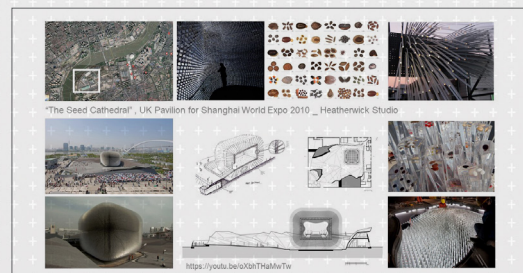
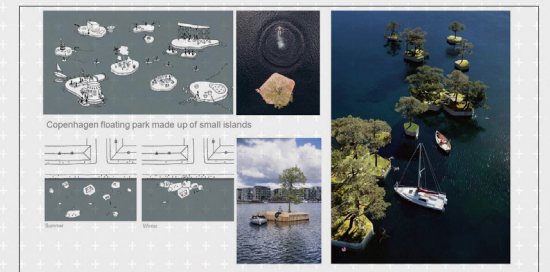
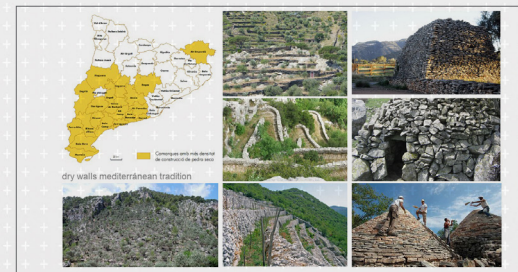
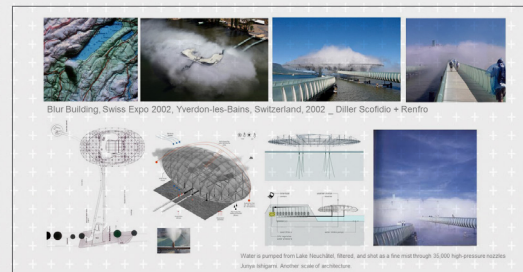
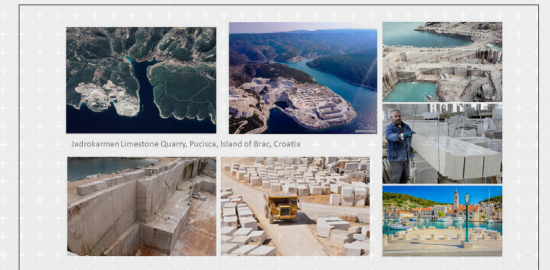
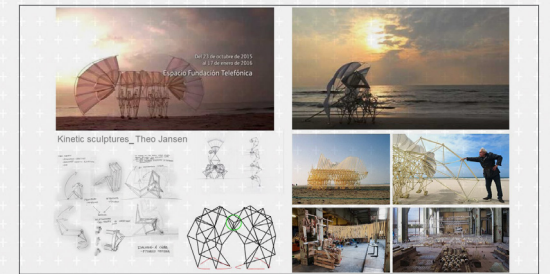
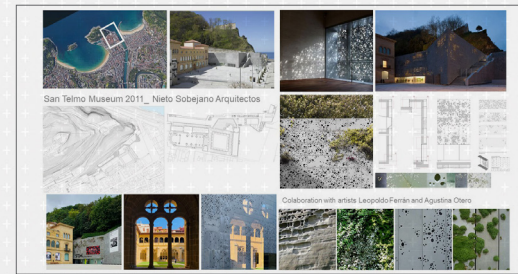
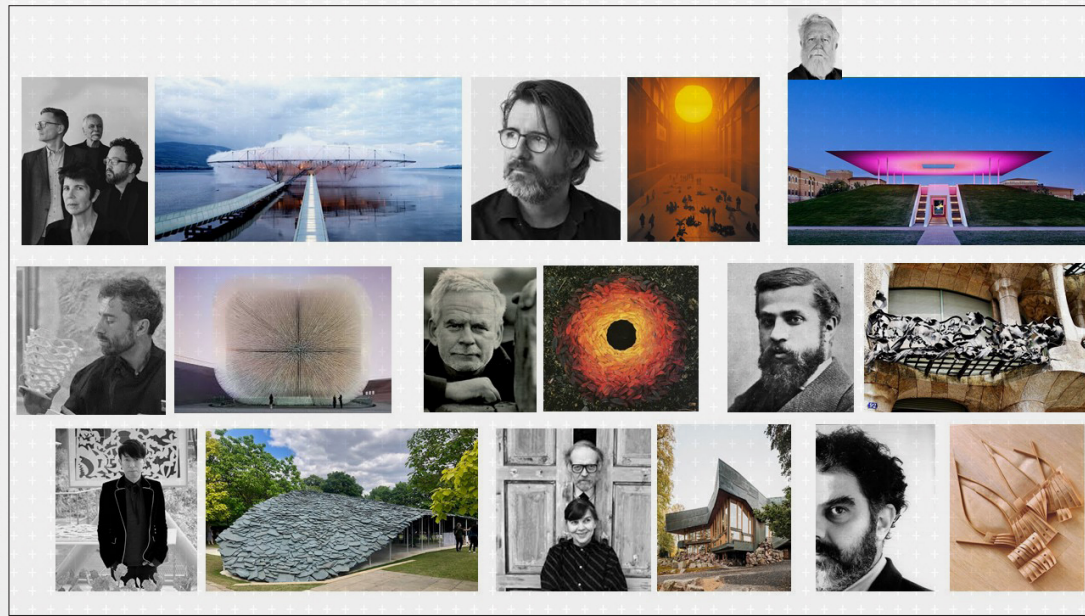
The list of problems and needs of the coastal area is long, and to remedy it is necessary to glimpse a new model as concerted as possible with all the agents involved in the coast. Like this, the Barcelona Municipality Strategic Plan for the city's coastal areas (the Coastal Plan) is to achieve a "reconquest" 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 seafront, 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.



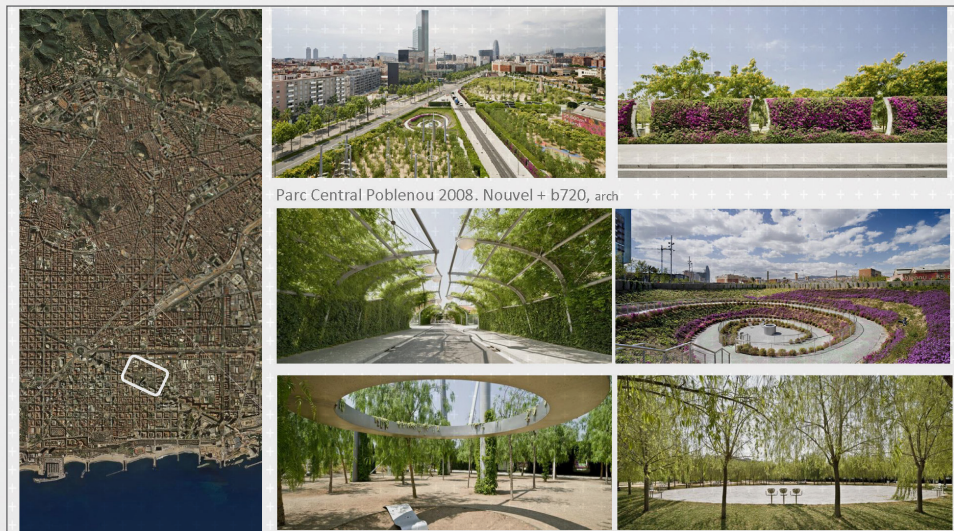
<https://www.bcnregional.com/ca/category/projects/>







Forum of Cultures 2004. Torres + Martínez Lapeña+ Zaera + Gali arch



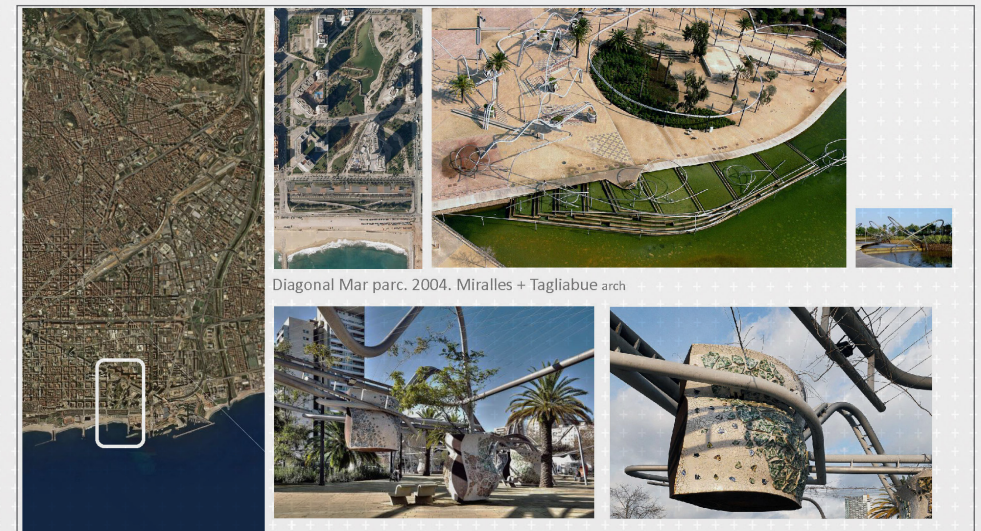
Parc Central Poblenou 2008. Nouvel + b720, arch



Sants railway corridor. 2016. Godia + Molino, arch



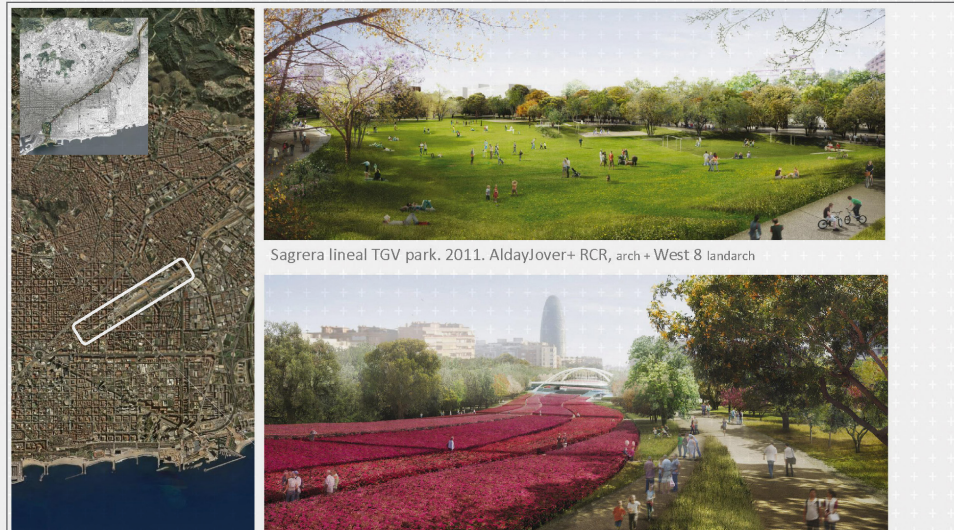
Passeig Sant Joan. 2016. Lola Domenech arch



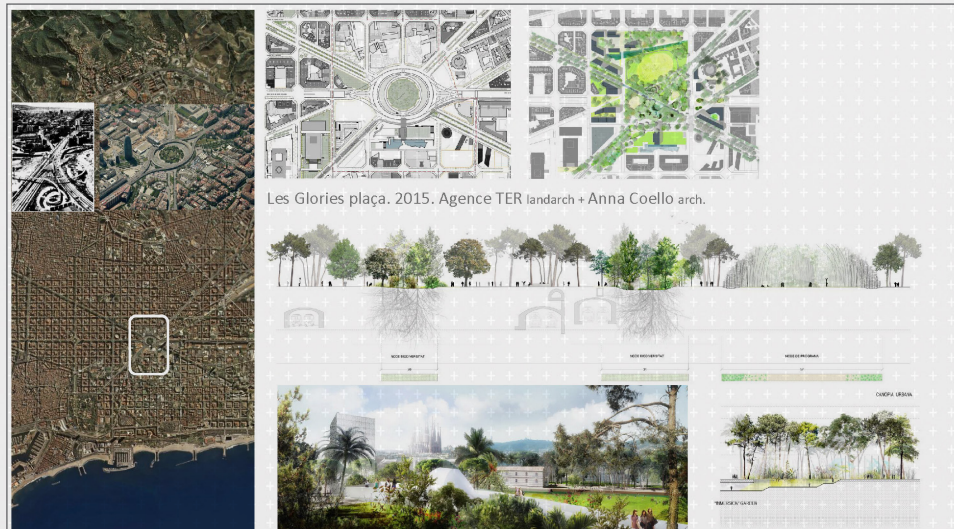
Diagonal Mar parc. 2004. Miralles + Tagliabue arch



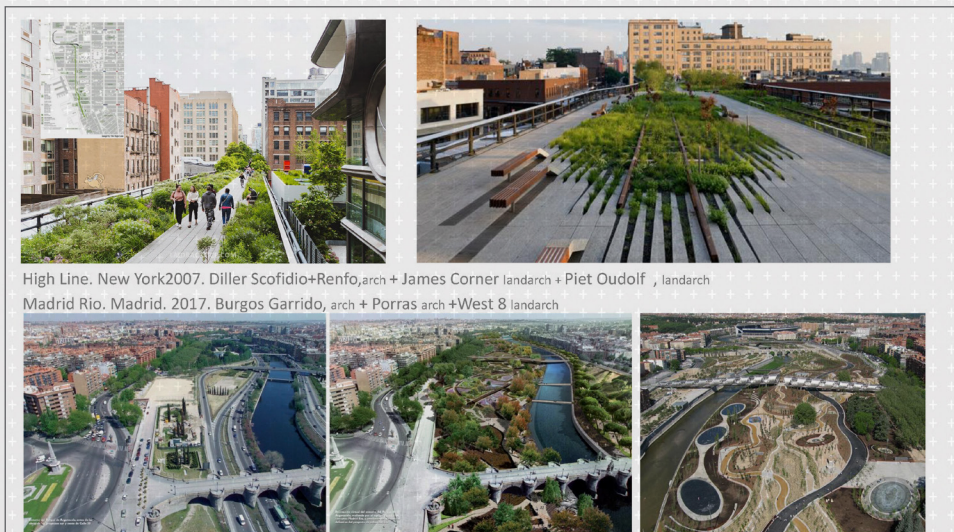
Montsalvatge park. 2007. Coll Leclerc arch



Sagrera lineal TGV park. 2011. AldayJover+ RCR, arch + West 8 landarch



Les Glories plaça. 2015. Agence TER landarch + Anna Coello arch.



High Line. New York 2007. Diller Scofidio+Renfo, arch + James Corner landarch + Piet Oudolf, landarch

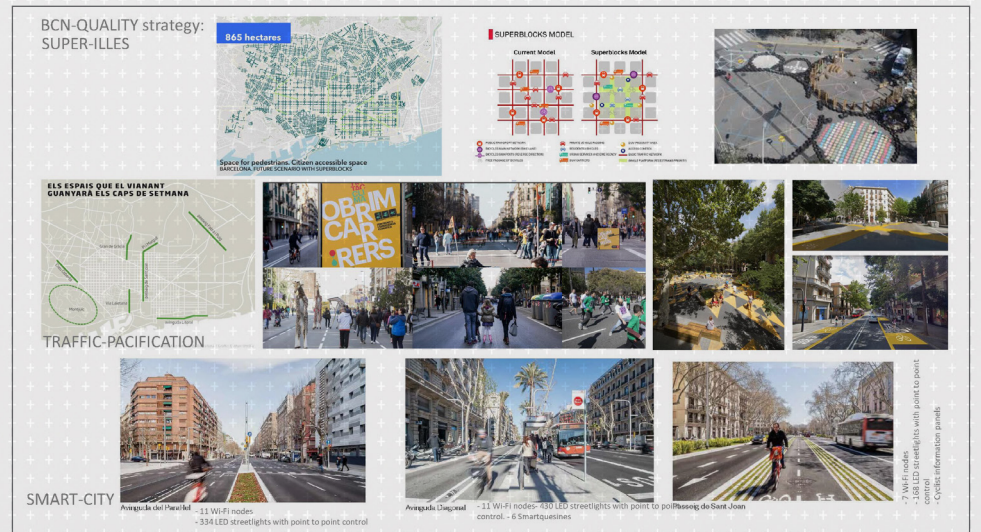
Madrid Río. Madrid. 2017. Burgos Garrido, arch + Porras arch + West 8 landarch



BCN strategy 1. PORTES COLLSEROLA



BCN-CONTINUITY strategy - BLOCK COURTYARDS



BCN-QUALITY strategy: SUPER-ILLES

EL ESPAI QUE EL VIAMANT GUANYARÀ ALS CAPS DE SETMANA

TRAFFIC-PACIFICATION

SMART-CITY

Avinguda del Pavelló - 11 Wi-Fi nodes - 334 LED streetlights with point to point control

Avinguda Diagonal - 11 Wi-Fi nodes - 430 LED streetlights with point to point control - 6 Smartquiesmes

7 Wi-Fi nodes  
100 LED streetlights with point to point control  
Cyclists information panels

## ART MOVEMENTS



ROMANESQUE

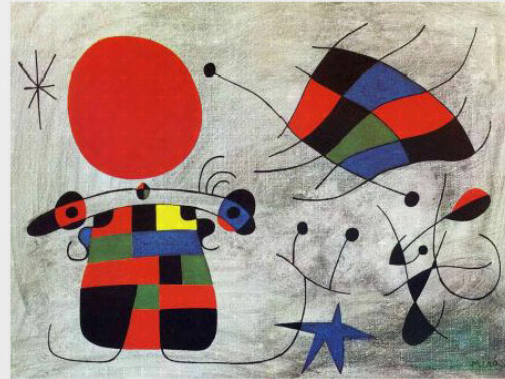


GOTHIC



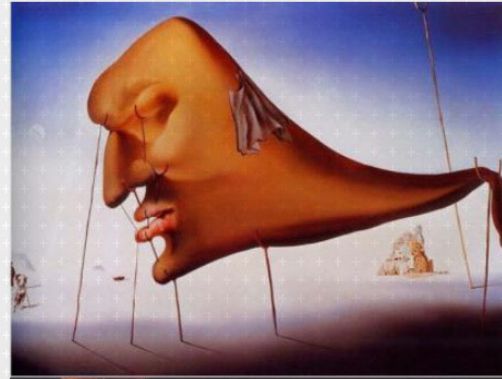
MODERNISME (ART NOUVEAU)

## ARTISTs:



JOAN MIRO

\_1893-1983  
FUNDACIO MIRO (BCN)



SALVADOR DALI

\_1904- 1989  
MUSEU DALI (Figueres)



PABLO PICASSO

\_1881 -1973  
CENTRO ARTE REINA SOFIA ( Madrid)



ANTONI TÀPIES

\_1923 -2012  
FUNDACIO ANTONI TAPIES (BCN)

## ARCHITECTS



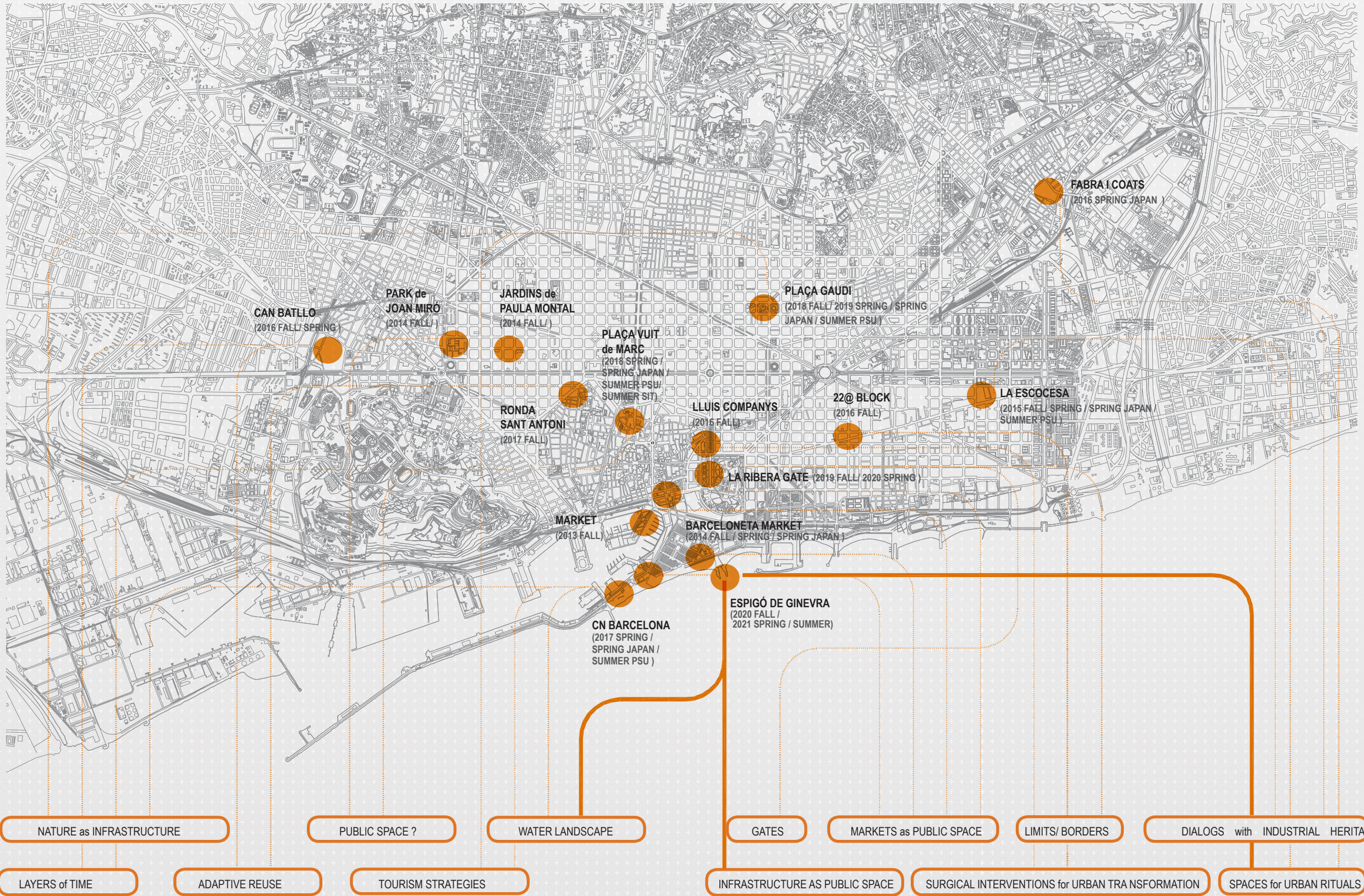
LLUÍS DOMÈNECH  
i MONTANER  
\_1850-1923

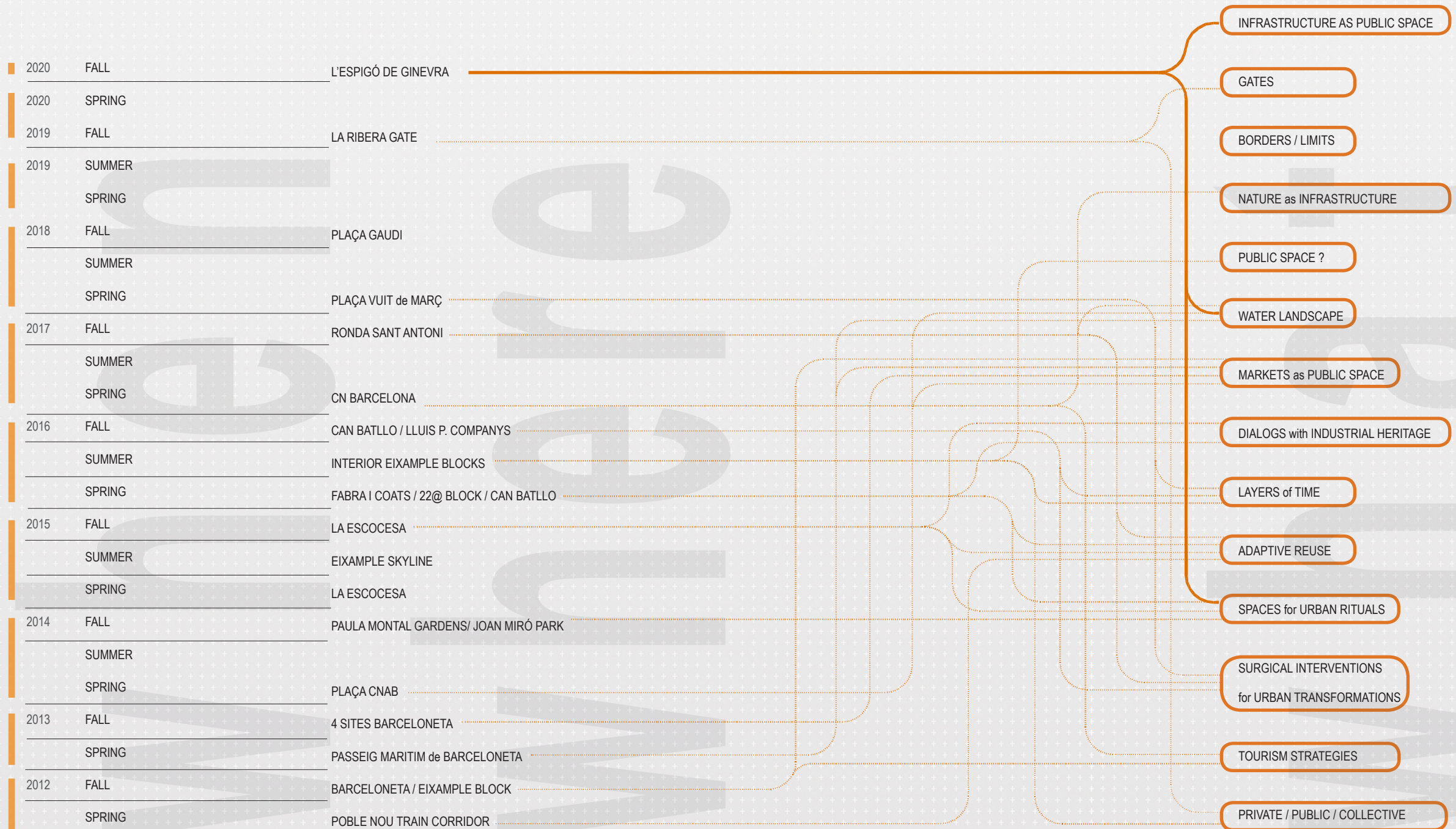


ANTONI GAUDÍ  
\_1852-1926



ENRIC MIRALLES  
\_1955- 2000





# 1. Barcelona Design Studio \_ project 1st phase

Fence / limits / the edge / the in-between condition / outside and inside are some of the titles of our First Design studio phase.

In order to understand our site of Ciutadella park, students have been analyzing the actual limit/ border conditions of Ciutadella Park, the 4 or better said 5 different conditions that is limiting the park nowadays.

Students are divided in groups of 10 (5 smaller teams of 2) and are asked to redesign the 5 border conditions of the park.

The exercise for this phase is to redesign one edge of the park per group of 2 joining the conceptual approach between the group of 10. In their fence design students are asked to focus on the limit fence path, geometry materiality, construction etc.

## Professors







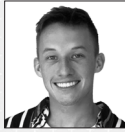















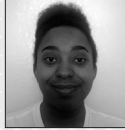


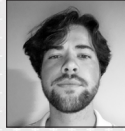





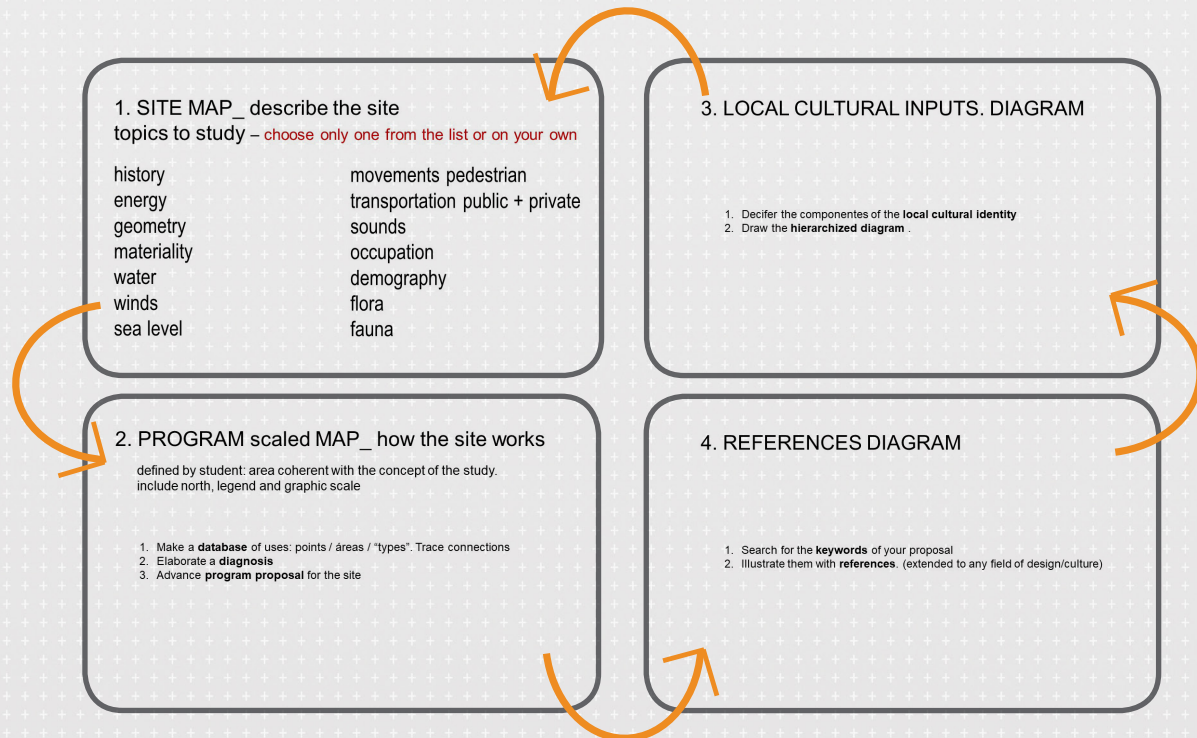
MIGUEL ROLDAN

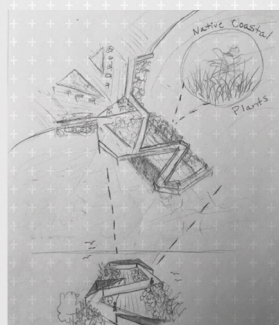
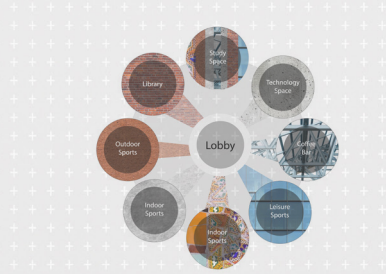
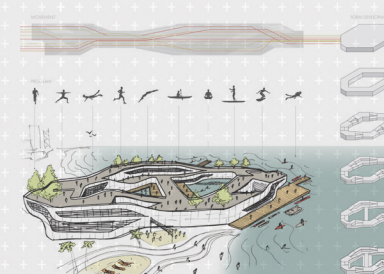
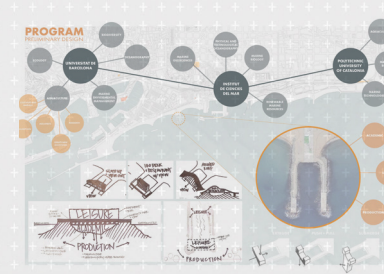
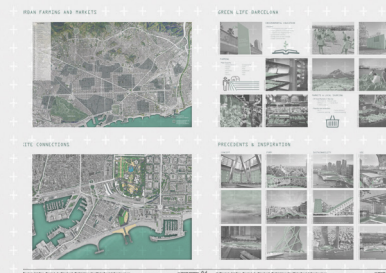
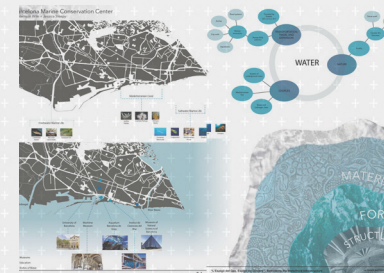
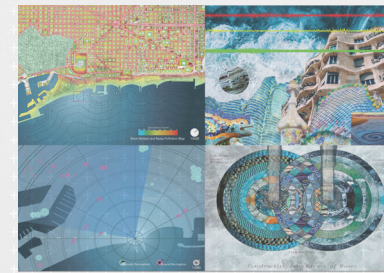
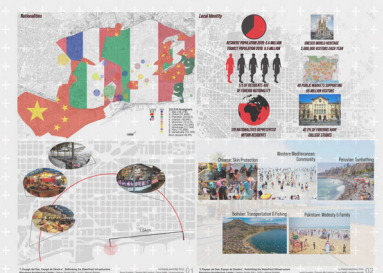
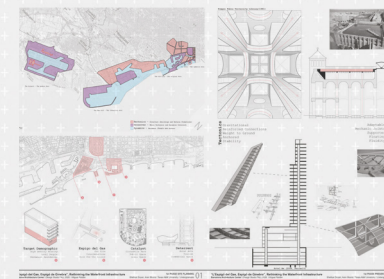
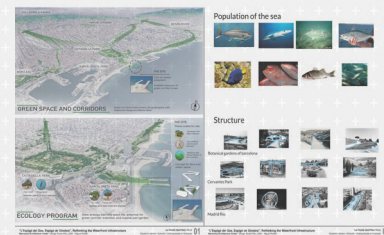
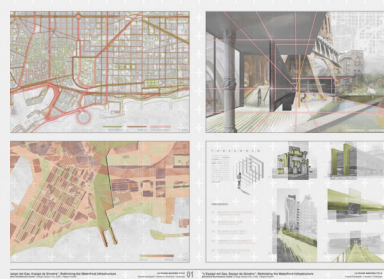


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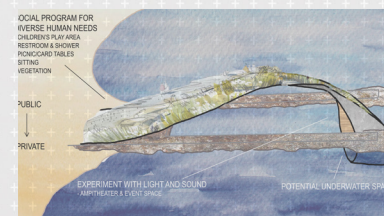
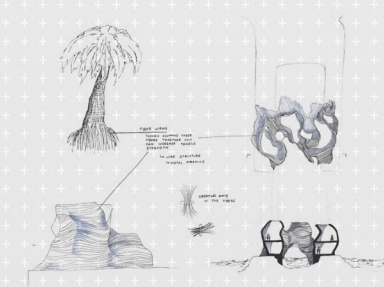
# Design Studio 1st phase: Student Teams

team 1	 Preston Reid Baird TAMU ARCH UG	 Alissa M Flores TAMU ARCH UG	 George R Hass TAMU ARCH UG	team 9	 Sahil P Shah TAMU ARCH UG	 Jesus Manuel Frias TAMU ARCH UG
team 2	 Dylan Giorgio CU ARCH UG	 Sam Andrew Monson CU ARCH UG		team 10	 India E Young CU ARCH UG	 Sergio D Espinoza TAMU ARCH UG
team 3	 Paige Ashworth CU ARCH UG	 Elaina D Vaughn CU LAND UG		team 11	 Timothy Fisher (Tim) CU ARCH UG	 Daniel Shin (Dan) CU ARCH UG
team 4	 Shelbye E Doyen TAMU ARCH UG	 Aren R Moore TAMU ARCH UG		team 12	 Jason Ariel Fuentes TAMU ARCH UG	 Thomas Patrick McCormick (Tommy) TAMU ARCH UG
team 5	 Jessica Steepy (Jess) CU ARCH UG	 Harrison R Wile CU ARCH UG		team 13	 Briana Savanah Cordova-Hyden (Bri) TAMU ARCH UG	 Hayden Joseph Holt CU LAND UG
team 6	 Mackenzie Rachel Cooley TAMU ARCH UG	 Antoinette E Henry TAMU ARCH UG		team 14	 Garrett J Schappell CU ARCH GRAD	
team 7	 Emanuel Diaz-Suarez TAMU ARCH UG	 Noah C. McCarter CU LAND UG		team 15	 Celia Gannaway CU ARCH GRAD TA	
team 8	 Jamal Smith CU ARCH UG	 Luis Horacio Guzman lguzman@clemsun.edu CU ARCH UG				

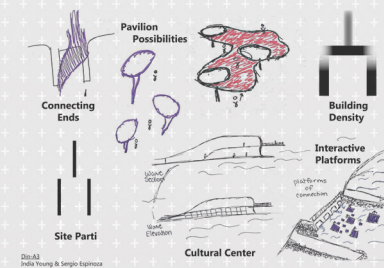




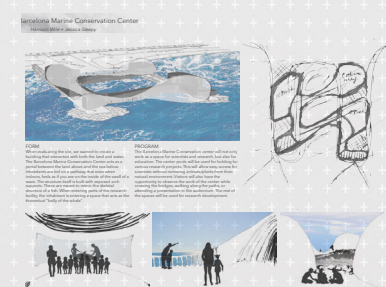
1st PHASE SKETCHES  
 "L'Espai del Mar. Espai de Ciutadans", Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miquel Roldán | Pau Bonet, Aïssa Flores, George Hoss | Tasse ASA



SOCIAL PROGRAM FOR DIVERSE HUMAN NEEDS  
 CHANGING PLAN AREA  
 RESTROOM & SHOWER  
 PORCH/CARD TABLES  
 SITTING  
 VEGETATION  
 PUBLIC  
 PRIVATE  
 EXPERIMENT WITH LIGHT AND SOUND  
 AMPHITHEATER & EVENT SPACE  
 POTENTIAL UNDERWATER SPACE



Pavilion Possibilities  
 Connecting Ends  
 Building Density  
 Interactive Platforms  
 Site Parti  
 Cultural Center



Barcelona Marine Conservation Center  
 Barcelona Marine Conservation Center



**TEAM 1**  
Celia Gannaway, Clemson University, Architecture Graduate

**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rodón

**RECLAIM THE COAST EXPERIENCE THE SEA**  
Celia Gannaway / Clemson University / Graduate

**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rodón

**RECLAIM THE COAST EXPERIENCE THE SEA**  
Celia Gannaway / Clemson University / Graduate

**TEAM 3**  
Hayden Joseph Holt, Clemson University, Landscape Undergraduate | Briana Cordova-Hyden, Texas A&M University, Architecture Undergraduate

**GREEN SPACE AND CORRIDORS**  
Green corridors interconnect city greenspace with Collserola Range and Besòs River

**POPULATION OF THE SEA**

**Structure**

**THE SITE**  
Plants suited for site  
European Fan Palm (Native)  
Sea Daffodil (Salt & water tolerant)  
Mediterranean Sea Olive (Native & salt tolerant)  
Concept for flora and visitor space

**ECOLOGY PROGRAM**  
Sites ecology has little plant life, potential for green corridor extension and coastal pier/garden  
Native and salt tolerant plants

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**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
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**TEAM 2**  
Garrett J Schappell, Clemson University, Architecture Graduate

**THRESHOLDS**  
THRESHOLDS - BARCELONA

**PRECEDENTS**

**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rodón

**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rodón

**TEAM 4**  
Jason Ariel Fuentes, Texas A&M University, Architecture Undergraduate | Thomas McCormick, Texas A&M University, Architecture Undergraduate

**Nationalities**

**Local Identity**

**RESIDENT POPULATION 2019: 5.6 MILLION**  
**TOURIST POPULATION 2019: 9.5 MILLION**

**UNESCO WORLD HERITAGE**  
3,000,000 VISITORS EACH YEAR

**40 PUBLIC MARKETS SUPPORTING**  
65 MILLION VISITORS

**179 NATIONALITIES REPRESENTED**  
WITHIN RESIDENTS

**42.2% OF FOREIGNERS HAVE**  
COLLEGE STUDIES

**333,516 foreigners**

1. Italy (25,274)
2. China (21,026)
3. France (16,340)
4. Pakistan (14,843)
5. Colombia (14,418)
6. Honduras (11,744)
7. Peru (11,054)
8. Venezuela (10,185)
9. Born abroad (49.8%)

**Chinese: Skin Protection**

**Western Mediterranean: Community**

**Peruvian: Sunbathing**

**Bolivian: Transportation & Fishing**

**Pakistani: Modesty & Family**

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**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rodón

TEAM 5

Daniel Shin, Clemson University, Architecture Undergraduate | Timothy Fisher, Clemson University, Architecture Undergraduate



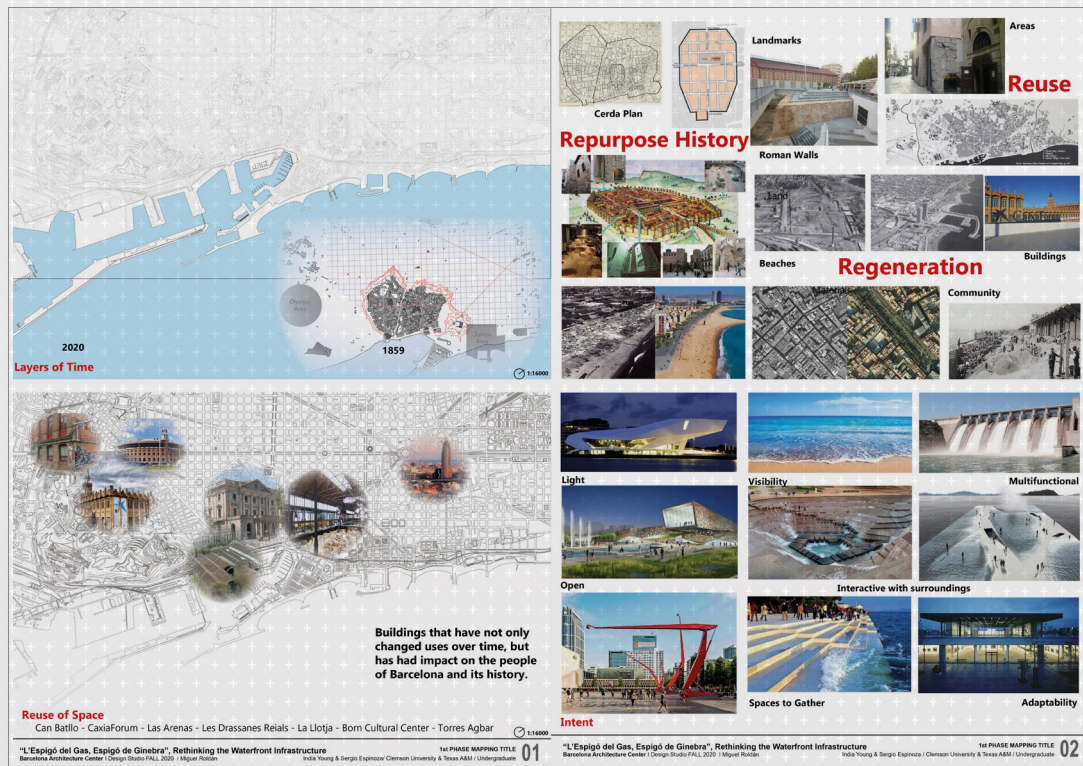
TEAM 7

Sahil P Shah, Texas A&M University, Architecture Undergraduate | Jesus Manuel Frias, Texas A&M University, Architecture Undergraduate



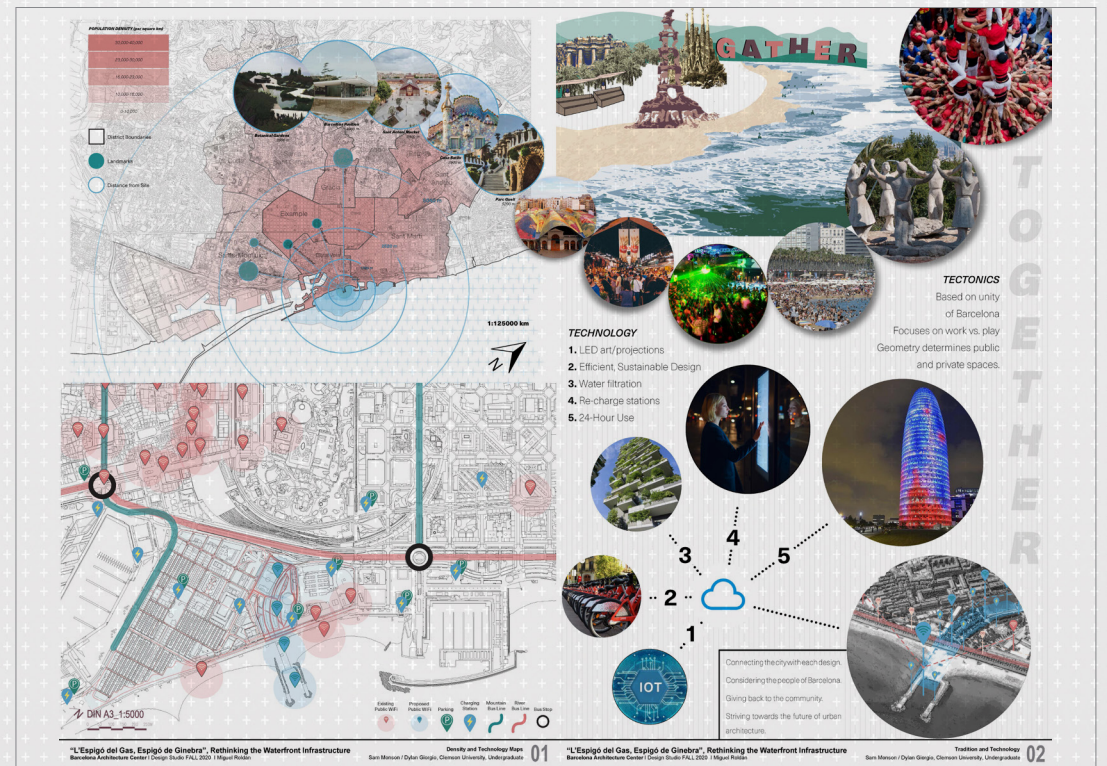
TEAM 6

India E Young, Clemson University, Architecture Undergraduate | Sergio D Espinoza, Texas A&M University, Architecture Undergraduate



TEAM 8

Dylan Giorgio, Clemson University, Architecture Undergraduate | Sam Andrew Monson, Clemson University, Architecture Undergraduate



TEAM 9

Emanuel Diaz-Suarez, Texas A&M University, Architecture Undergraduate | Noah C. McCarter, Clemson University, Landscape Undergraduate

**TEAM 9**  
Emanuel Diaz-Suarez, Texas A&M University, Architecture Undergraduate | Noah C. McCarter, Clemson University, Landscape Undergraduate

**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Roldán

**1st PHASE MAPPING TITLE** 01  
Noah C. McCarter / Emanuel Diaz-Suarez / Clemson / TAMU / Undergraduate

TEAM 11

Shelby E Doyen, Texas A&M University, Architecture Undergraduate | Aren R Moore, Texas A&M University, Architecture Undergraduate

**TEAM 11**  
Shelby E Doyen, Texas A&M University, Architecture Undergraduate | Aren R Moore, Texas A&M University, Architecture Undergraduate

**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Roldán

**1st PHASE SITE PLANNING** 01  
Shelby Doyen, Aren Moore / Texas A&M University / Undergraduate

**1st PHASE PRESENTATION** 02  
Shelby Doyen, Aren Moore / Texas A&M University / Undergraduate

TEAM 10

Mackenzie Rachel Cooley, Texas A&M University, Architecture Undergraduate | Antoinette E Henry, Texas A&M University, Architecture Undergraduate

**TEAM 10**  
Mackenzie Rachel Cooley, Texas A&M University, Architecture Undergraduate | Antoinette E Henry, Texas A&M University, Architecture Undergraduate

**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Roldán

**1st PHASE MAPPING TITLE** 01  
Student's names / Schools / Undergraduate or Graduate

**1st PHASE MAPPING TITLE** 02  
Student's names / Schools / Undergraduate or Graduate

TEAM 12

Paige Ashworth, Clemson University, Architecture Undergraduate | Elaina D Vaughn, Clemson University, Landscape Undergraduate

**TEAM 12**  
Paige Ashworth, Clemson University, Architecture Undergraduate | Elaina D Vaughn, Clemson University, Landscape Undergraduate

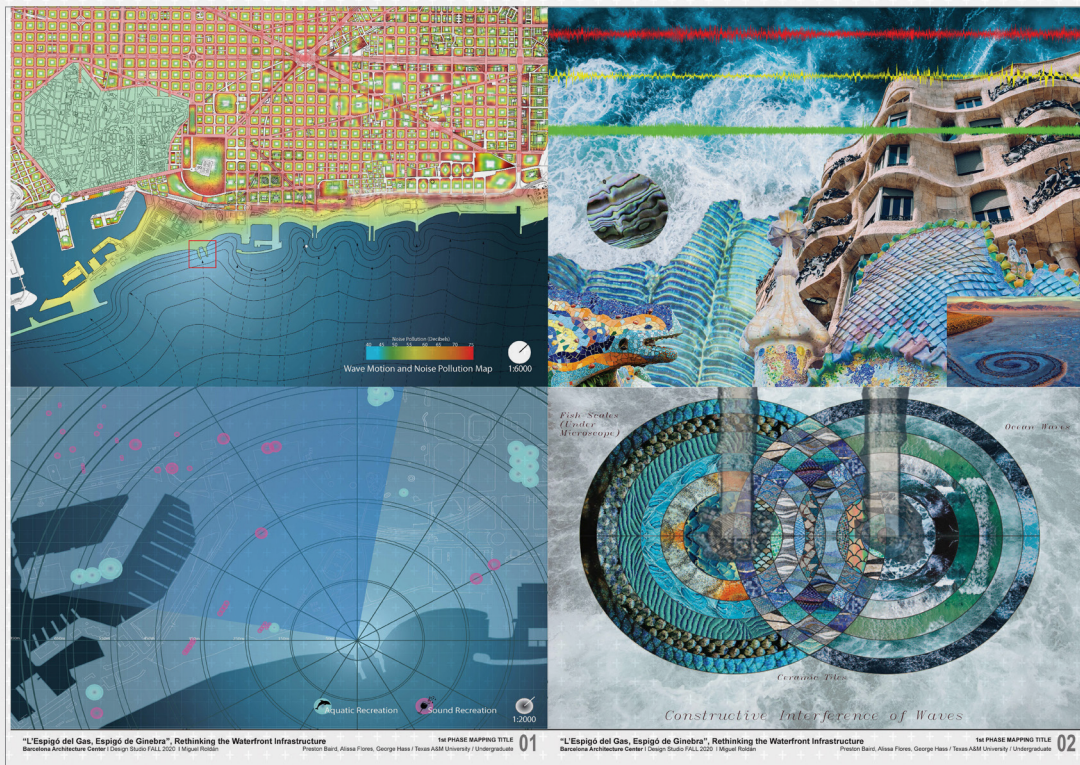
**"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure**  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Roldán

**1st PHASE SITE MAP** 01  
Elaina Vaughn and Paige Ashworth / Clemson University / Undergraduate

**1st PHASE CULTURAL CONNECTIONS DIAGRAM** 02  
Paige Ashworth and Elaina Vaughn / Clemson University / Undergraduate

TEAM 13

Preston Reid Baird | Alissa M Flores | George R Hass Texas A&M University, Architecture Undergraduate



"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
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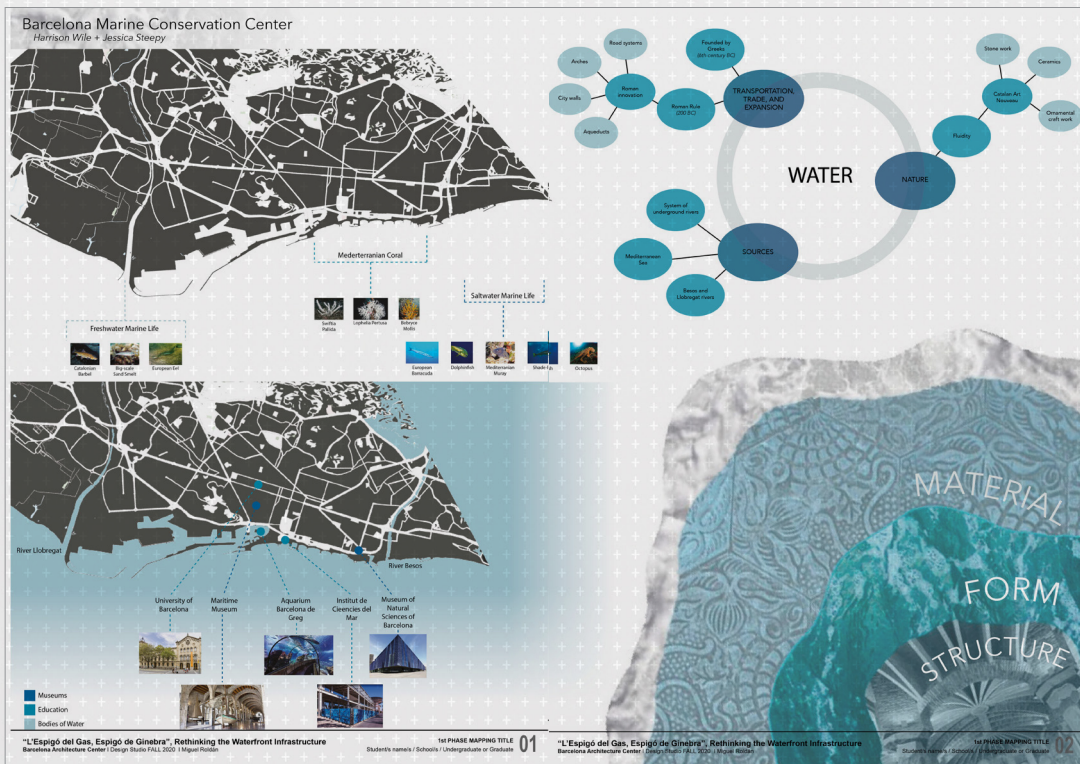
1st PHASE MAPPING TITLE  
Preston Baird, Alissa Flores, George Hass | Texas A&M University | Undergraduate 01

"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Roldán

1st PHASE MAPPING TITLE  
Preston Baird, Alissa Flores, George Hass | Texas A&M University | Undergraduate 02

TEAM 14

Jessica Steepy, Clemson University, Architecture Undergraduate | Harrison R Wile, Clemson University, Architecture Undergraduate



"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
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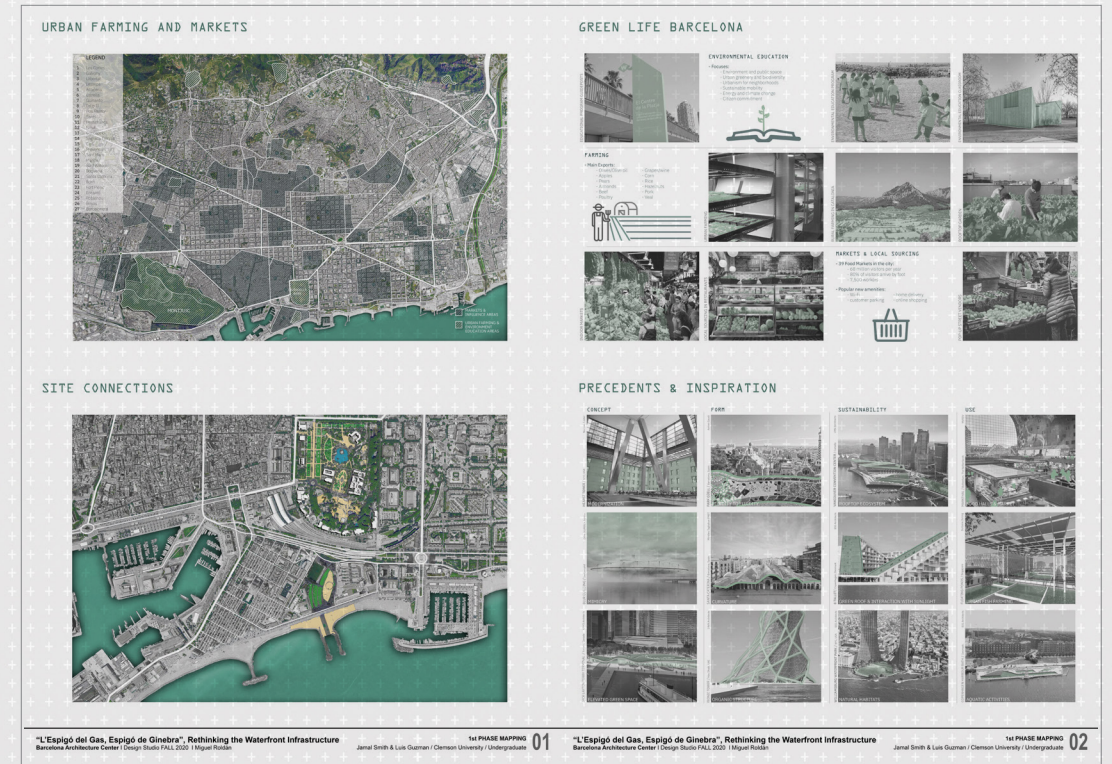
1st PHASE MAPPING TITLE  
Students' names | Schools | Undergraduate to Graduate 01

"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Roldán

1st PHASE MAPPING TITLE  
Students' names | Schools | Undergraduate to Graduate 02

TEAM 15

Jamal Smith, Clemson University, Architecture Undergraduate | Luis Horacio Guzman, Clemson University, Architecture Undergraduate



"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Roldán

1st PHASE MAPPING  
Jamal Smith & Luis Guzman | Clemson University | Undergraduate 01

"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Roldán

1st PHASE MAPPING  
Jamal Smith & Luis Guzman | Clemson University | Undergraduate 02

# 1. Barcelona Design Studio \_ project 2nd phase

Professors



MIGUEL ROLDAN



ZANA BOSNIC

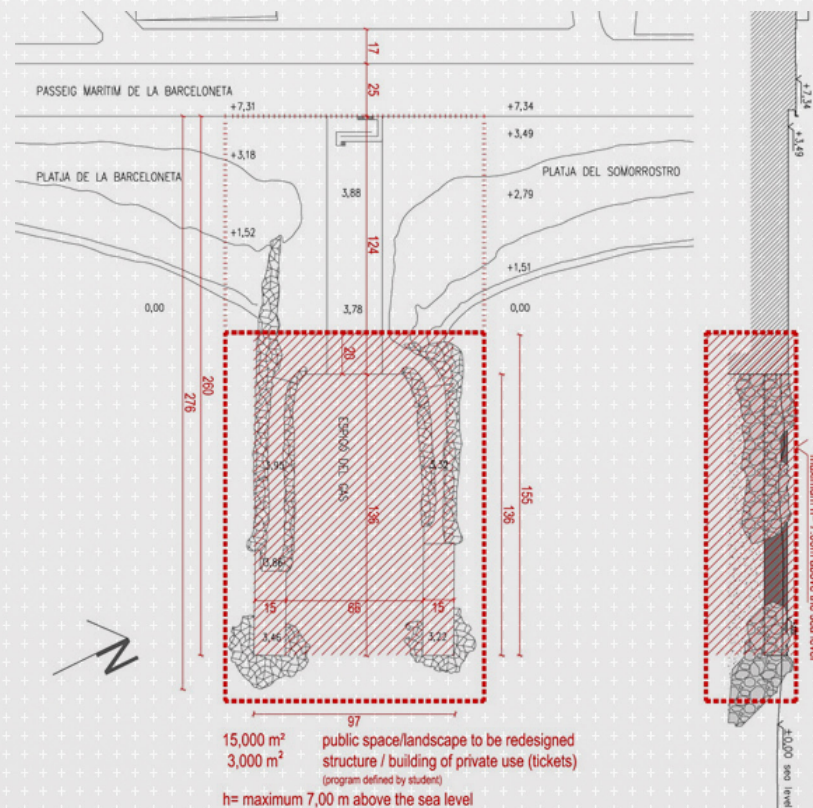
## 6. Program

- . Public space (program activities to be defined by students) 15,000 m<sup>2</sup>
- . Private use space (tickets entrance-build or unbuilt /program activities to be defined by students) maximum surface 3,000 m<sup>2</sup>
- . Volume limitations: none
- . Maximum high 7,00m (same elevation as Passeig Maritim above the sea level de la Barceloneta).

Exceptions to this rule will be discussed in class.

## Conditions

- . The public space maintenance and consumptions together with the building should be nZEB (nearly Zero-Energy Building), requiring very low needs of energy in its operation and production of renewable energy. Preeminent use of the natural light in all interiors is suggested.
- . Any transformation or construction process should be planned with low Grey-Energy expense, taking in account all the construction processes: the demolition of the existing elements, the excavation, the construction of the new volume.
- . Use of renewable, recycled, local and sustainable materials is mandatory. An ecological and local approach on the selection of the materials (structure, roof...) and species (trees, plants), both for the building and the public space is also compulsory.



This FALL 2020 Barcelona Design Studio have confronted with the following questions which might be divided in different scales/titles:

### A. 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?

### B. 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?



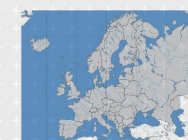
### C. Architecture scale

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?

## D. DESIGN STUDIO

T O P I C S : COMPLEXITY

EUROPEAN CULTURE

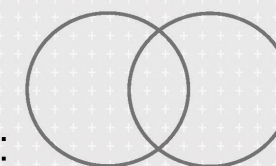


- 1. OBJECT s ... SITE s
- 2. OBJECT s ... EFFECT s
- 3. SHAPE s ... ARCHITECTURE s

## D. DESIGN STUDIO

T O P I C S :

MEDITERRANEAN SEA CULTURE



- 1. PUBLIC / PRIVATE... COLECTIVENESS
- 2. IN / OUT..... IN BETWEEN
- 3. OLD / NEW..... LAYERs

# Design Studio 2nd phase: Student Teams

group 1



**Dylan Giorgio**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD



**Sam Andrew Monson**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD

group 8



**Garrett J Schappell**  
CLEMSON UNIVERSITY  
ARCH GRAD

group 15



**Celia Gannaway**  
CLEMSON UNIVERSITY  
ARCH GRAD\_TA

group 2

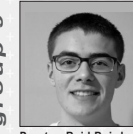


**Mackenzie Rachel Cooley**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD

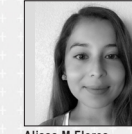


**Antoinette E Henry**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD

group 9



**Preston Reid Baird**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD



**Alissa M Flores**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD



**George R Hass**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD

group 3



**Emanuel Diaz-Suarez**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD



**Noah C. McCarter**  
CLEMSON UNIVERSITY  
LANDSCAPE UNDERGRAD

group 10



**Paige Ashworth**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD



**Elaina D Vaughn**  
CLEMSON UNIVERSITY  
LANDSCAPE UNDERGRAD

group 4



**Timothy Fisher (Tim)**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD



**Daniel Shin (Dan)**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD

group 11



**Jason Ariel Fuentes**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD



**Thomas Patrick McCormick (Tommy)**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD

group 5



**Jessica Steepy (Jess)**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD



**Harrison R Wile**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD

group 12



**Sergio D Espinoza**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD

group 6



**Shelbye E Doyen**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD



**Aren R Moore**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD

group 13



**Hayden Joseph Holt**  
CLEMSON UNIVERSITY  
LANDSCAPE UNDERGRAD



**Luis Horacio Guzman**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD

group 7



**Sahil P Shah**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD



**Jesus Manuel Frias**  
TEXAS A&M UNIVERSITY  
ARCH UNDERGRAD

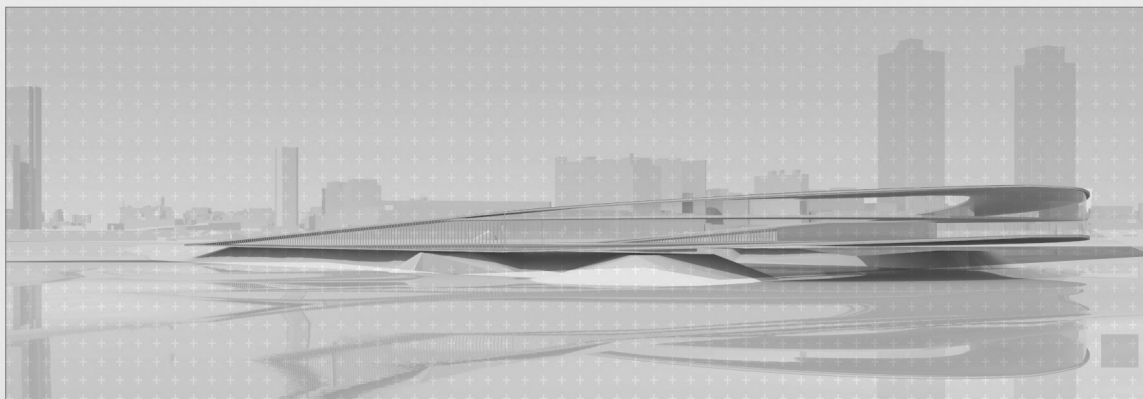
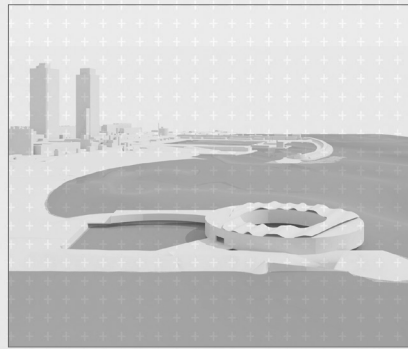
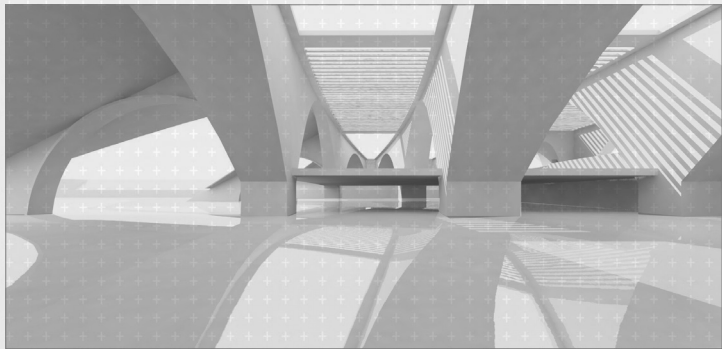
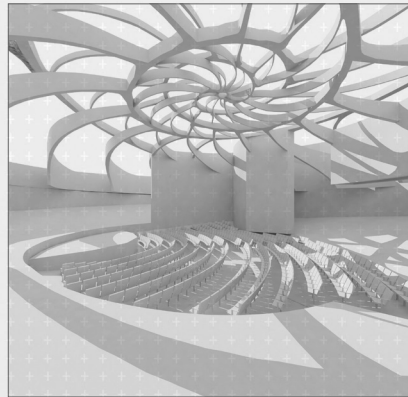
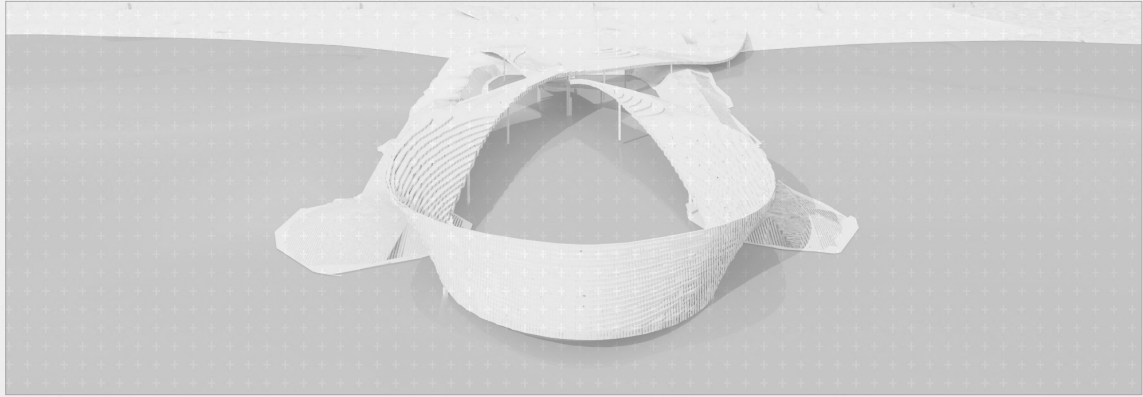
group 14



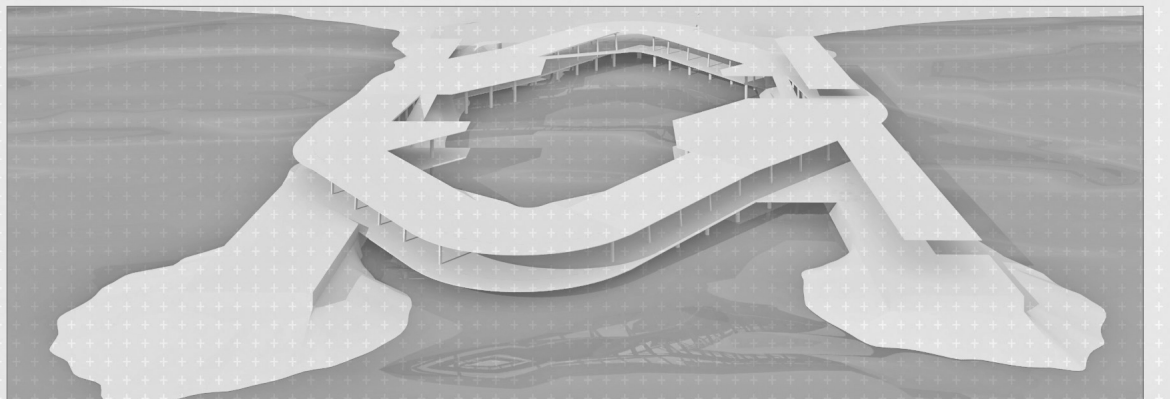
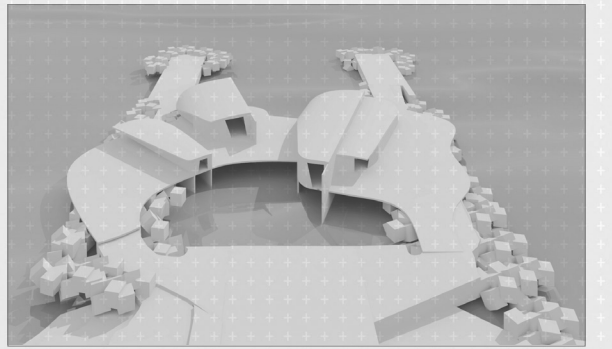
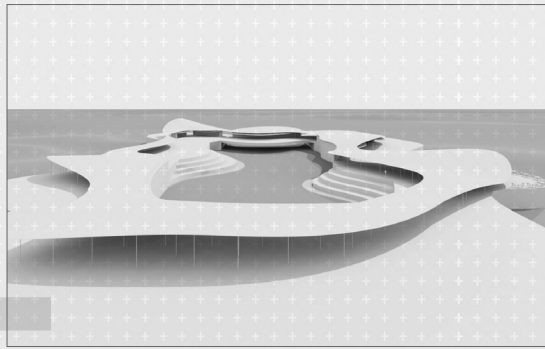
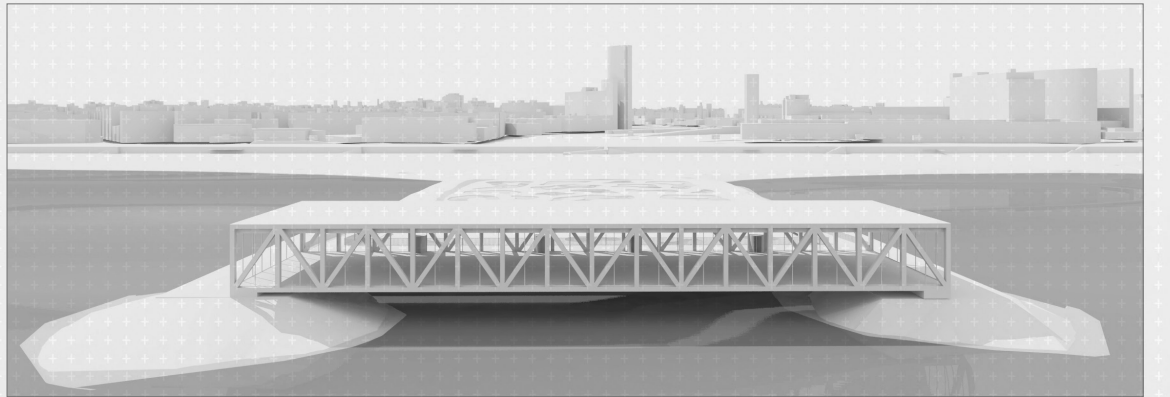
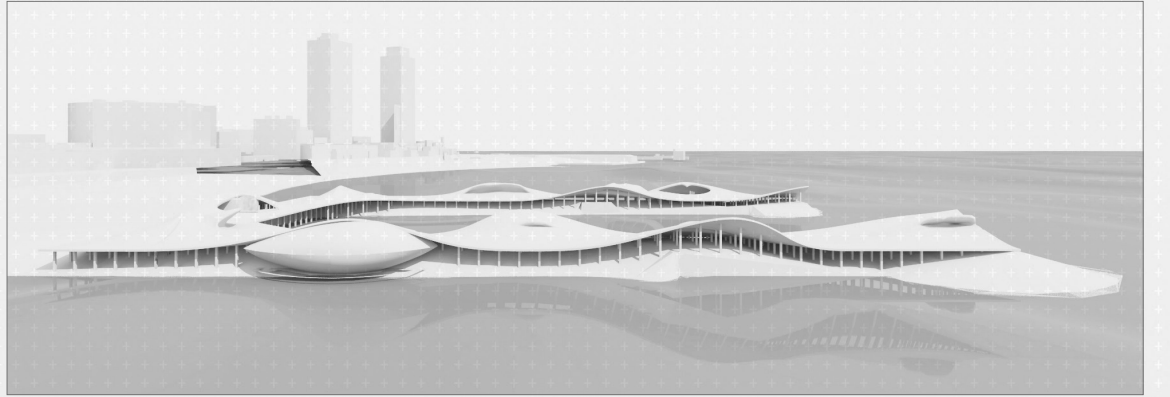
**India E Young**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD

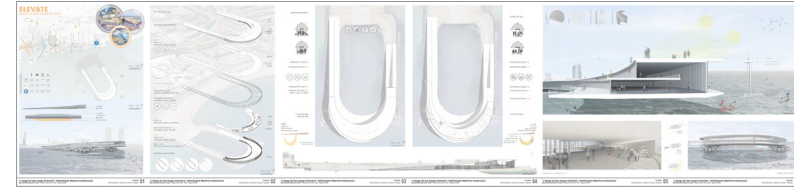
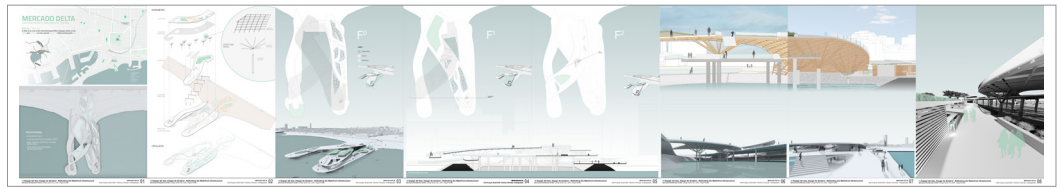
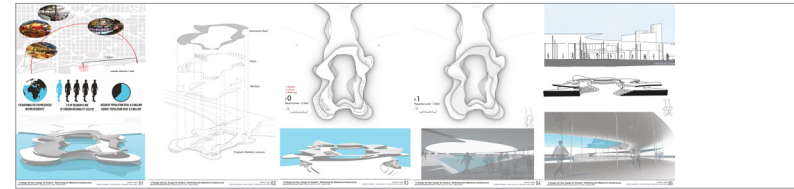
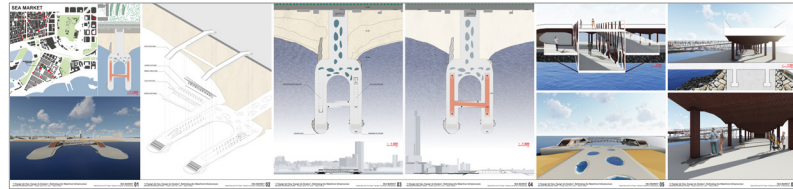
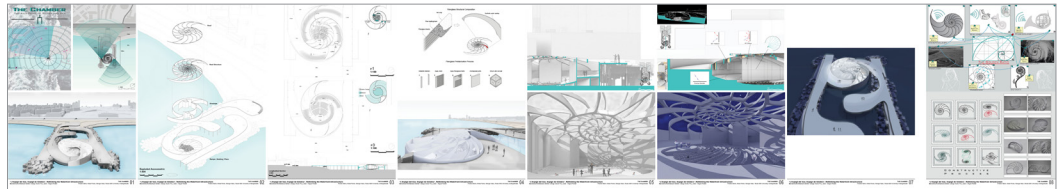
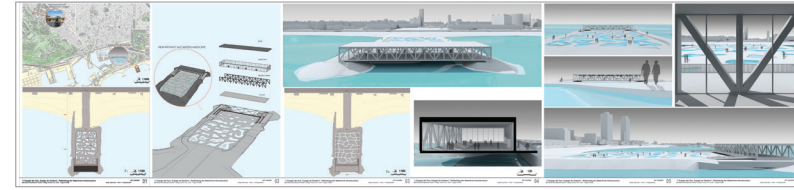
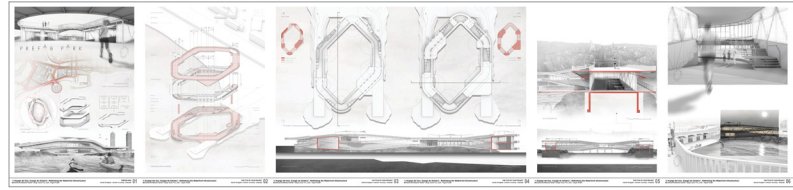
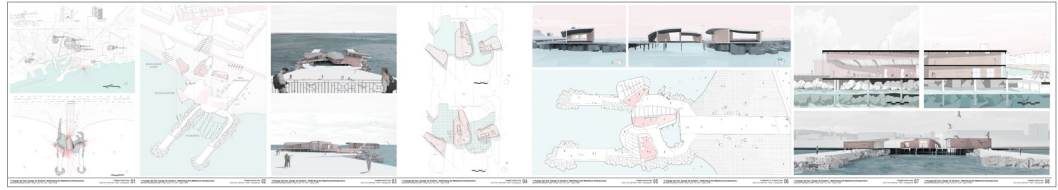
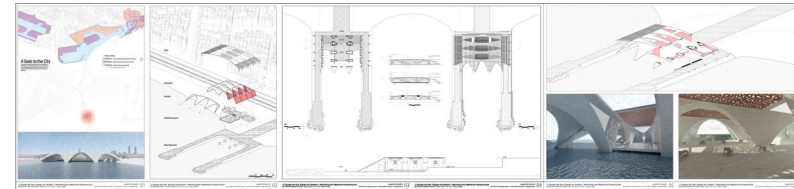
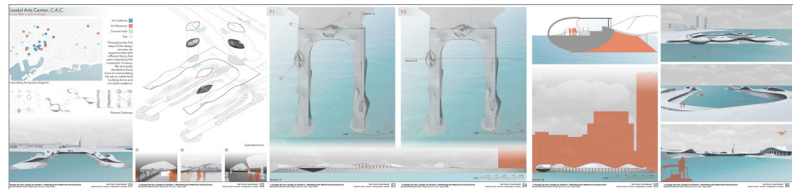
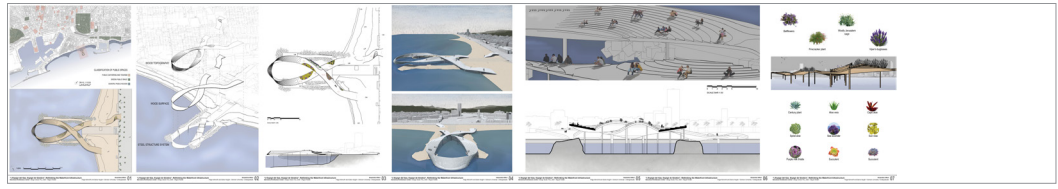
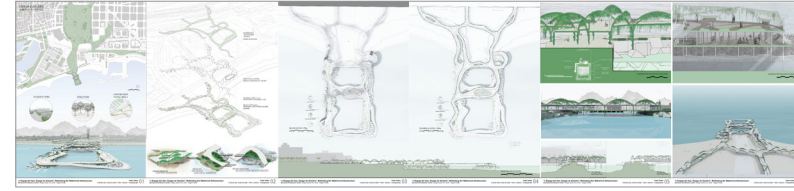
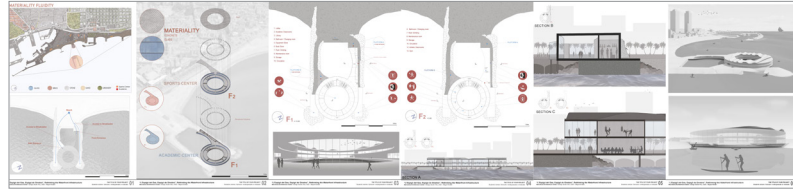


**Jamal Smith**  
CLEMSON UNIVERSITY  
ARCH UNDERGRAD



# in processes







design studio projects \_drawing with hands



# SMART SEA

Dylan Giorgio, Clemson University, Architecture Undergraduate  
 Sam Andrew Monson, Clemson University, Architecture Undergraduate

Welcome to Smart Sea, an innovative public space for the coast of Barcelona. Utilizing technology and tectonics in its design, Smart Sea brings the sea to the city and the city back to the sea.

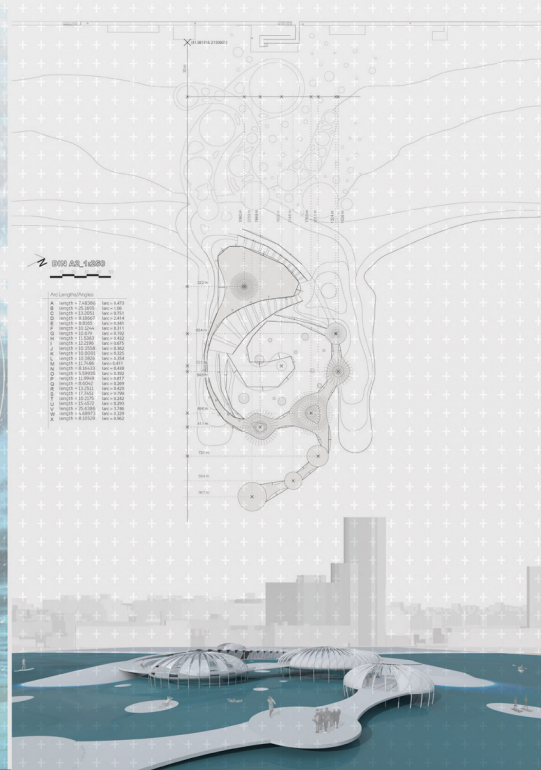
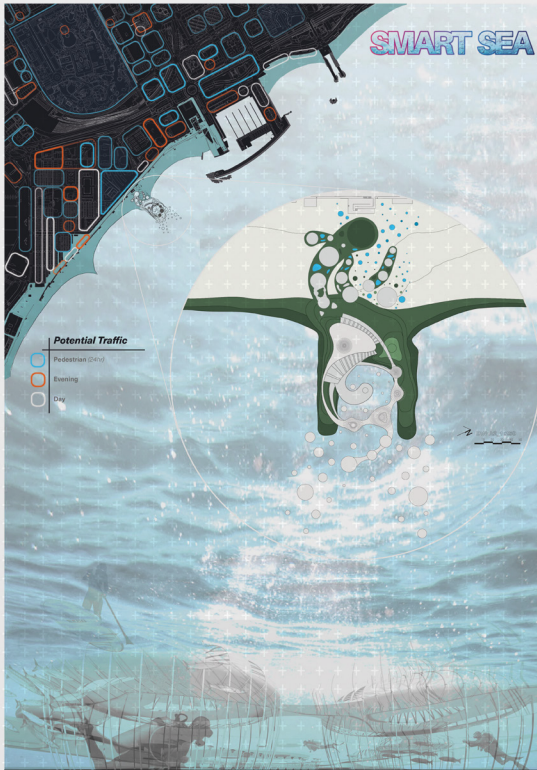
The space doubles as a smart hub for workers and a hangout for people in the area. On top of that, it is accessible 24 hours a day, making it unique to the Catalan coast.

Smart sea, though being a complex design, promotes motion and interaction. While part of this is thanks to the tectonics of the paths, openings, and gathering areas, the technology used in the project is what makes it whole. Since Barcelona is one of the leaders in Smart City technology, we decided it was important to bring the smart to the sea as well. So through materiality, eco-friendliness, natural life, and even robots, Smart Sea makes it happen.

What makes a space welcoming for 24 hours? We think it's a mix between activities and light. The latter is one of the most prominent within this project. Using ETFE surfaces and colored gas, the domes that hover over the sea illuminate the water and sky at night. In addition, the water in the confines of the site are brought to life with bioluminescent marine-life, making for a spectacular night swim.

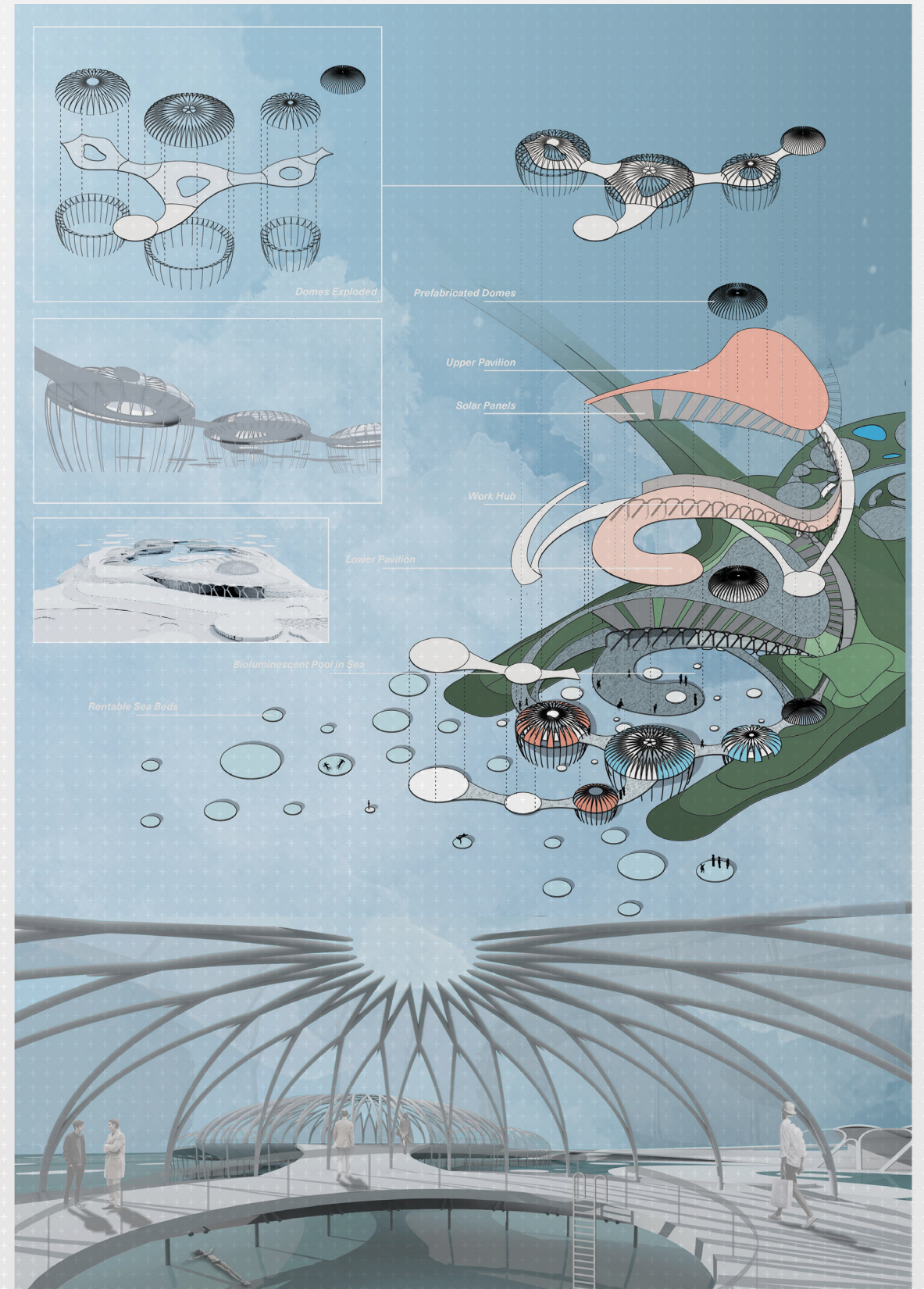
Worried about swimming in gunky water? Smart Sea solves this issue too. In the design process, we chipped away from the breakwaters that are important for the coast. In doing this, we knew we had to give back in a better way; we solved this with the design of Sea Beds. During the day, these floating surfaces (guided by subnautic robots), drift into the sea and clean the water using smart filter technology. At night, they retract into the original breakwater's form. These beds can also be rented on-site to those looking for a more immersive experience with the sea.

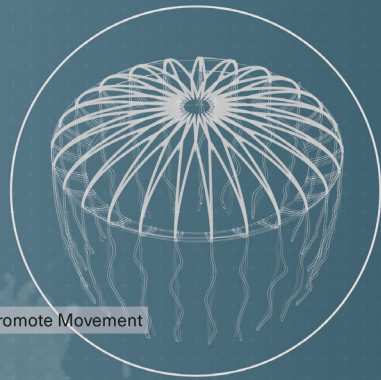
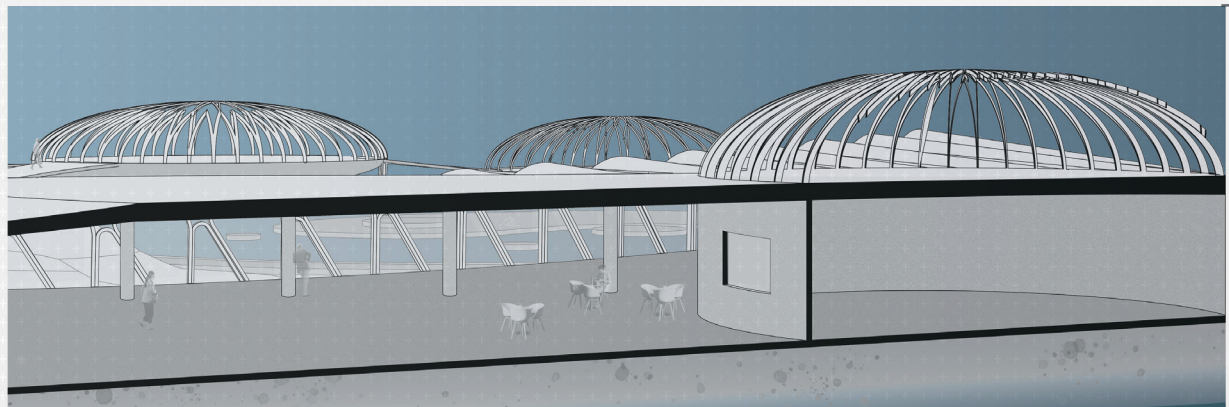
Whether you want to tan, do yoga, have lunch, or just relax, a Sea Bed can be the perfect escape. And whether you need a break from work, a space to work, or place to gather, Smart Sea is the way to do it.



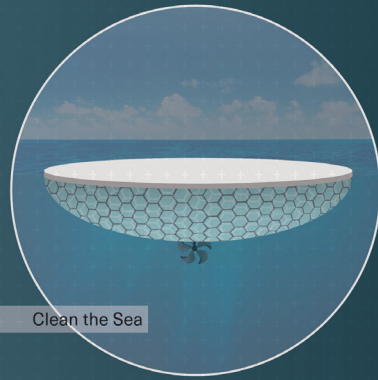
"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio: Fall, 2020 | Miguel Roldán  
 Dylan Giorgio & Sam Monson | Clemson University | Undergraduate SMART SEA 01

"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
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 Dylan Giorgio & Sam Monson | Clemson University | Undergraduate SMART SEA 07





Promote Movement



Clean the Sea



F0  
At 1:500  
level 1

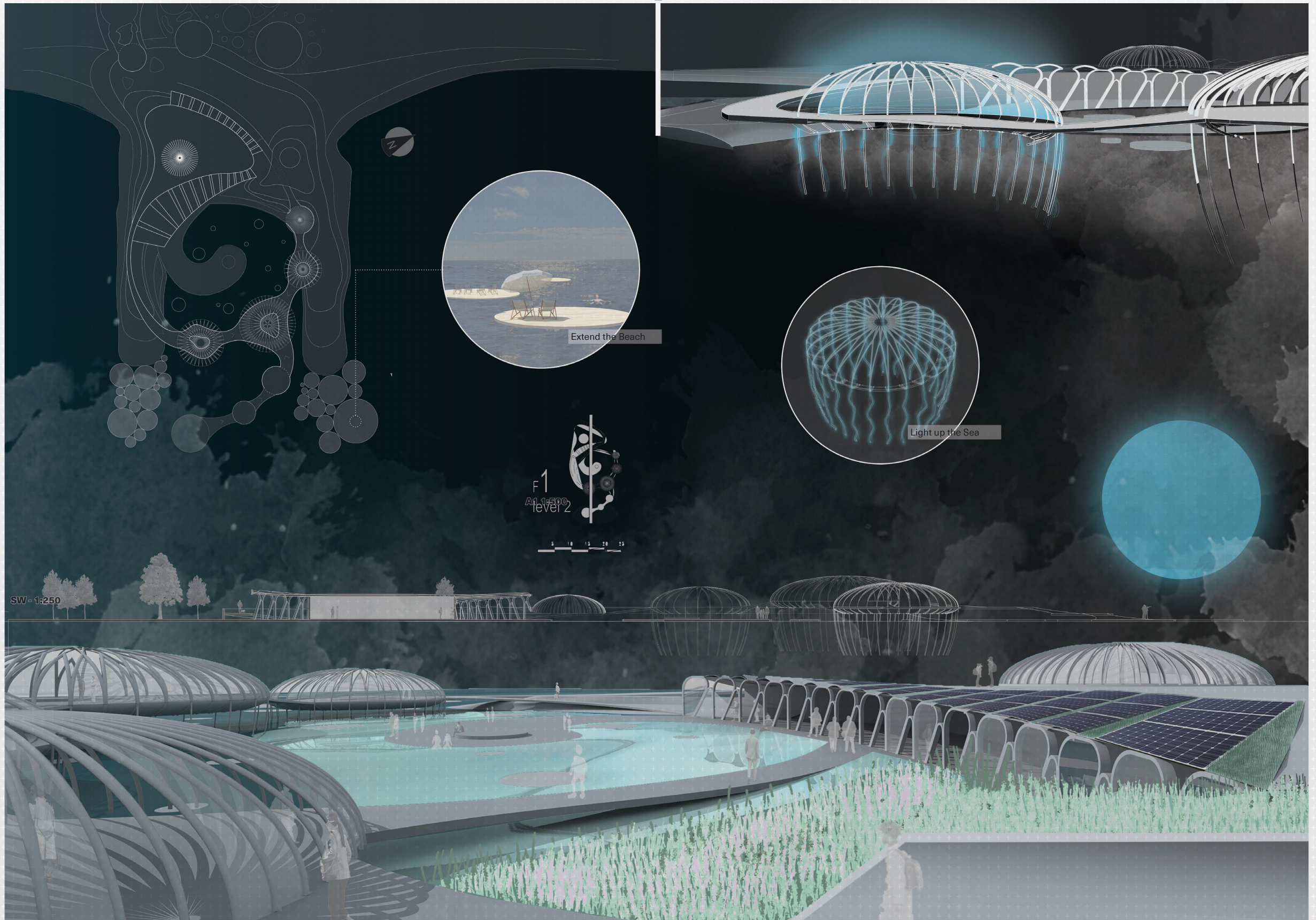


SE - 1:250



**AS DAY TURNS TO NIGHT**, SMART SEA ADAPTS. TO INSURE IT'S ACCESSIBILITY, UTILITY, AND SAFETY DURING SLEEPING HOURS, THE SITE IS ILLUMINATED BY THE ETFE SURFACES AND BIOLUMINESCENT WATER. SWIMMING IS NO LONGER SOLELY A DAY ACTIVITY IN BARCELONA.



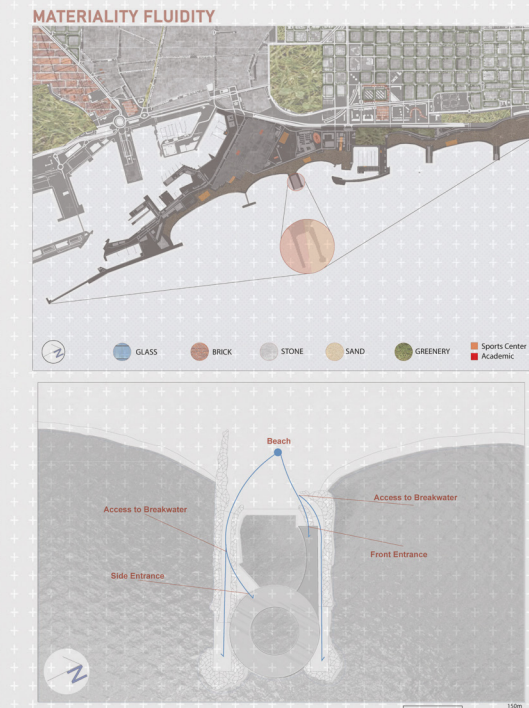
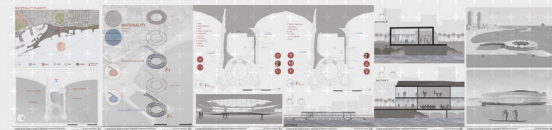


# MATERIALITY FLUIDITY

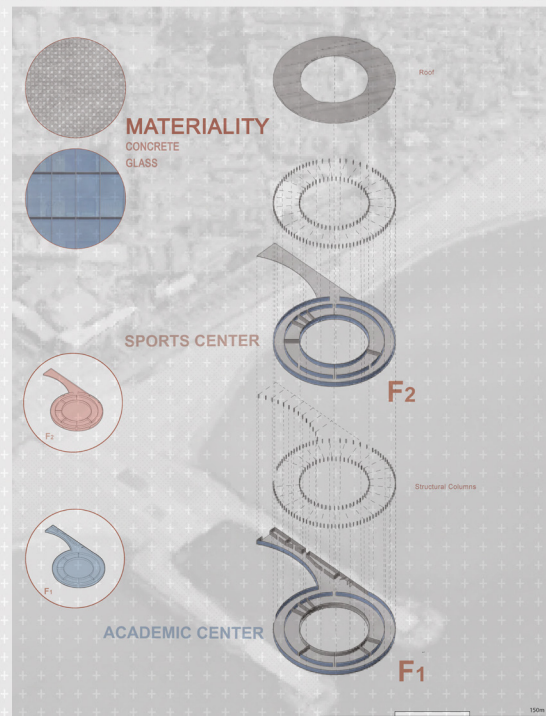
Mackenzie Rachel Cooley, Texas A&M University, Architecture Undergraduate  
 Antoinette E Henry, Texas A&M University, Architecture Undergraduate

Barcelona contains a fair amount of sports and academic facilities, but they are all spaced out along the coast. Our goal was to incorporate the ideas of having both an academic and sports center in the same place that includes both activities while also condensing the coast into one area. The building is situated on the edge of the breakwater closest to the Mediterranean Sea, composed of a cylindrical shape with a curved arm extending out towards the beach. This extrusion allows our building to be connected to that of the beach, where an outside workout area is already located. This connection is important in order to establish that connection with the locals of Barcelona. The building, which is a cylindrical shape, allows for a fluidity of motion in both program and movement inside. The roof is curved to further emphasize the point of fluidity, with it being open at the northeast side and closing towards the southwest area.

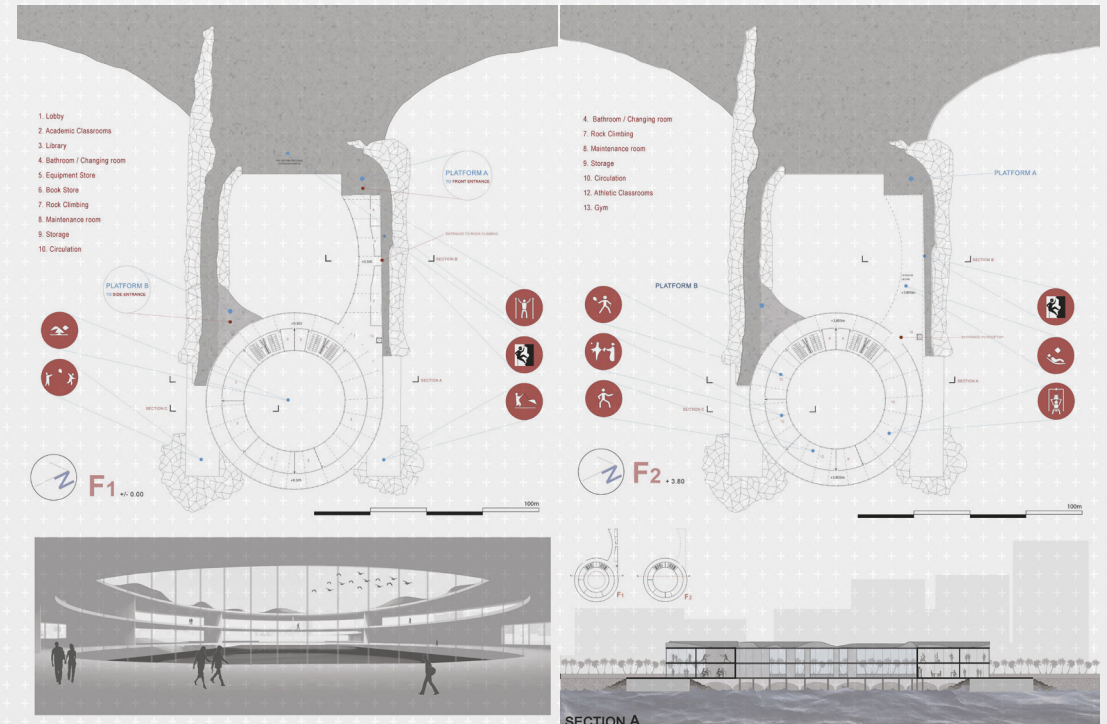
The program, being separated by floor, are divided into different rooms separated by concrete walls with the academic portion being on the first floor and the sports portion being on the second floor. The innermost part of the circular shape contains the area where the programs are, leaving the outermost part free with plenty of space for interaction between occupants. Concrete is used for the materiality because it emphasizes the liquidity by casting it with a pattern that would imitate water and the bubbles water creates. It also creates for a more flexible and fluid design of our project. A curtain wall made out of glass wrapping around the facade of the building gives it a sense of openness and freedom, with 360 views to experience everything Barcelona has to offer.



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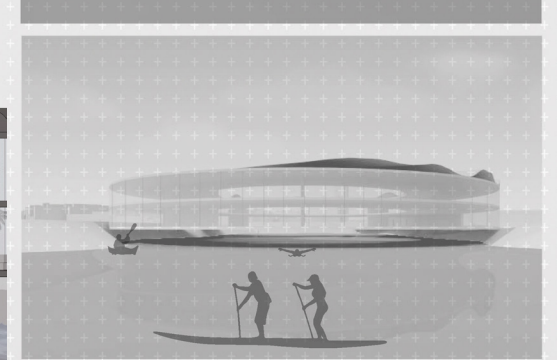
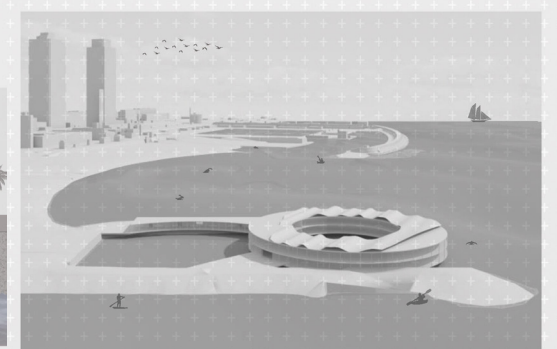


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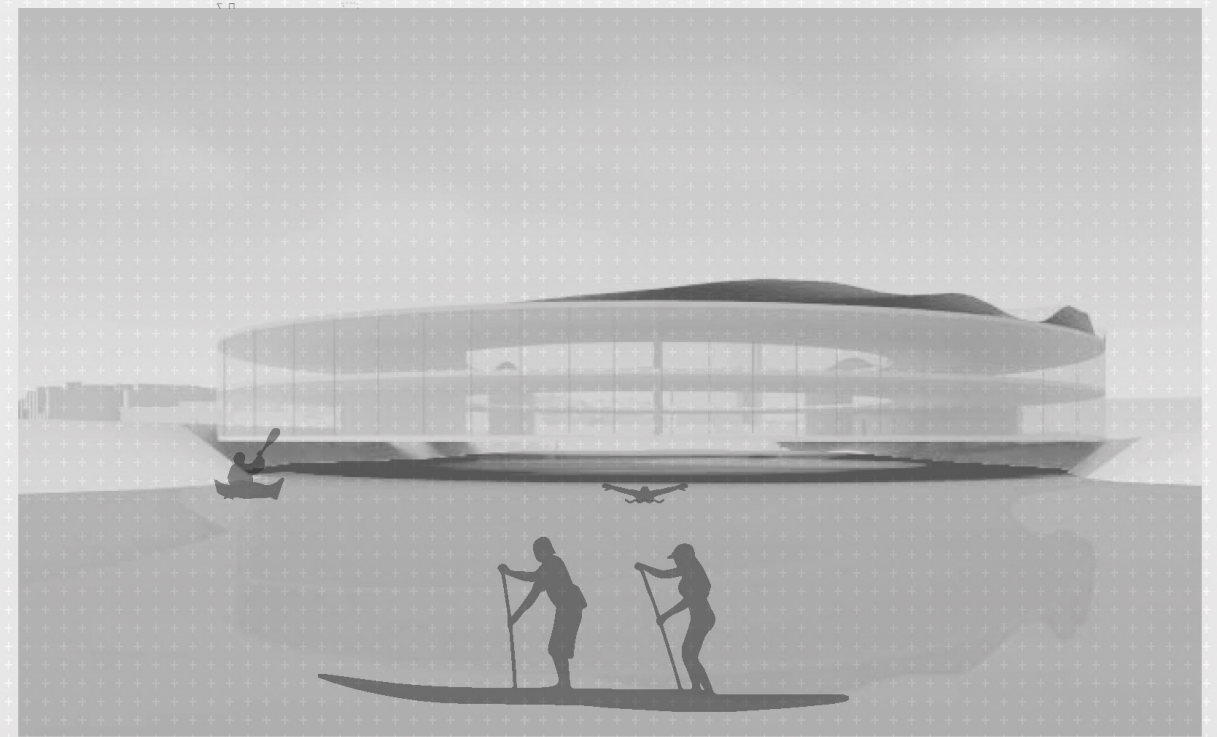
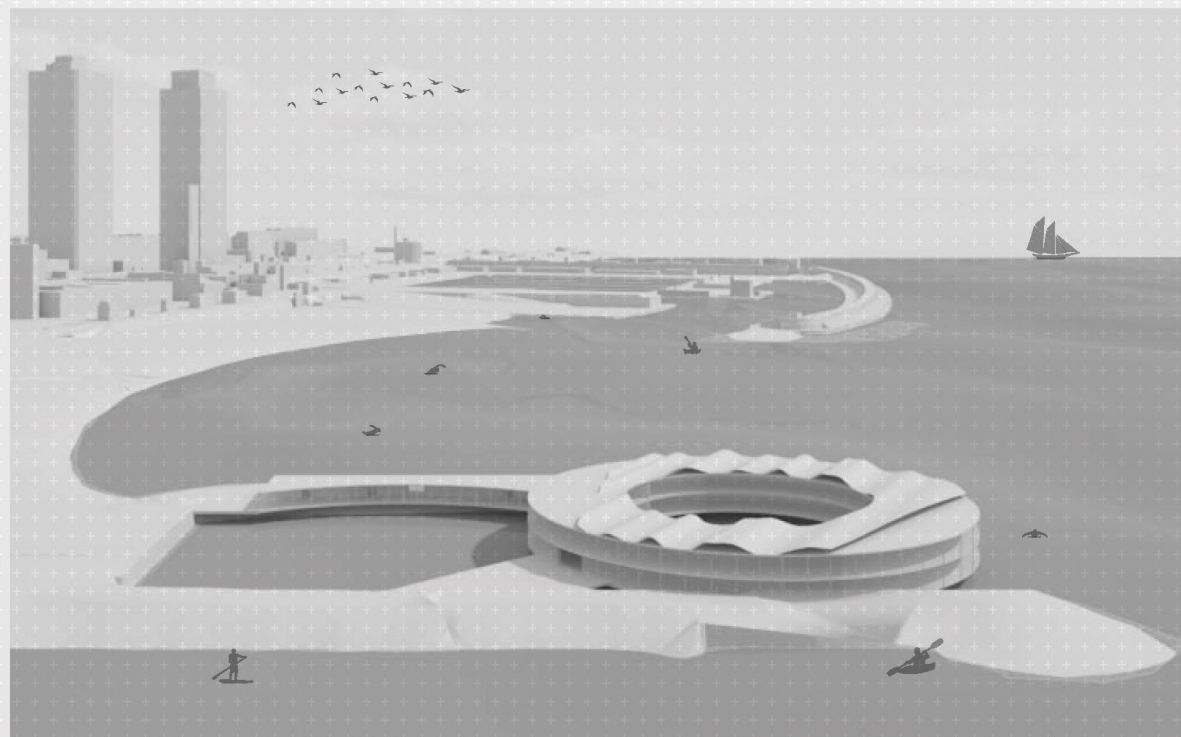
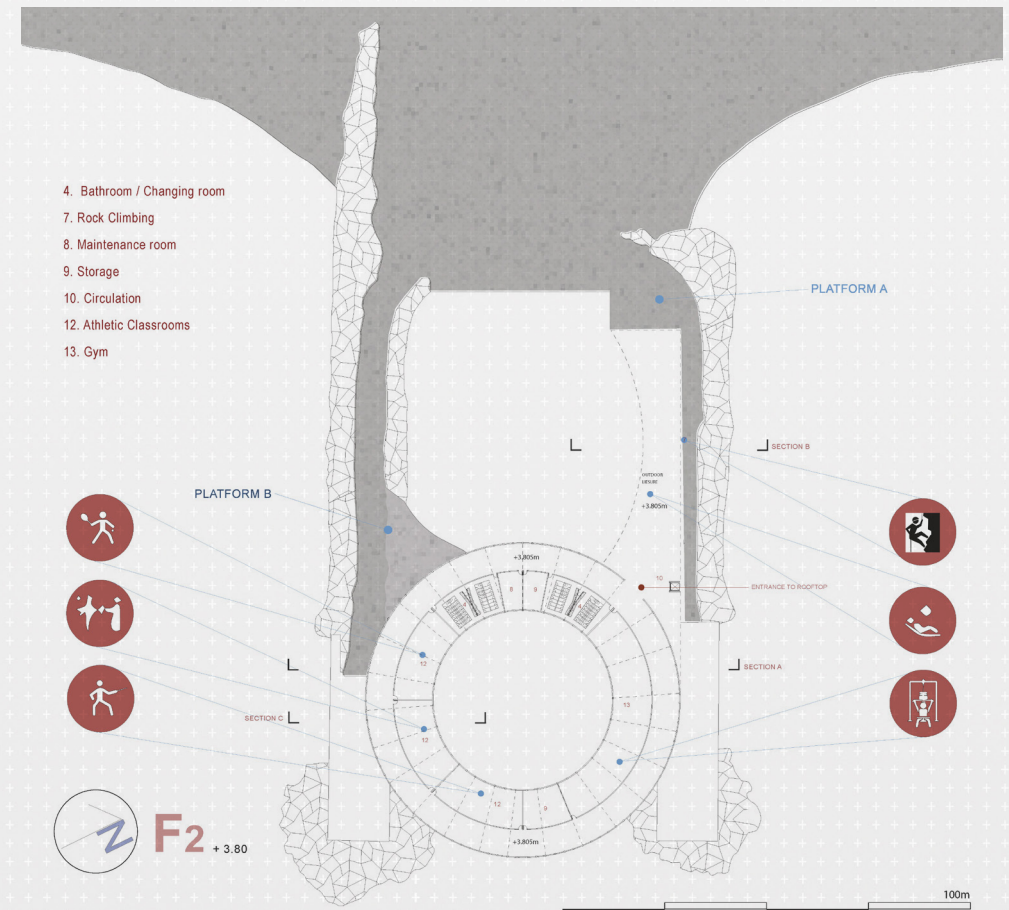
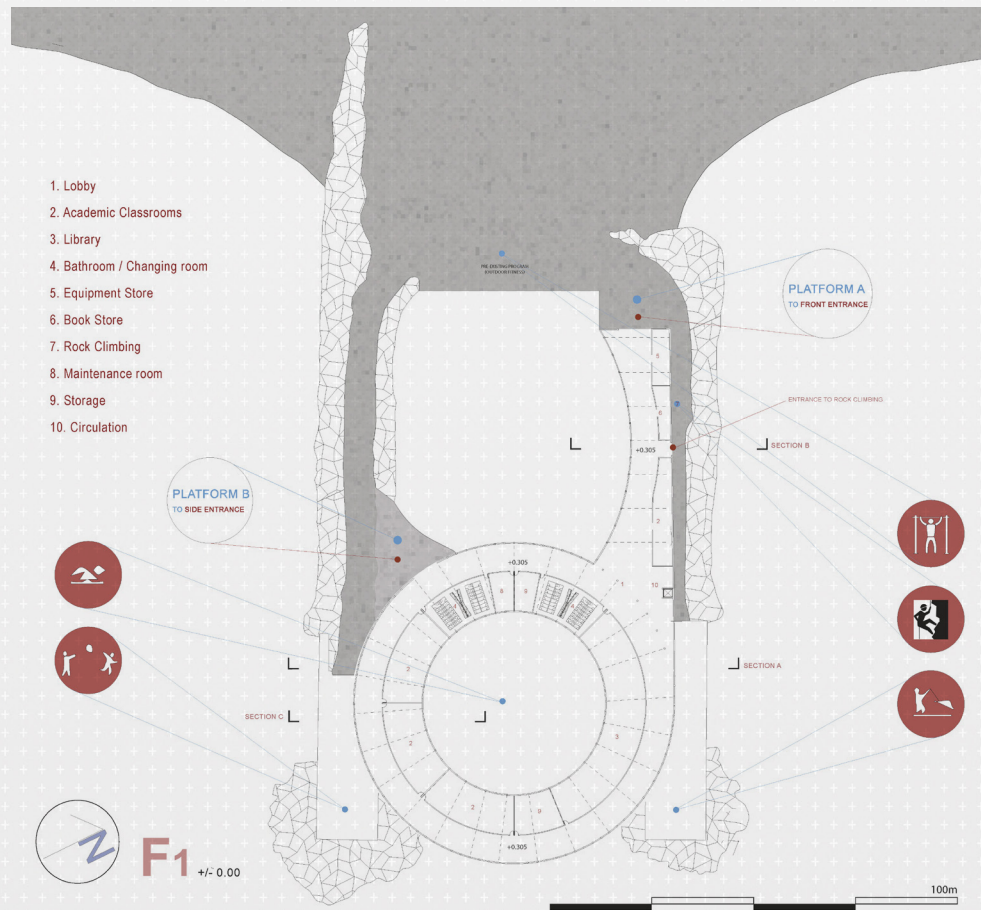
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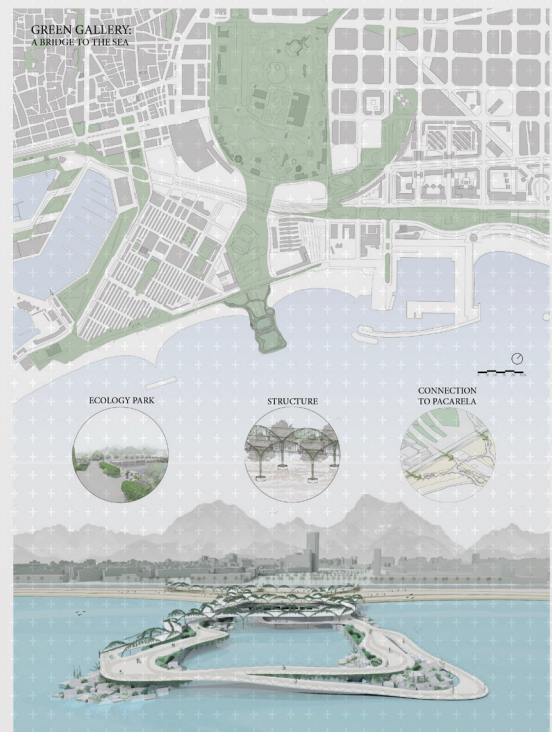
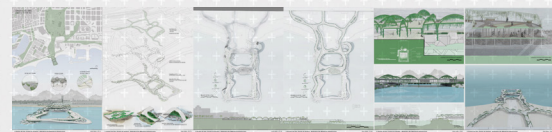
## GREEN GALLERY: A BRIDGE TO THE SEA

Emanuel Diaz-Suarez, Texas A&M University, Architecture Undergraduate  
 Noah C. McCarter, Clemson University, Landscape Undergraduate

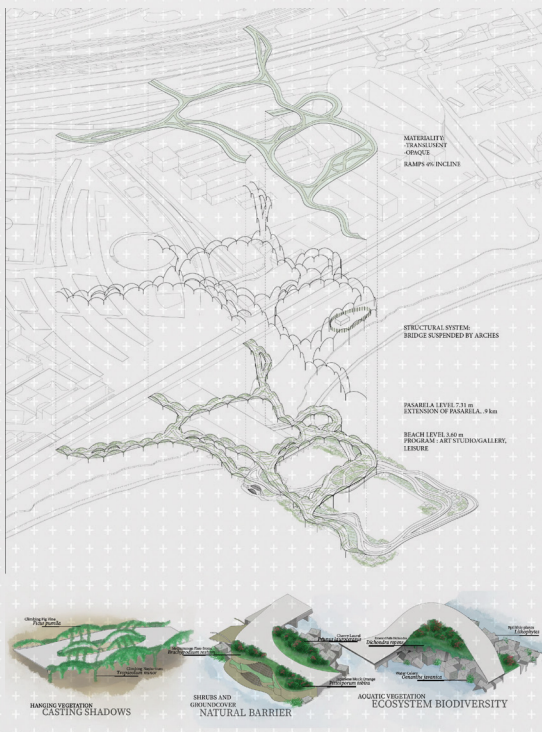
Functioning as a green extension of the existing Passarella, our project was developed to further continue the current green-infrastructure of the Ciutadella and Barcelona Park within the city to the site. Our project maintains these three principles throughout its entirety, as we crafted a space for locals and visitors, alike, to enjoy the greenery of the gardens and paths, created through the use of native ecology and biodiversity. The following paths that mimic the movement of the sea provide multiple possibilities for a visitor to choose instead of forcing a distinct road of travel. Despite the varying paths of hardscapes, a river of greenery follows the negative space of the paths lying amid the breakwaters to truly take advantage of the green-extension of the parks adjacent to the site.

While the strong views in and out of our project form a sense of place, the visitors of the site will also have a space to enjoy the aromas and acoustics crafted from the sea and vegetation. We focused our project's emphasis on the possibility to make the design profitable by providing a programming of our structure to house the proposed Green Gallery, a sea-driven facility of arts, design, and exploration, where painters and viewers can share a space to create or explore the works of others.

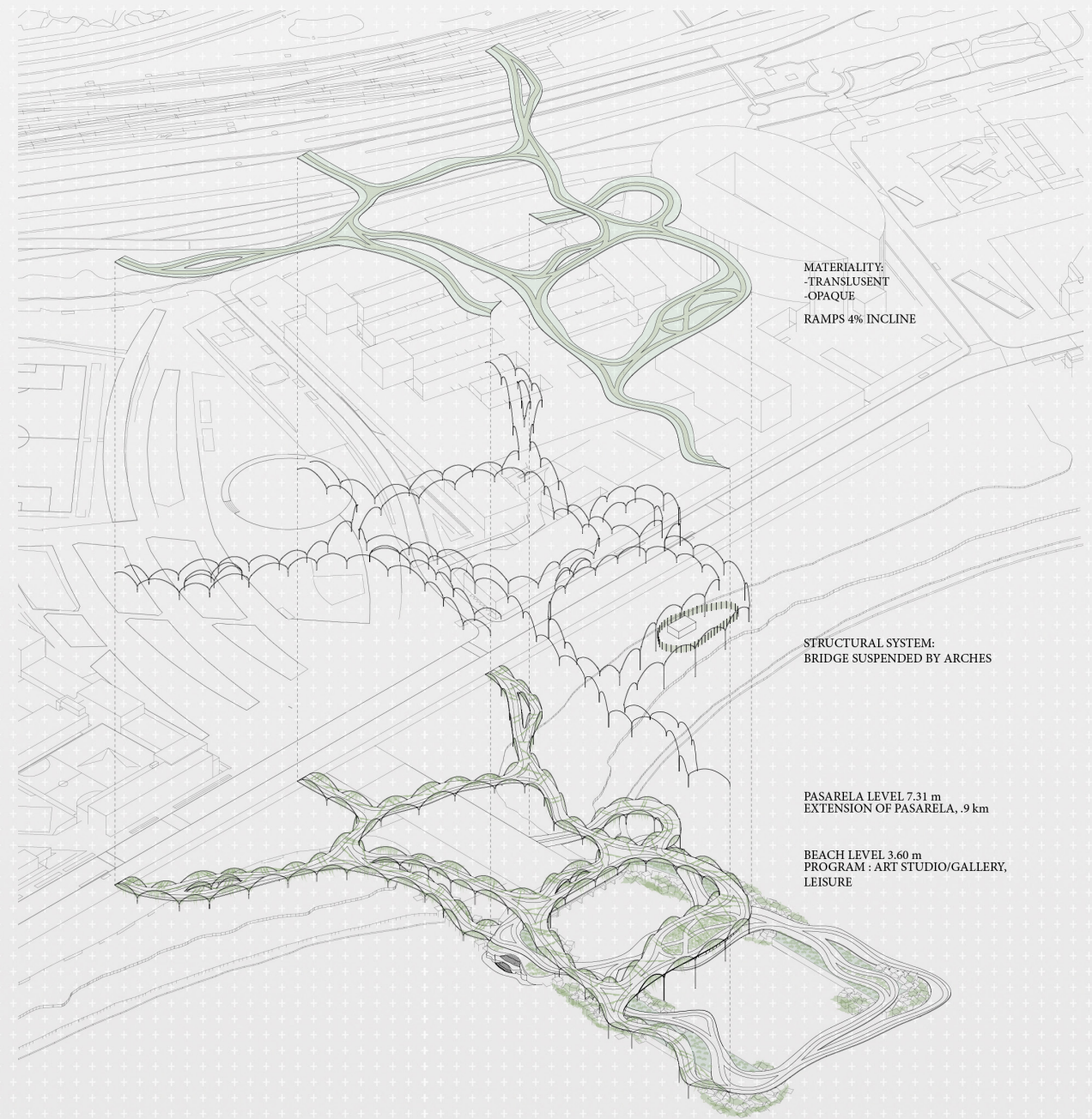
As an exploration of individuality, a person could visit the site on multiple occasions with diverting movements of directions and experience the site equally diverse than the last. We strived to design a project that was not only a program of creativity within the guidelines of the site, but rather crafted an extension of the existing Passarella to develop a finished concept of continuity of green from the mountains to the sea.



"L'Espigó del Gas, Espigó de Gimbrà", Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rotas  
 Emanuel Diaz, Noah McCarter | TAMU, Clemson | Undergraduate 01



"L'Espigó del Gas, Espigó de Gimbrà", Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rotas  
 Emanuel Diaz, Noah McCarter | TAMU, Clemson | Undergraduate 02

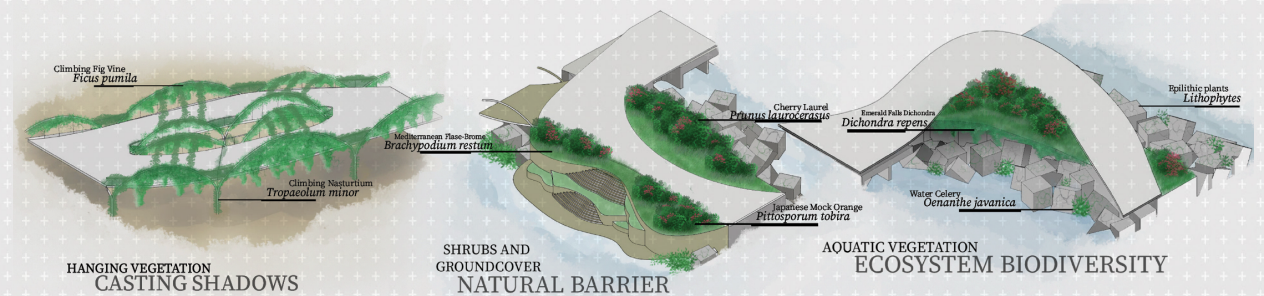


MATERIALITY:  
 -TRANSLUENT  
 -OPAQUE  
 RAMPS 4% INCLINE

STRUCTURAL SYSTEM:  
 BRIDGE SUSPENDED BY ARCHES

PASARELA LEVEL 7.31 m  
 EXTENSION OF PASARELA, .9 km

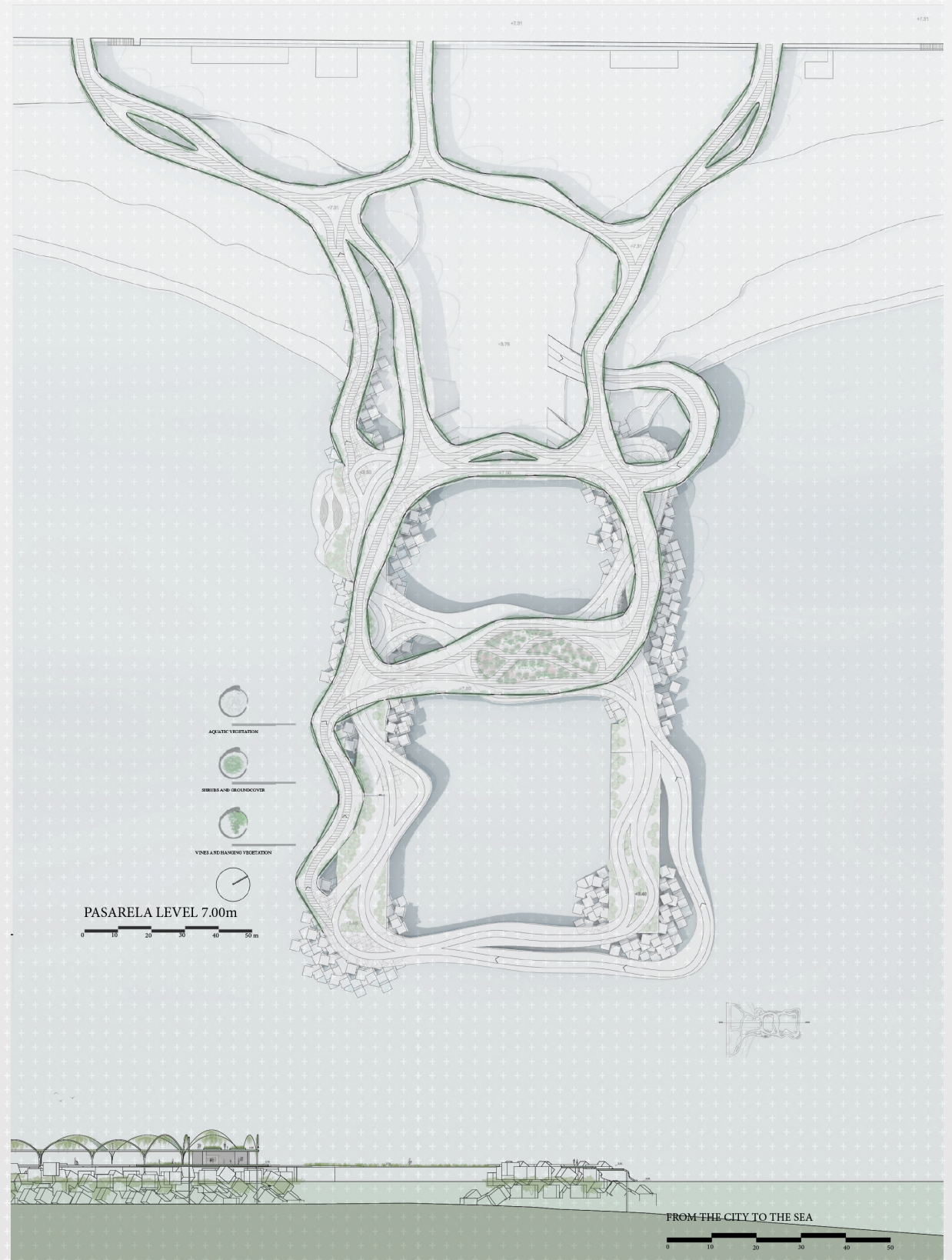
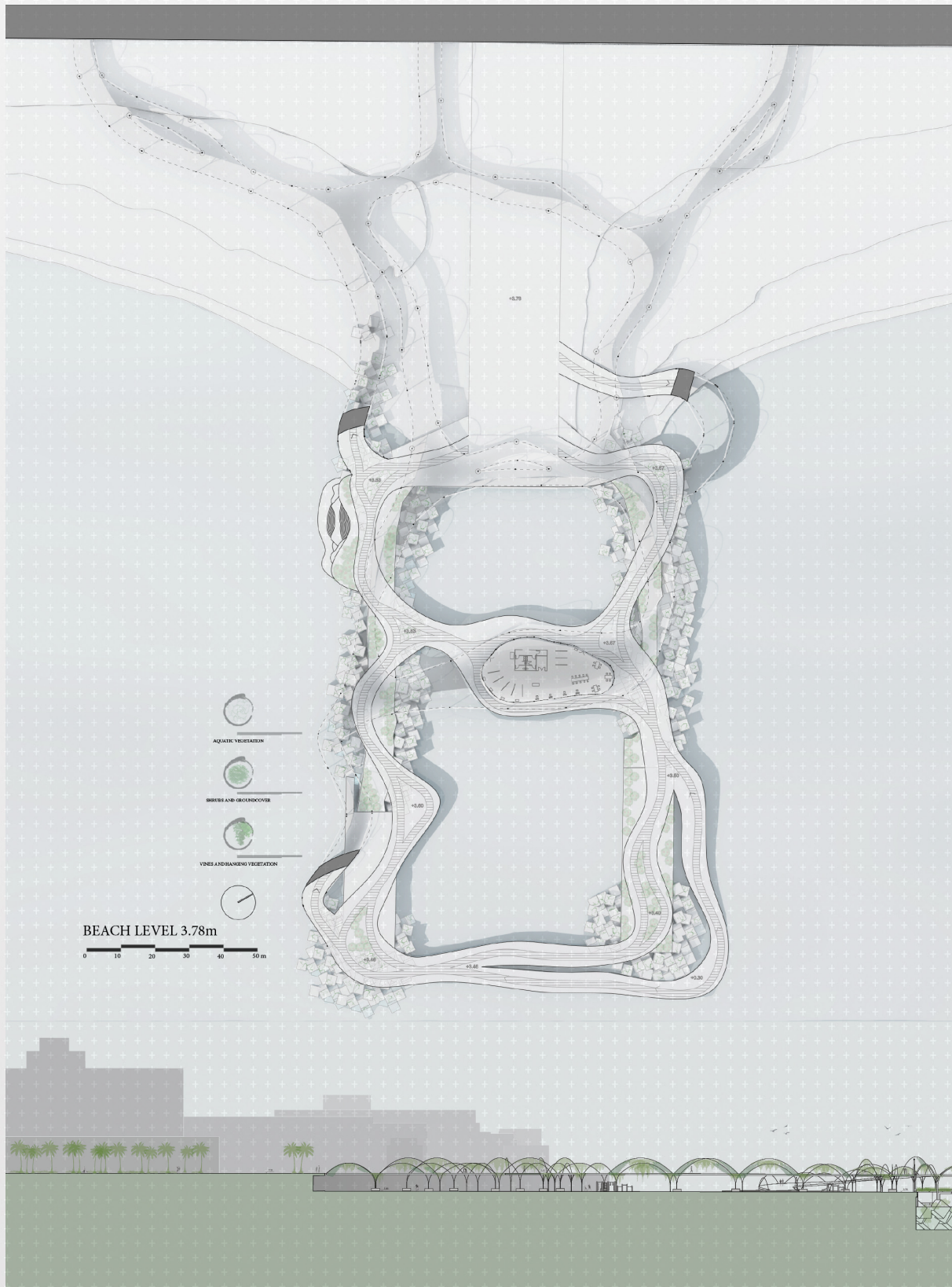
BEACH LEVEL 3.60 m  
 PROGRAM: ART STUDIO/GALLERY,  
 LEISURE



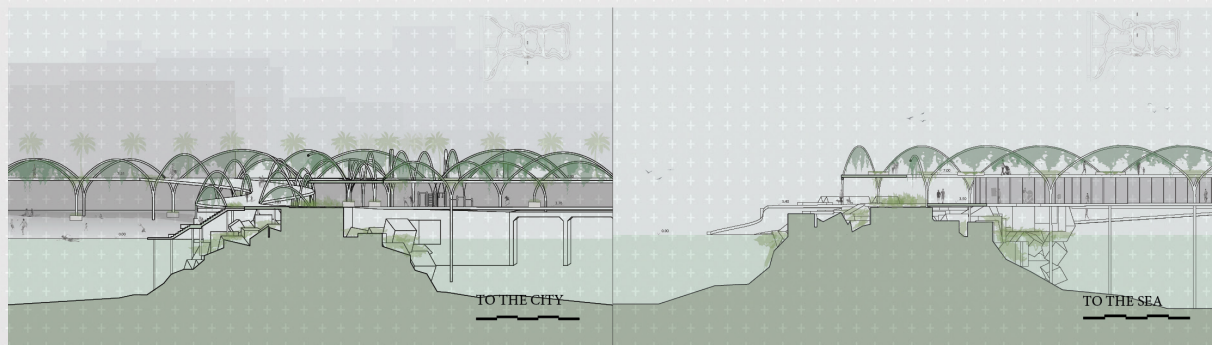
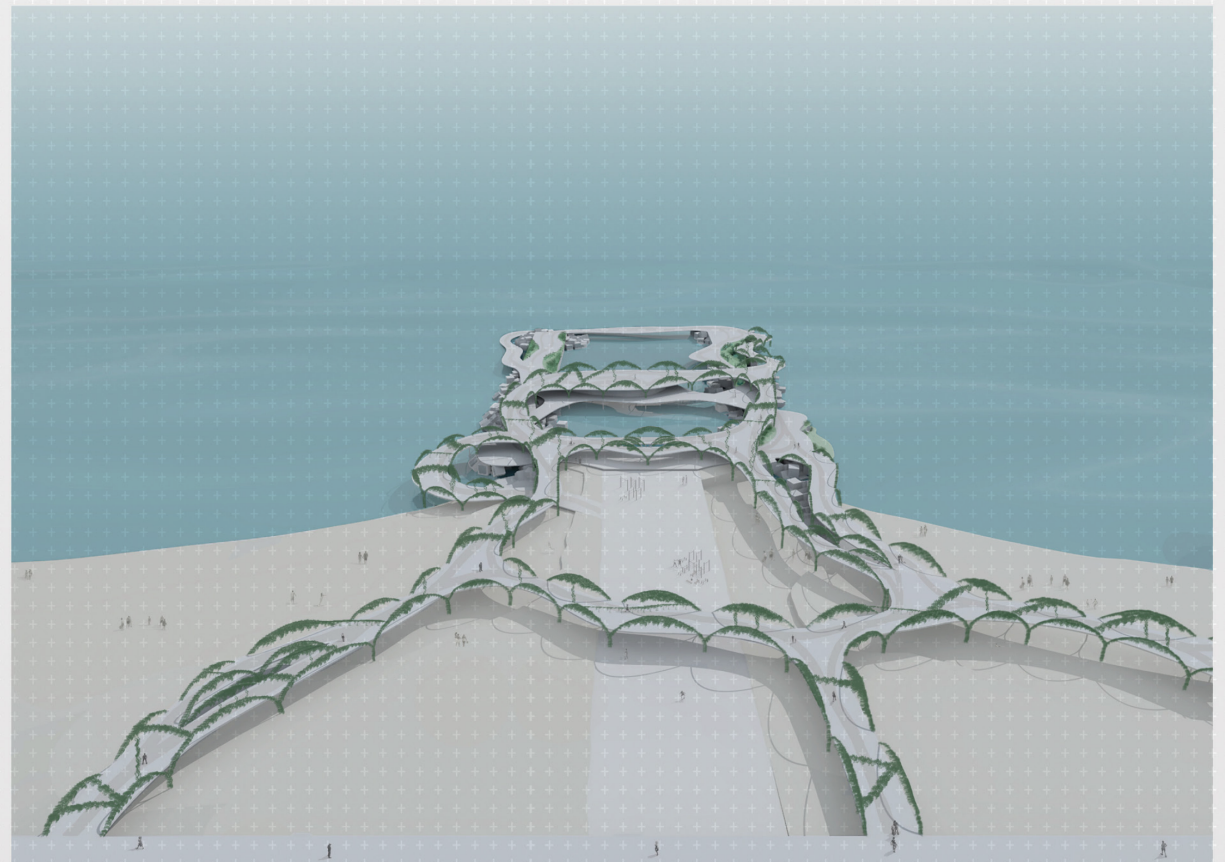
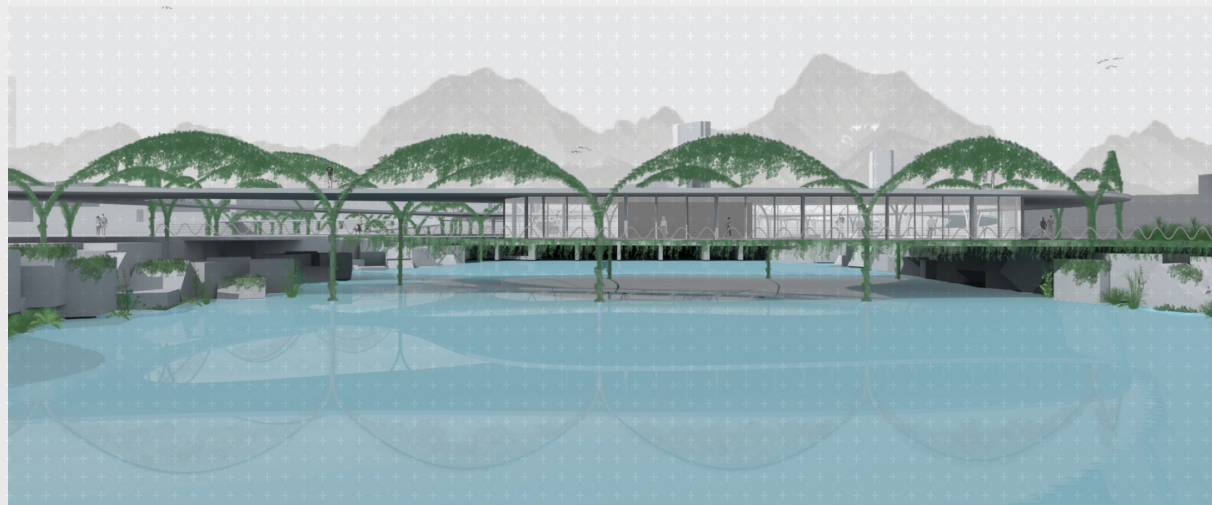
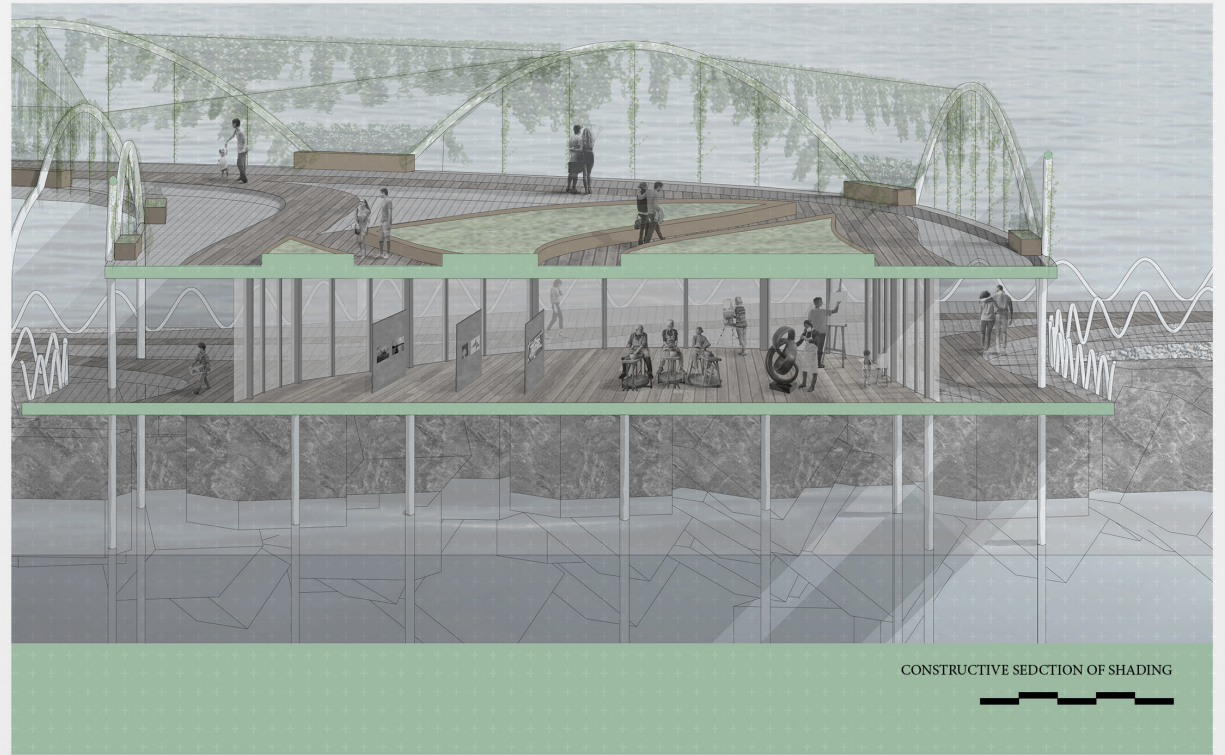
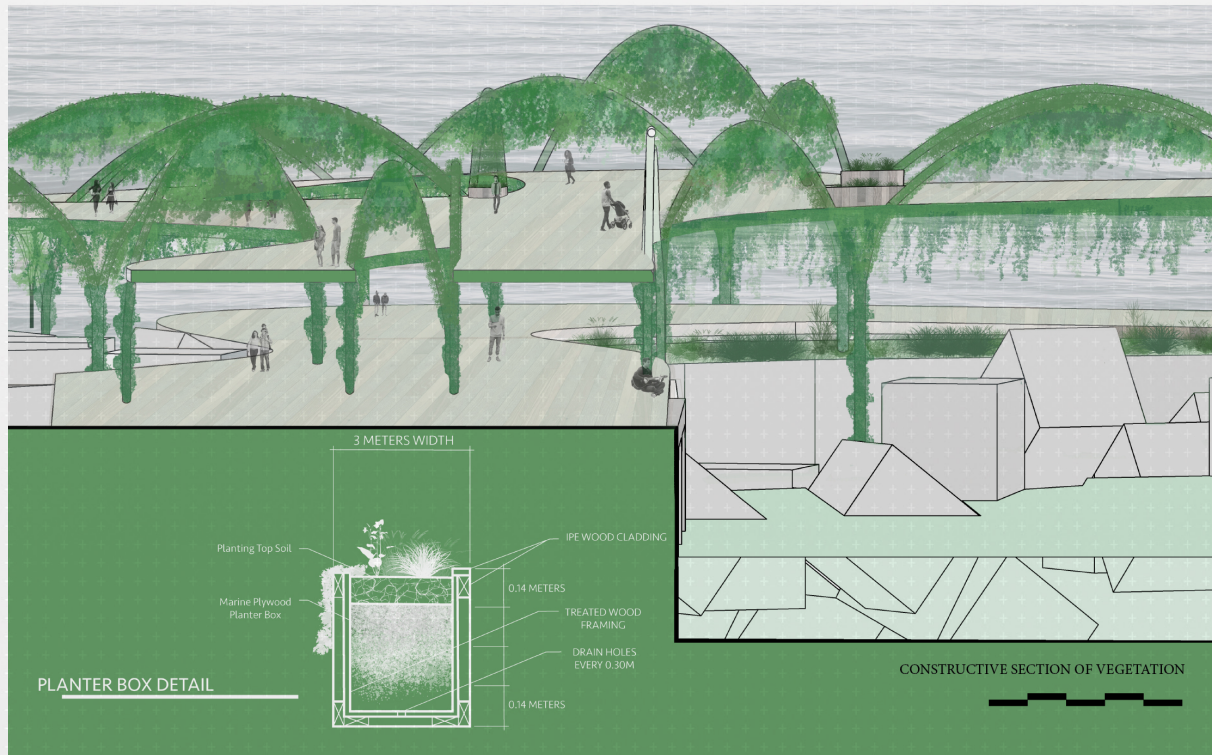
HANGING VEGETATION  
 CASTING SHADOWS

SHRUBS AND  
 GROUNDCOVER  
 NATURAL BARRIER

AQUATIC VEGETATION  
 ECOSYSTEM BIODIVERSITY







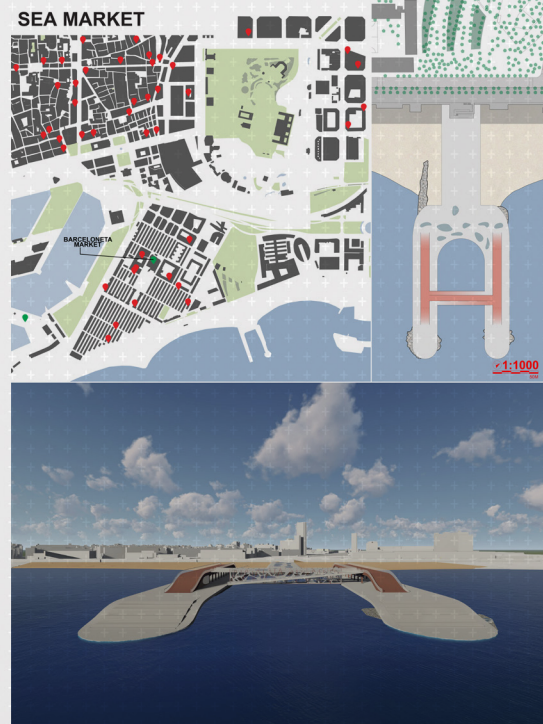
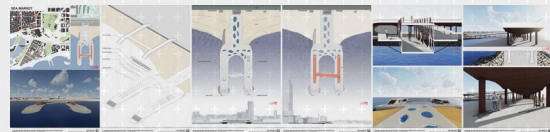
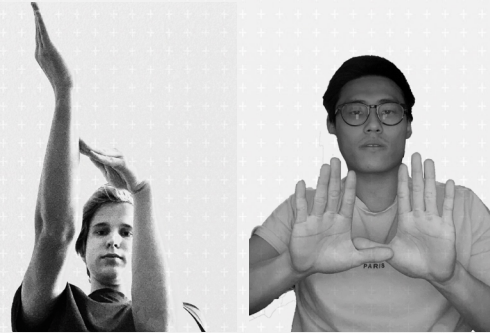
# SEA MARKET

Timothy Fisher, Clemson University, Architecture Undergraduate  
 Daniel Shin, Clemson University, Architecture Undergraduate

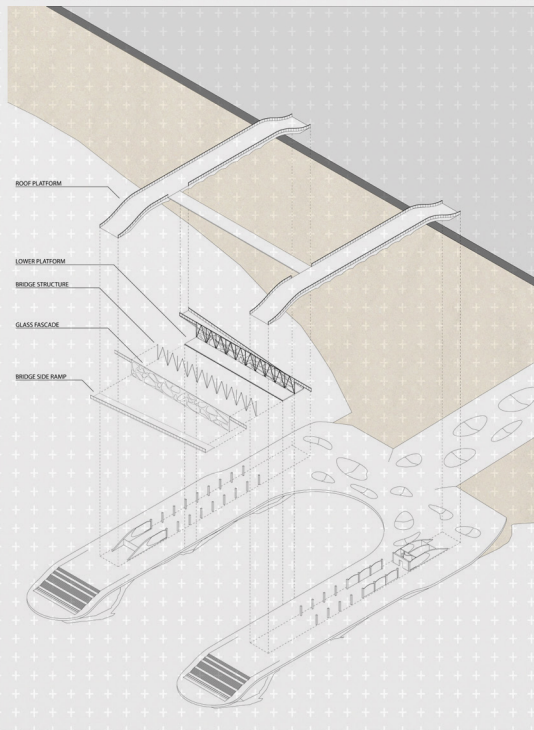
Barcelona, while well known for its massive markets sprawled throughout the city, lacks a type of market that could cater to thousands of locals a year. While doing preliminary research, we discovered that though the site and surrounding area reside right next to the water, there is no open market dedicated to seafood.

Seeing that seafood industry is an integral part of Barcelona, it was decided that the site would become a seafood market. To increase foot traffic and revenue, the concept of the market was redefined as a multi-use space that would cater to both locals and tourists. In addition to a dedicated pavilion for the sale of seafood, the site would provide an additional pavilion for small restaurant vendors. Whether you want to buy fresh seafood or an a la carte hot meal, the site can provide both experiences.

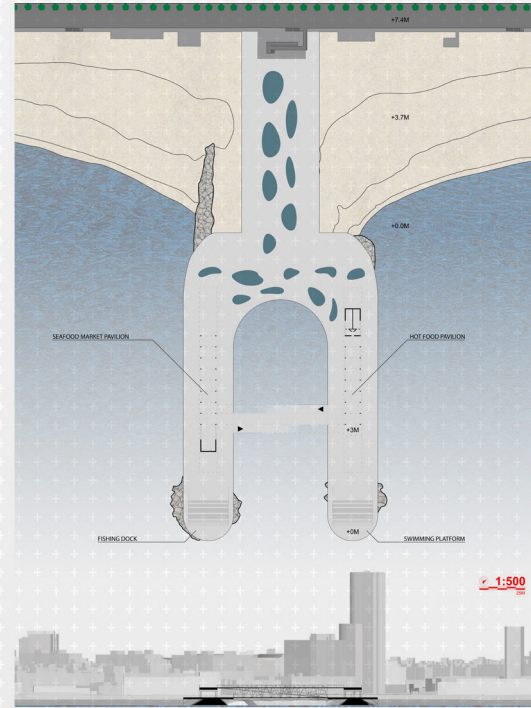
To serve other patrons of the site, the program is designed so that one can take an innate amount of paths throughout the site and enjoy its many features which include wading pools for those who want to relax, aerial views provided by rooftop walkways, or swimming platforms that spearhead each pier to allow swimming, or the docking of boats. Overall, this isn't a site you visit, it's a site you experience.



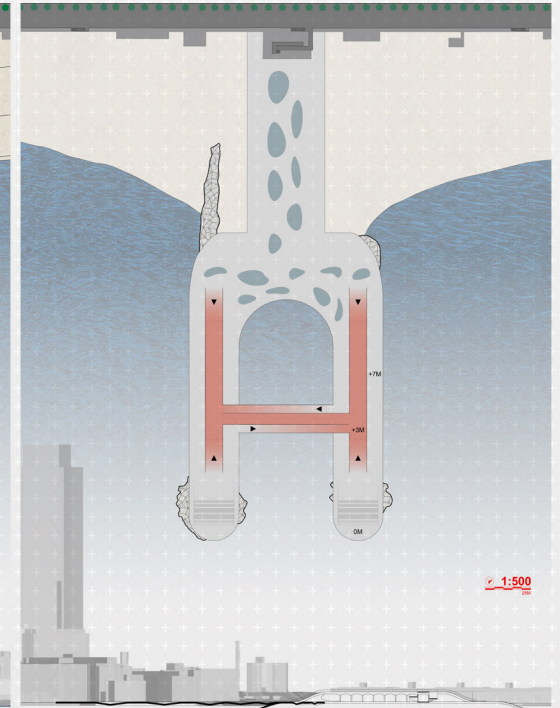
"L'Espigó del Gas, Espigó de Ginebra". Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Ribera  
 Daniel Shin and Tim Fisher, Clemson University Undergraduate  
 SEA MARKET 01



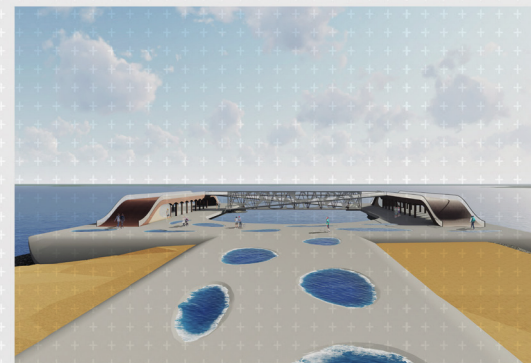
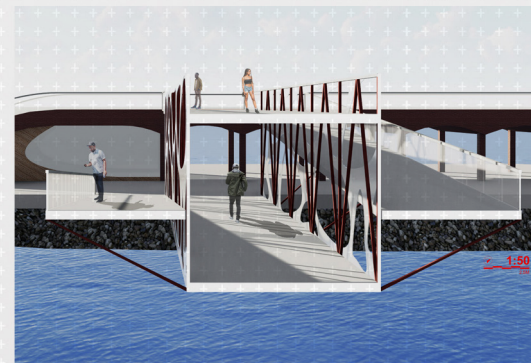
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 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Ribera  
 Daniel Shin and Tim Fisher, Clemson University Undergraduate  
 SEA MARKET 02



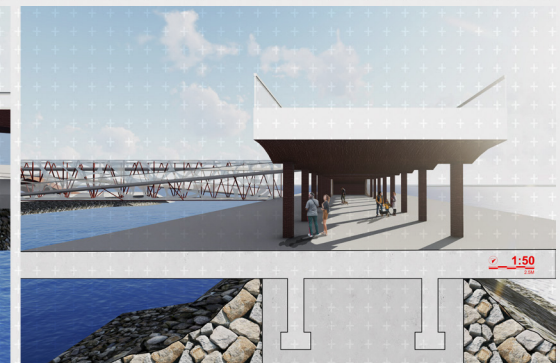
"L'Espigó del Gas, Espigó de Ginebra". Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Ribera  
 Daniel Shin and Tim Fisher, Clemson University Undergraduate  
 SEA MARKET 03



"L'Espigó del Gas, Espigó de Ginebra". Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Ribera  
 Daniel Shin and Tim Fisher, Clemson University Undergraduate  
 SEA MARKET 04



"L'Espigó del Gas, Espigó de Ginebra". Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Ribera  
 Daniel Shin and Tim Fisher, Clemson University Undergraduate  
 SEA MARKET 05



"L'Espigó del Gas, Espigó de Ginebra". Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Ribera  
 Daniel Shin and Tim Fisher, Clemson University Undergraduate  
 SEA MARKET 06

# COSTAL ARTS CENTER, C.A.C.

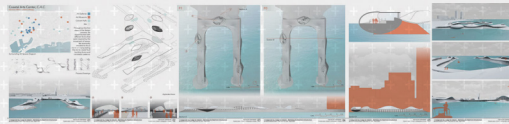
Jessica Steepy, Clemson University, Architecture Undergraduate  
 Harrison R Wile, Clemson University, Architecture Undergraduate

The Costal Arts Center is a public development, designed to provide a connection to the prominent coast of Barcelona and the cultural history embedded within the city. The C.A.C. is a multipurpose facility dedicated to the arts. Following research, it was noticeable that much of the cities artistic hubs were located within the city clustered together geographically. The decision to branch the artist district out of the city also came with the motivation to develop a public space not dedicated for tourism.

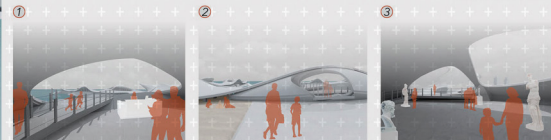
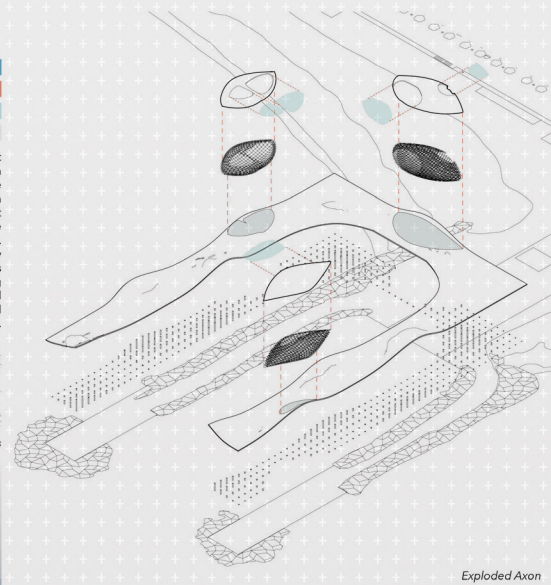
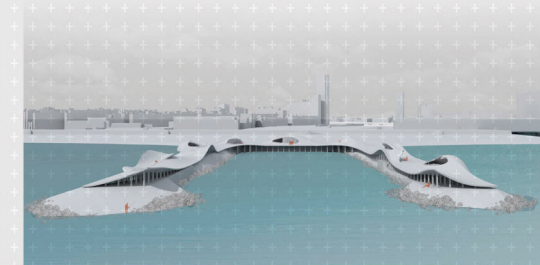
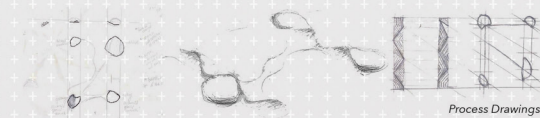
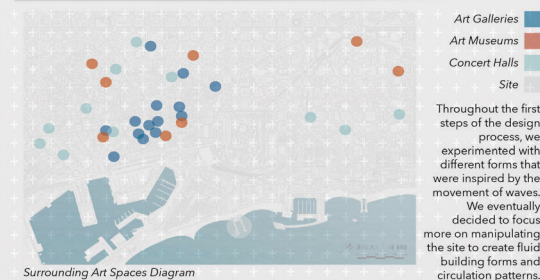
Initially, the form and development of the C.A.C. came from the observation of waves, tides, and wind patterns. The attention to waves and the fluidity they represent provided an opportunity and challenge for us to develop a project based on site manipulation. The site has been altered to reflect the fluid movement of waves, bent much like a twisted ribbon. This manipulation of the site allowed us to insert a series of forms imbedded in the site. These forms, much like the site, continue the theme of fluidity and irregularity, ultimately providing a variety of experiences for the visiting public.

The first form has been developed at the end of the site along the coast. This initial structure serves as a portal to the site and also acts as a lobby, housing public amenities. Fluid circulation is encouraged through the use of two ramps which take you into the structure, developing movement around the central facilities. Leading from the first structure, occupants have the opportunity to access the rest of the site which extends out to the sea. The other two forms are placed on either extension of the site. These structures, much like the initial structure reflect the theme of fluidity and irregularity through the use of curved ramps and interrupted open spaces. These two structures are directly dedicated to promoting the arts and providing the opportunity for local use and congregation as opposed to the high levels of tourism within the city.

The site and forms are developed through the use of concrete and ceramics. The precast concrete forms will be supported using reinforced steel. This materiality is dedicated to the historical use of ceramics while promoting a sustainable prefabrication process.

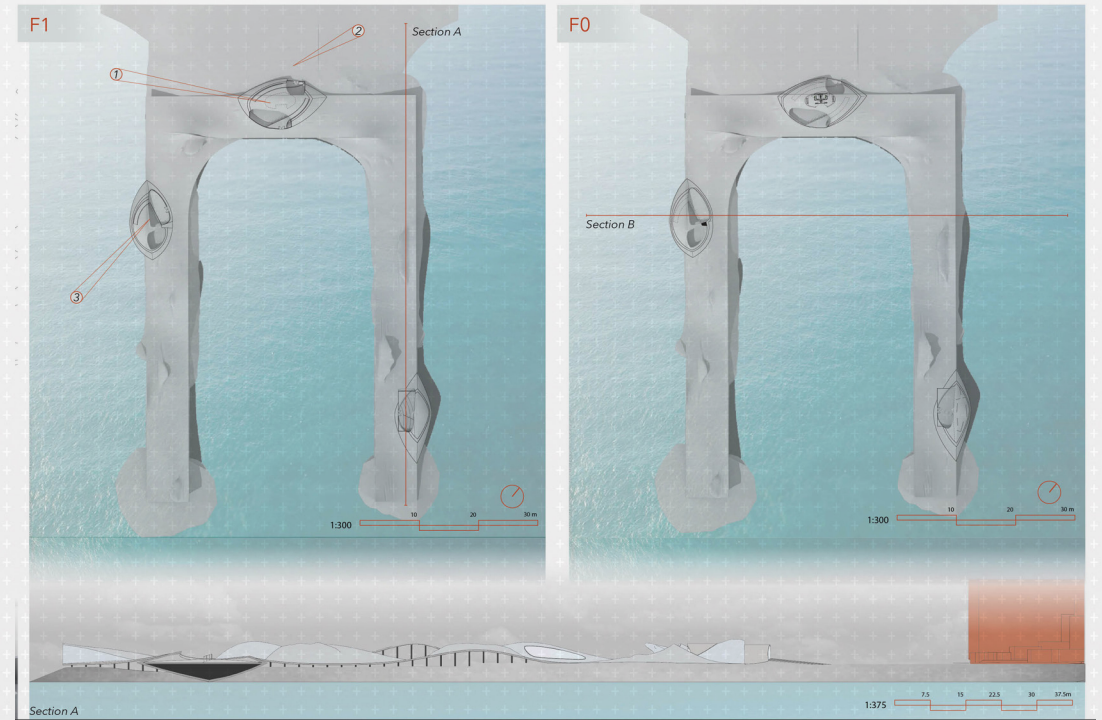


## Coastal Arts Center, C.A.C.

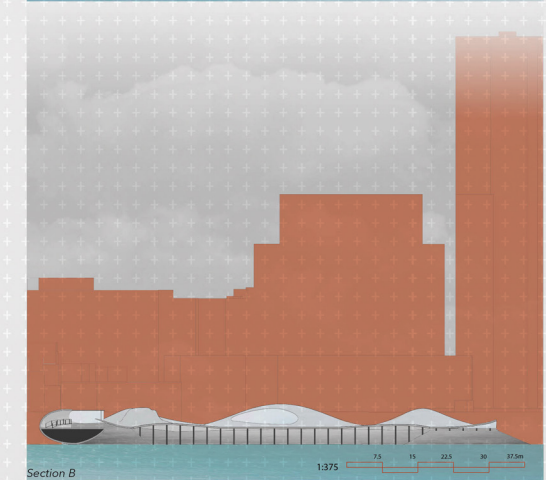
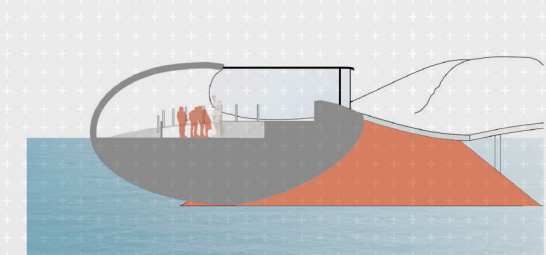


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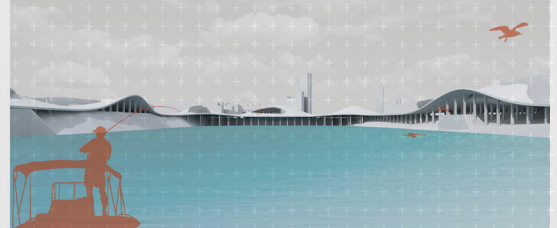
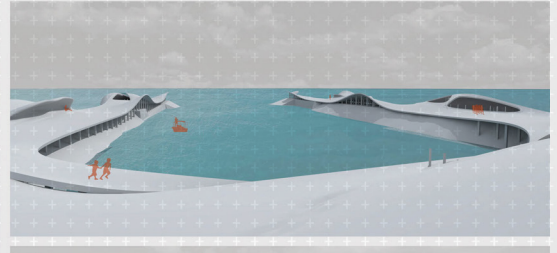
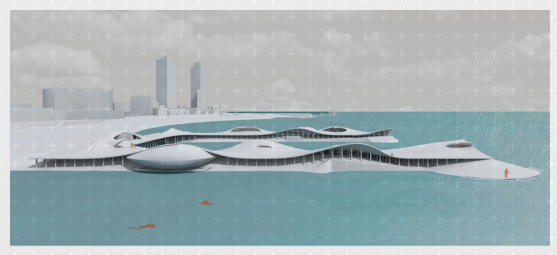
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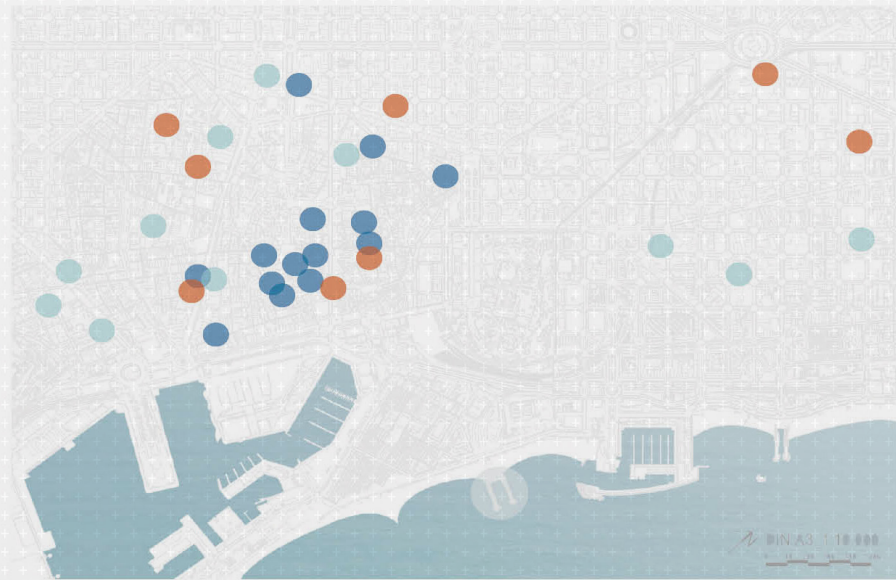
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# Coastal Arts Center, C.A.C.

Harrison Wile + Jessica Steepy

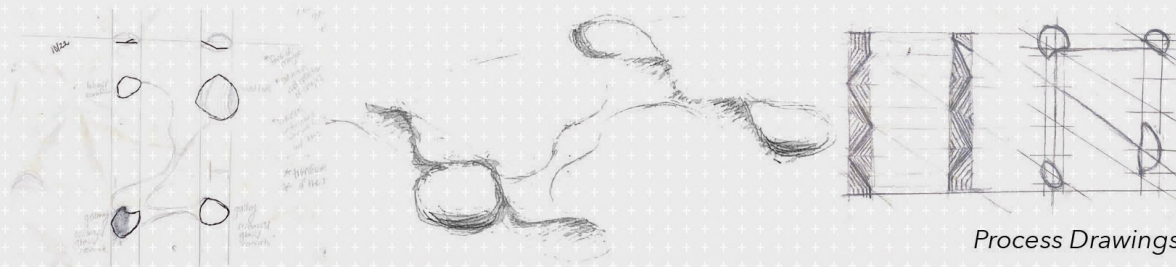


Surrounding Art Spaces Diagram

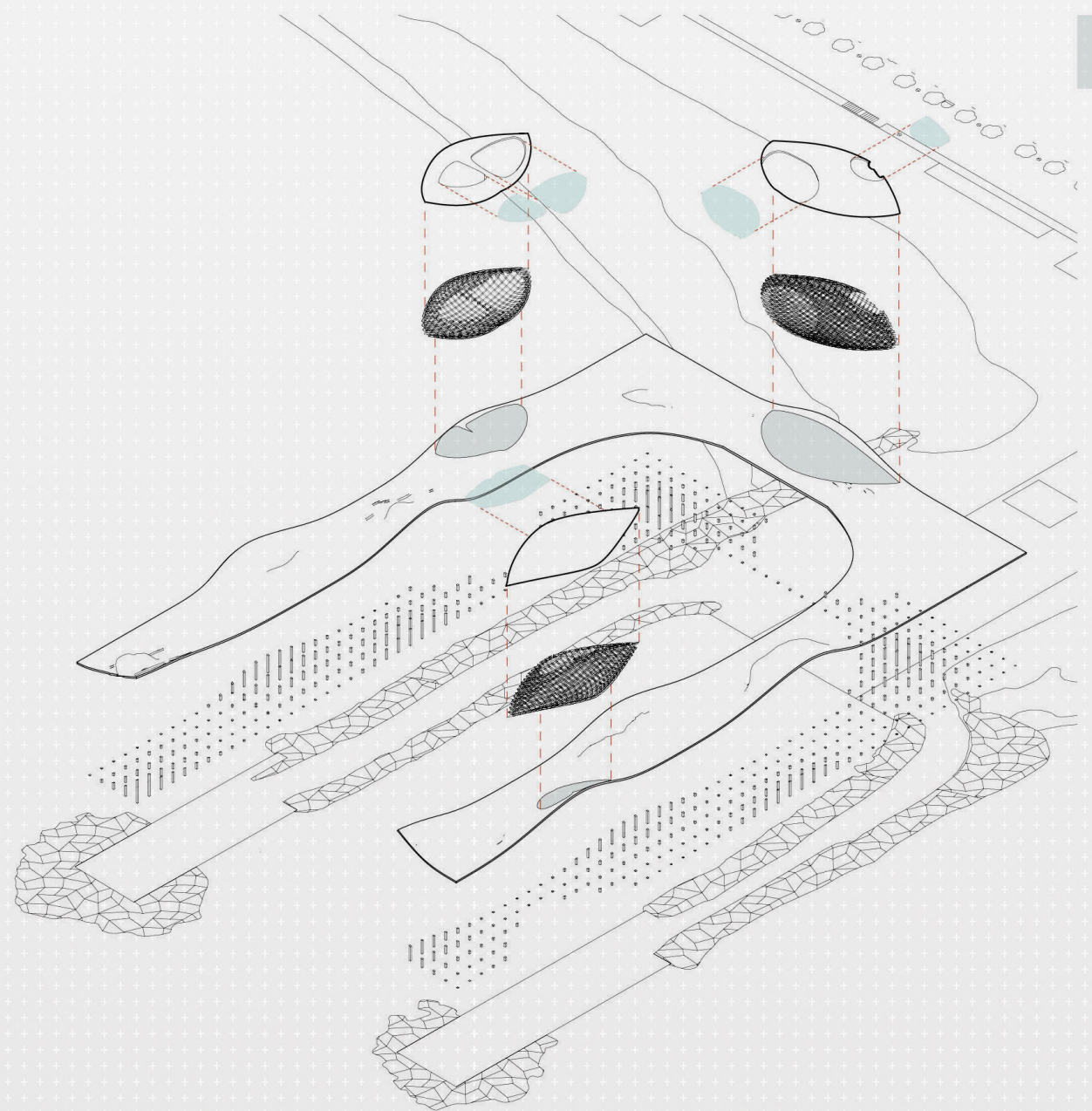
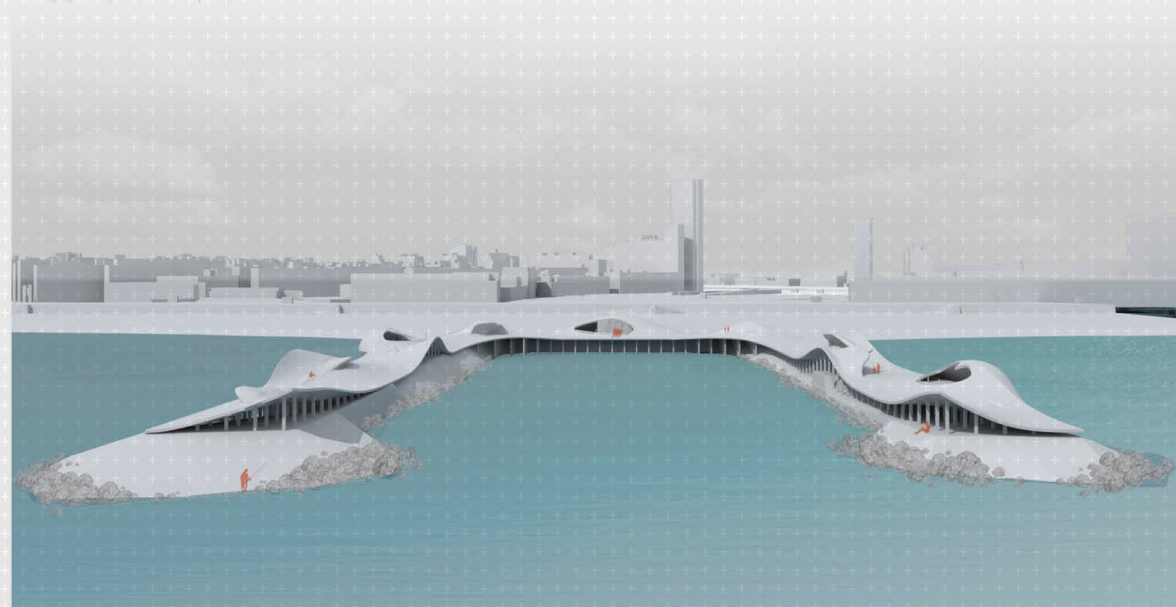
- Art Galleries ■
- Art Museums ■
- Concert Halls ■
- Site ■

Throughout the first steps of the design process, we experimented with different forms that were inspired by the movement of waves.

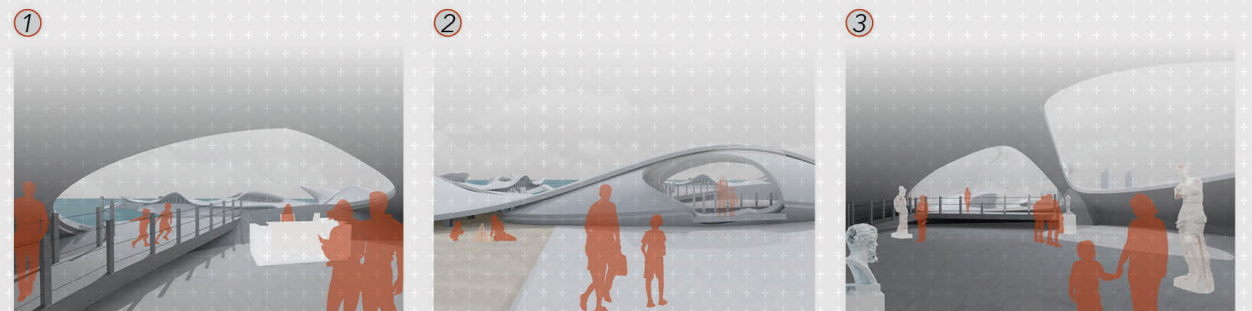
We eventually decided to focus more on manipulating the site to create fluid building forms and circulation patterns.



Process Drawings



Exploded Axon



# A GATE TO THE CITY

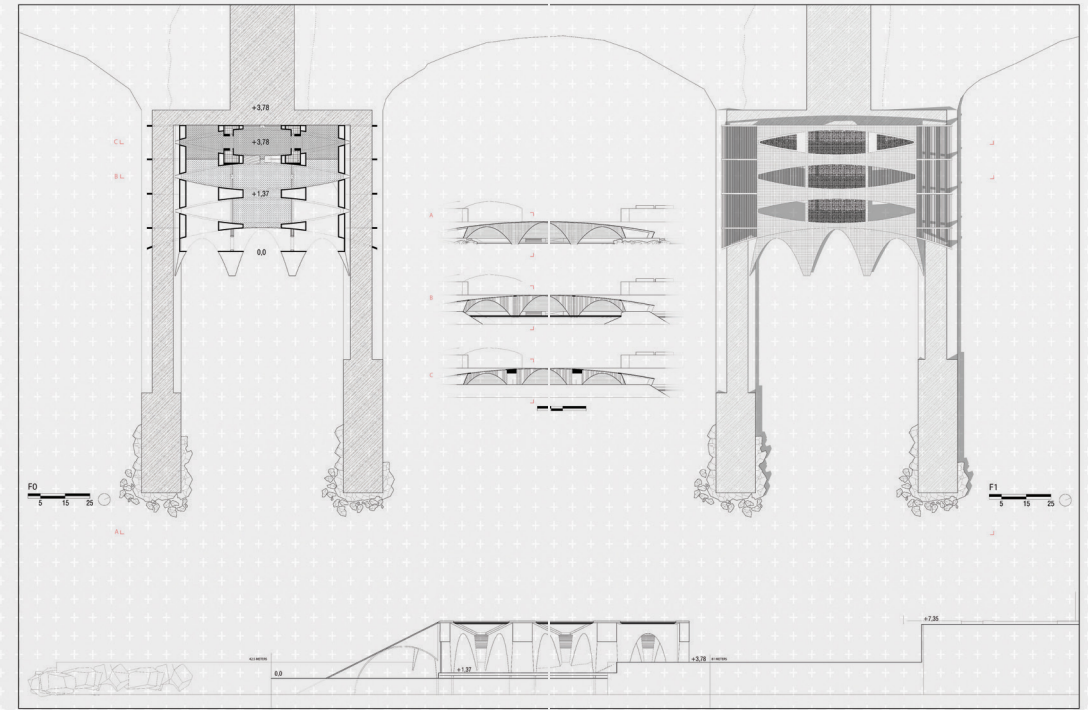
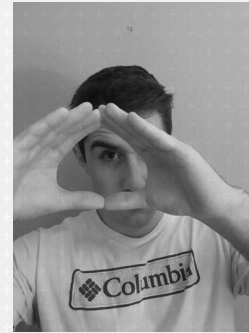
Shelbye E Doyen, Texas A&M University, Architecture Undergraduate  
 Aren R Moore, Texas A&M University, Architecture Undergraduate

L'Espigo Del Gas acts as the intersection of two major, natural corridors in Barcelona, the waterfront and the path from the Collserola Mountains to the Mediterranean Sea.

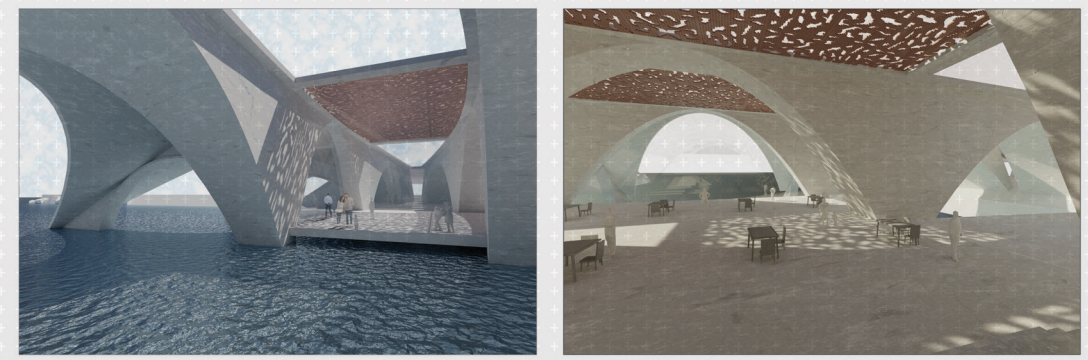
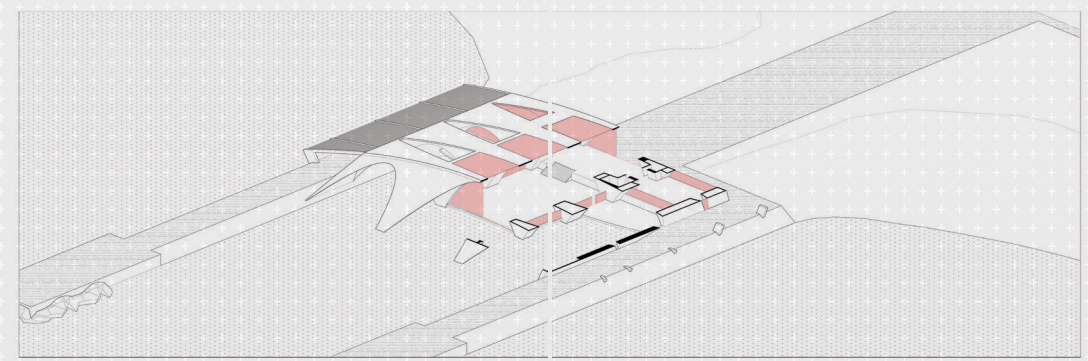
The proposed community center fills a gap in the Barceloneta district; While there are several public spaces, none specifically cater to the local community. The community center also acts as a symbolic finale to the series of entrances into Barcelona. The original city, the industrial port, and the airport collectively inform the conditions the community center produces with the sea and the city.  
 As patrons approach from the city, they are greeted by an entrance that rests heavily on the ground and reflects the verticality of the city. Similarly, those who choose to approach the building from the sea are met by extended arms, reaching out to welcome them.

Once inside the building, circulation directs people down and towards the sea while keeping the line of sight constant from the city, out to sea. In addition, the structure of arches looks to both the past and future, as the elements so deeply rooted in the history of Barcelona are hollow to allow for a more efficient use of space.

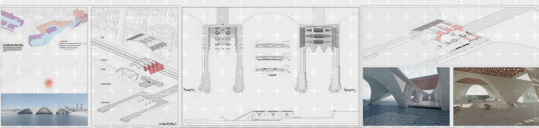
The design of this community center proposes the creation of a symbolic gate into the city, a place to increase the physical connection the city maintains with the sea, and an area in which community members can gather and foster relationships. Through the directed circulation and views and the combination of conditions created by Barceloneta and the Mediterranean Sea, the proposed community center achieves these goals.



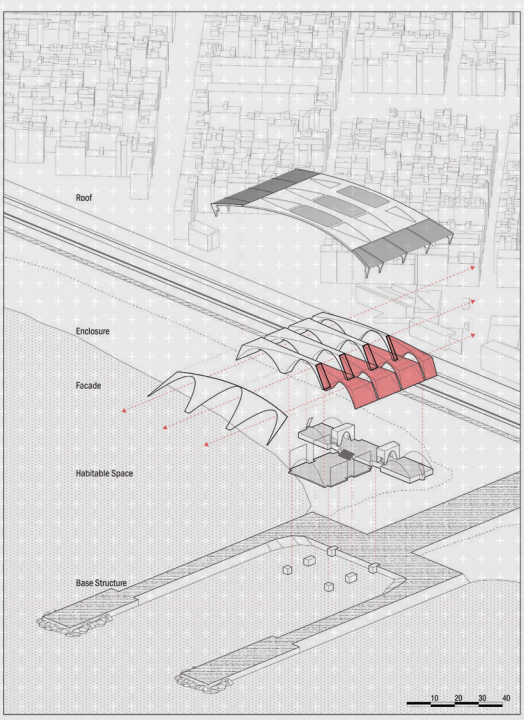
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 Aren Moore & Shelbye Doyen / Texas A&M University / Undergraduate  
 A GATE TO THE CITY 03



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 Aren Moore & Shelbye Doyen / Texas A&M University / Undergraduate  
 A GATE TO THE CITY 05



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 Aren Moore & Shelbye Doyen / Texas A&M University / Undergraduate  
 A GATE TO THE CITY 01



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 Aren Moore & Shelbye Doyen / Texas A&M University / Undergraduate  
 A GATE TO THE CITY 02

## FRAMING BARCELONA

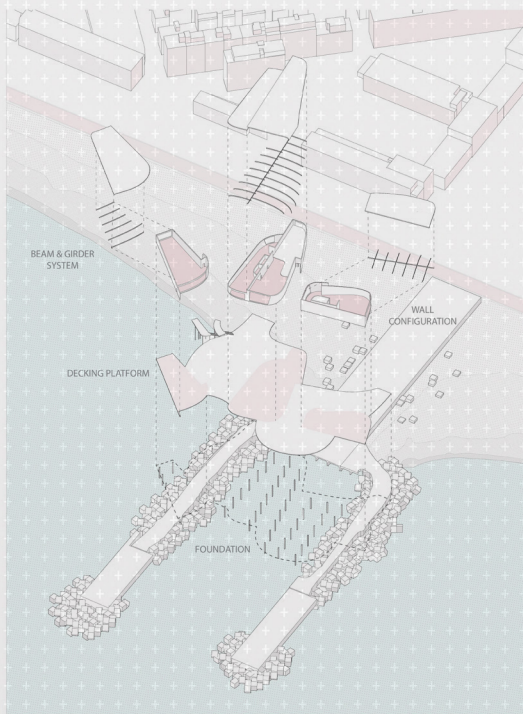
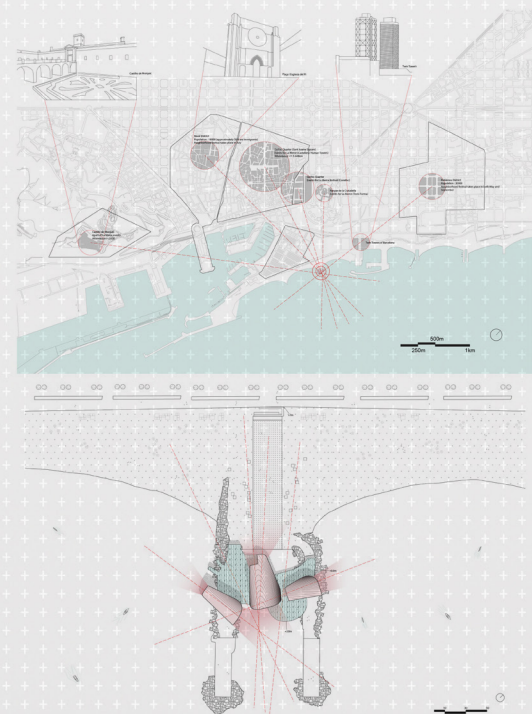
Sahil P Shah, Texas A&M University, Architecture Undergraduate  
 Jesus Manuel Frias, Texas A&M University, Architecture Undergraduate

Throughout Barcelona's history, they have seen many shifts in allegiances leading to new cultural implications. Since Barcelona's founding they have gone through the Ro-man, French, Moor and other empires. This has allowed the city to accumulate a variety of cultures that can still be seen today. These cultures and traditions remain framed by the remnants of ruined walls, roman orders and even the Gothic quarter.

Expanding further than architecture, we see this cultural influence in the traditions of today's citizens as well. Taking influence from these, the festivals of Barcelona have become something to remind us of the past and show the peoples heritage and upbringing.

Our proposal takes advantage of this rich culture to frame these individual sites at which these traditions and festivals take place. The site, which falls in on the pier in between Barceloneta and the Mediterranean, acts as an intermediate from the city's edge to the water front allowing our proposal to act as the transition space between the two. The project attempts to dynamize this explicit condition via the consideration of frames and orientation as well as foreground, middle ground and background connections.

These frames not only capture the views from the city to the sea but also vice versa. As stated previously, our proposal deals with framing cultural sites. Looking from the sea, permeating through the designed site and connecting to a cultural point within the city; each structural object in the system acts as a partition to create a distinct frame from which one can experience a different view. Doing so allows for the permeations to create their own different conditions when looking from the city or sea.

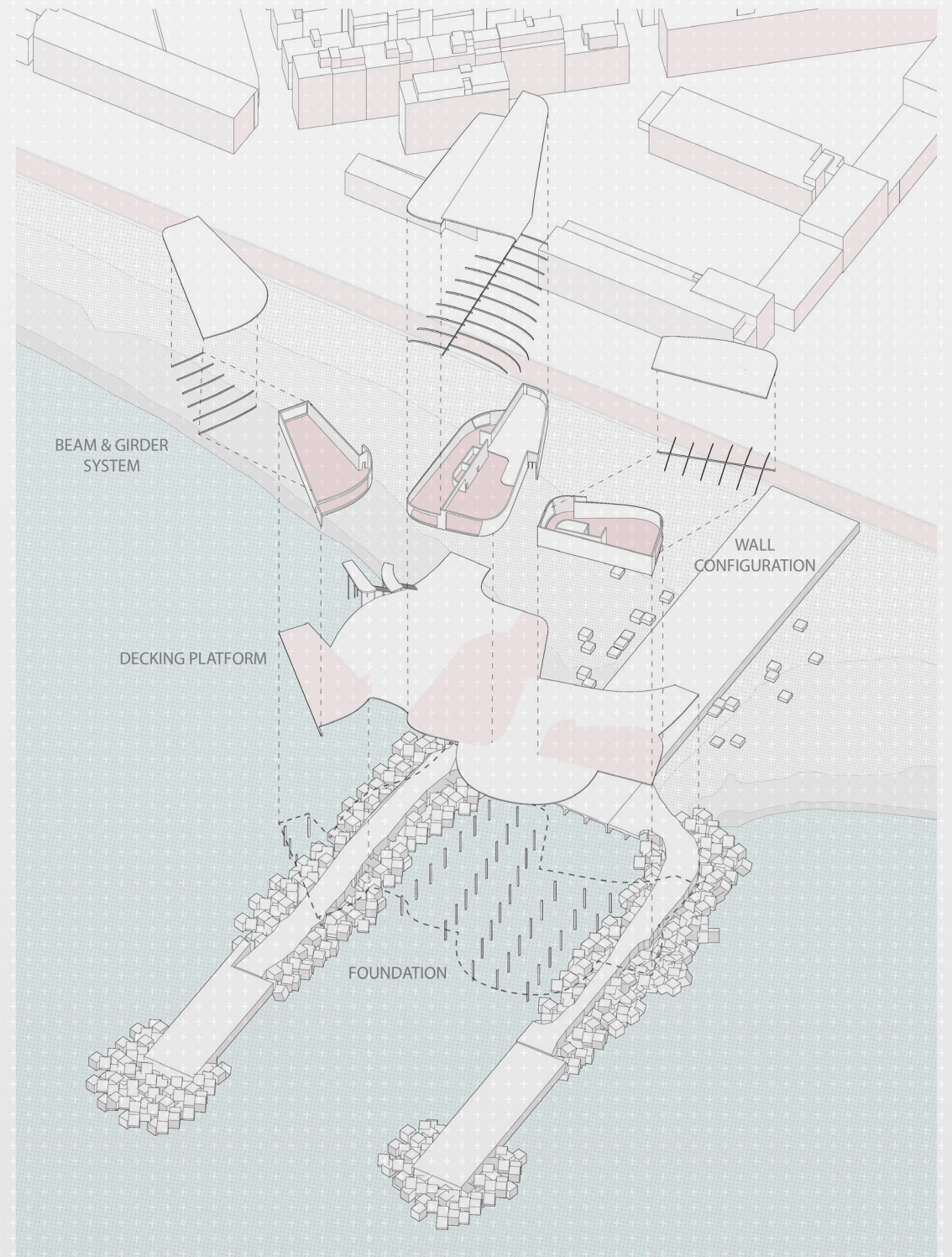


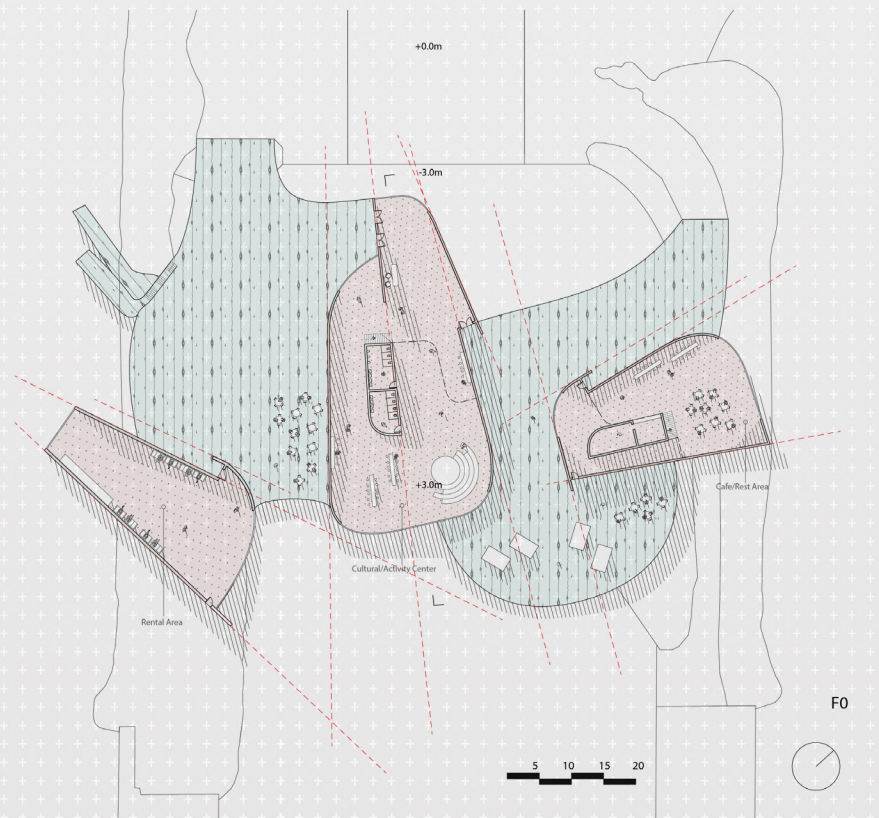
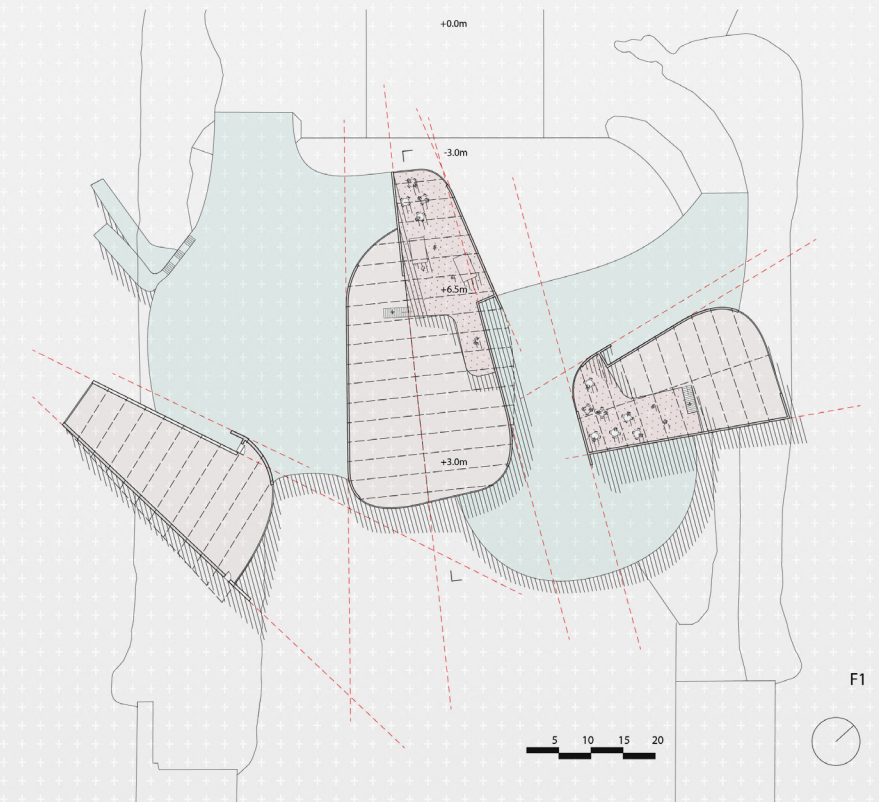
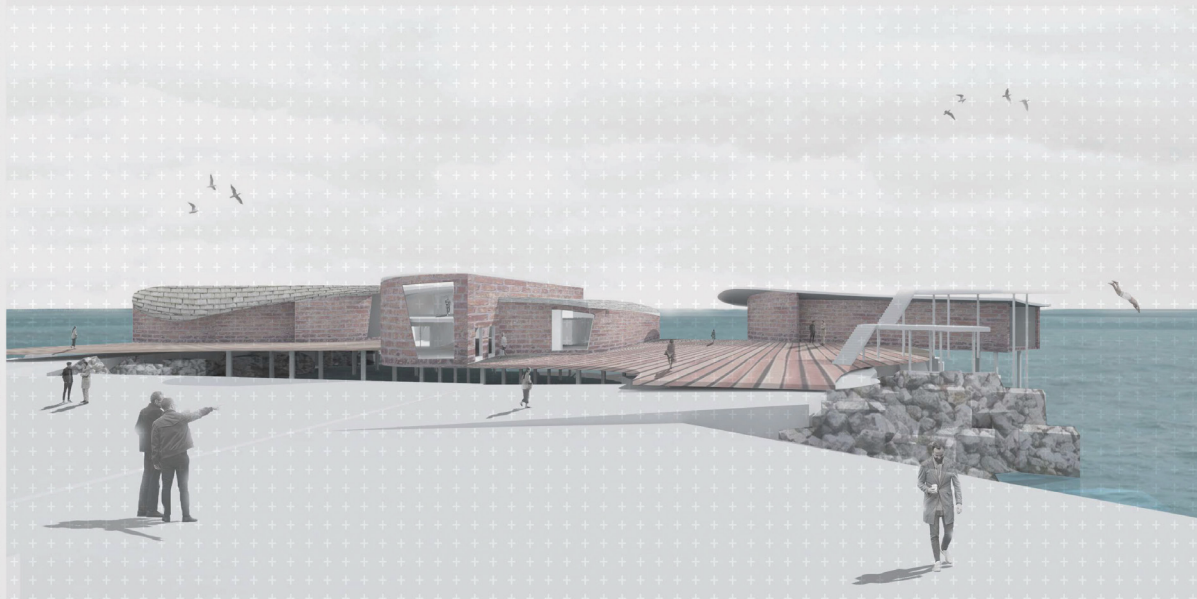
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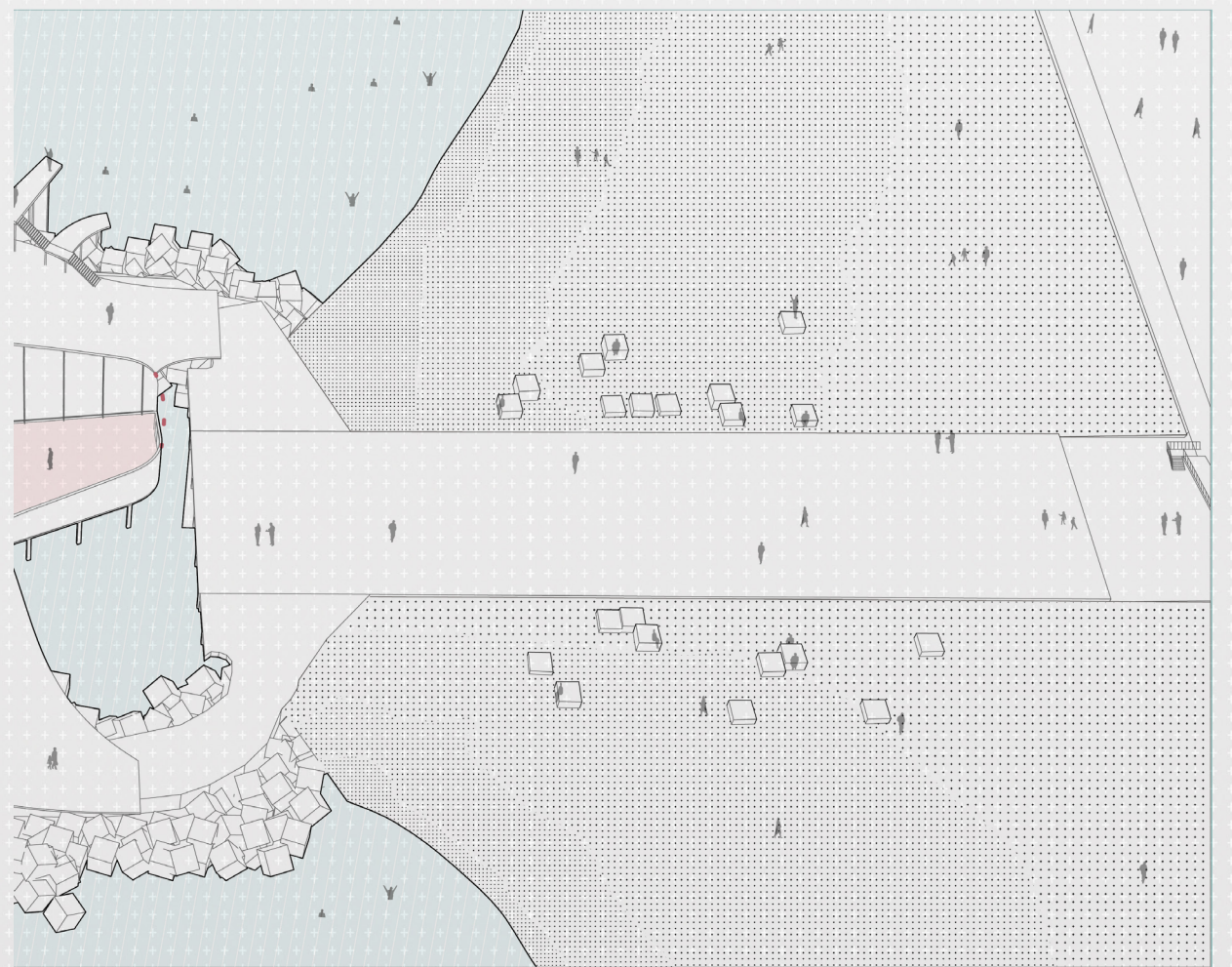
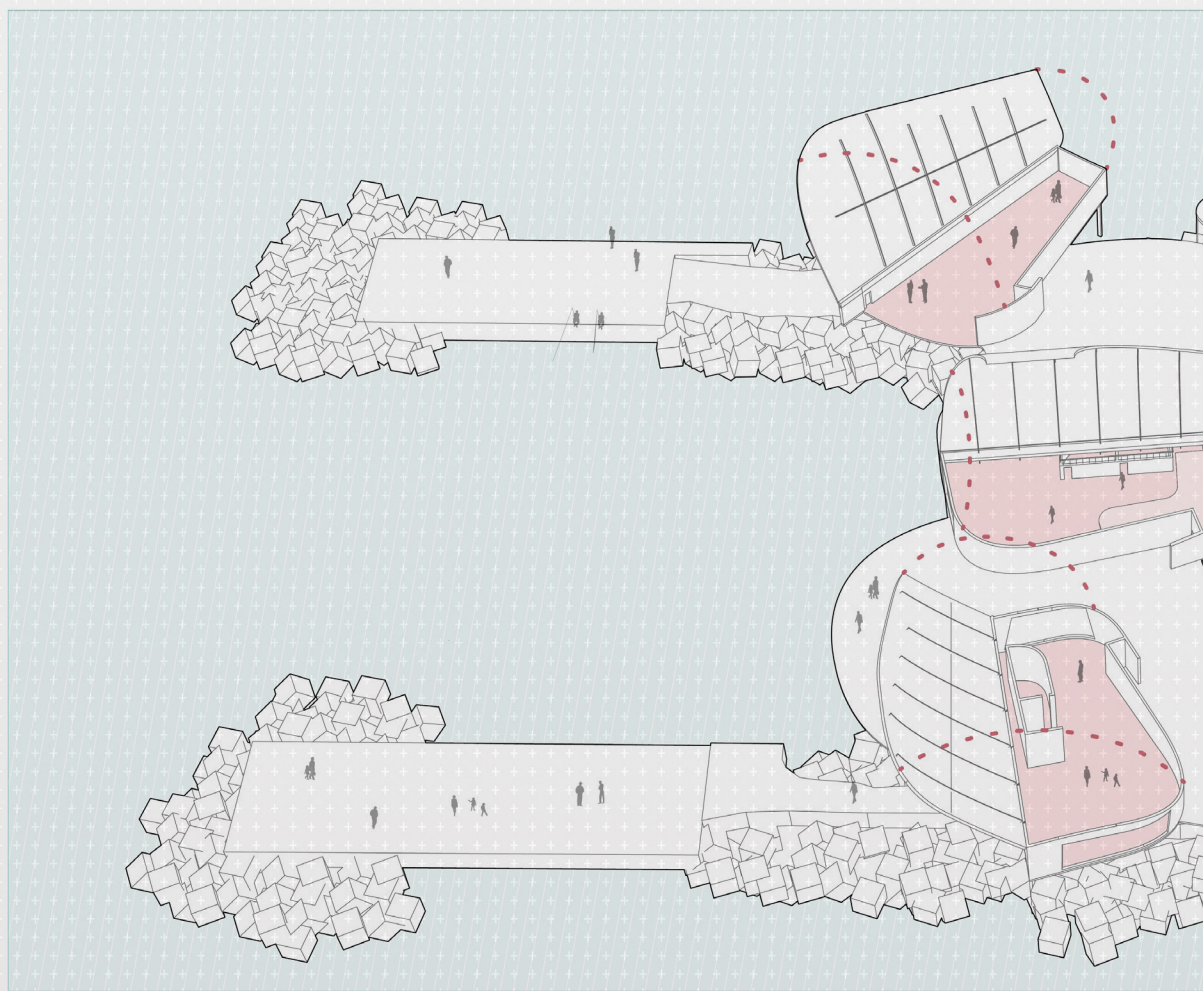
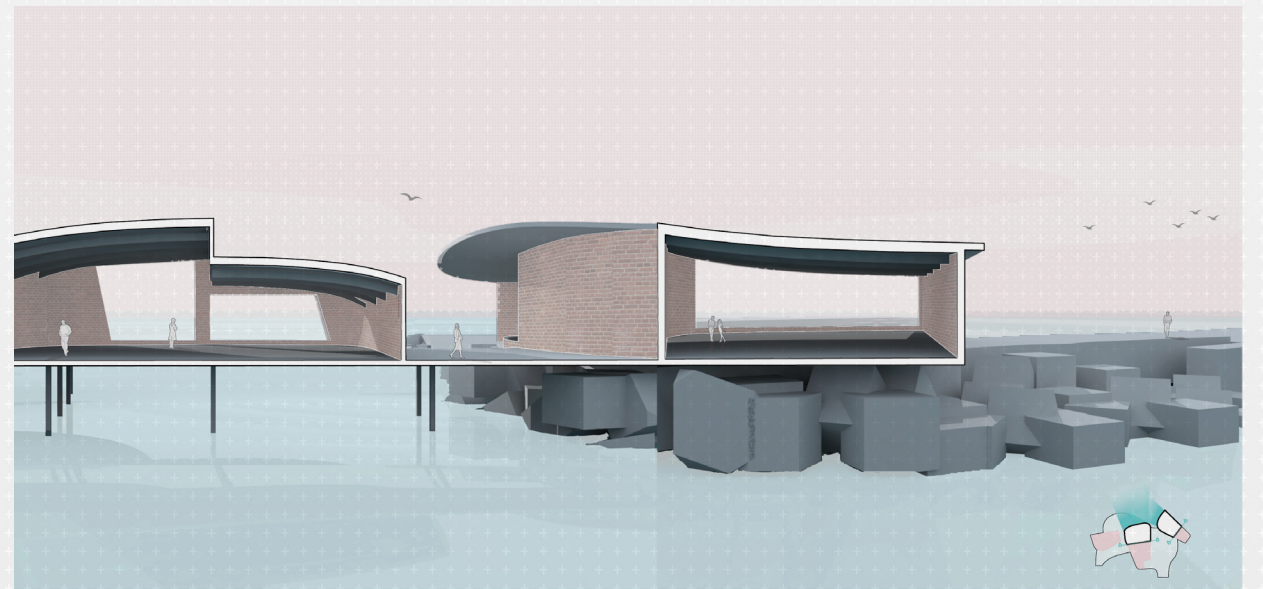
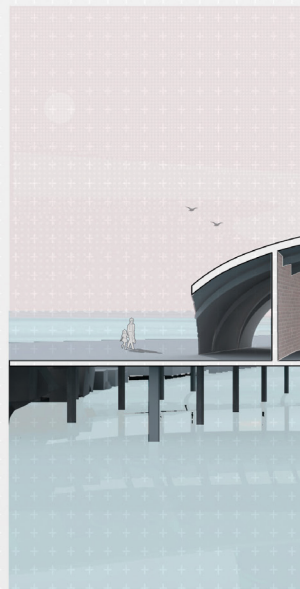
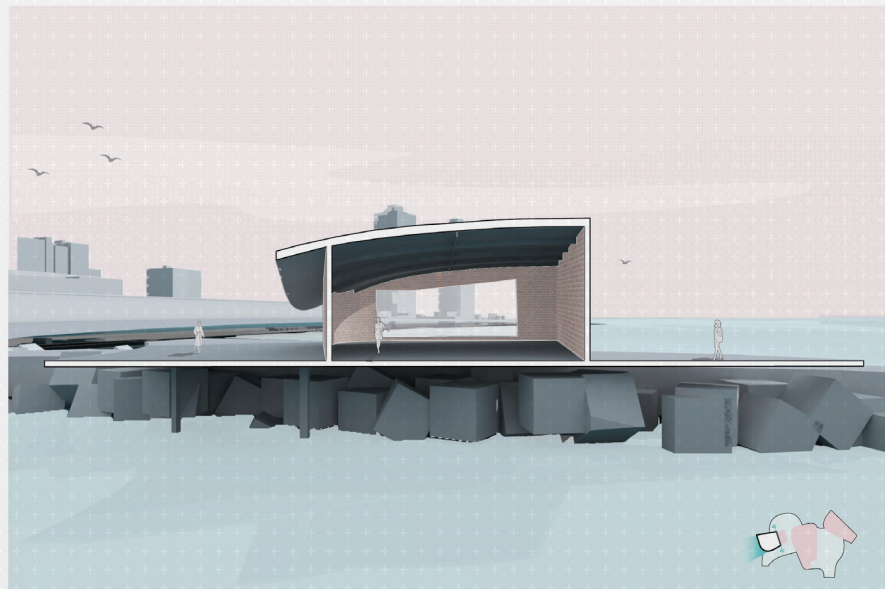
FRAMING BARCELONA 01  
 Jesus Frias, Sahil Shah / TAMU / Undergraduate

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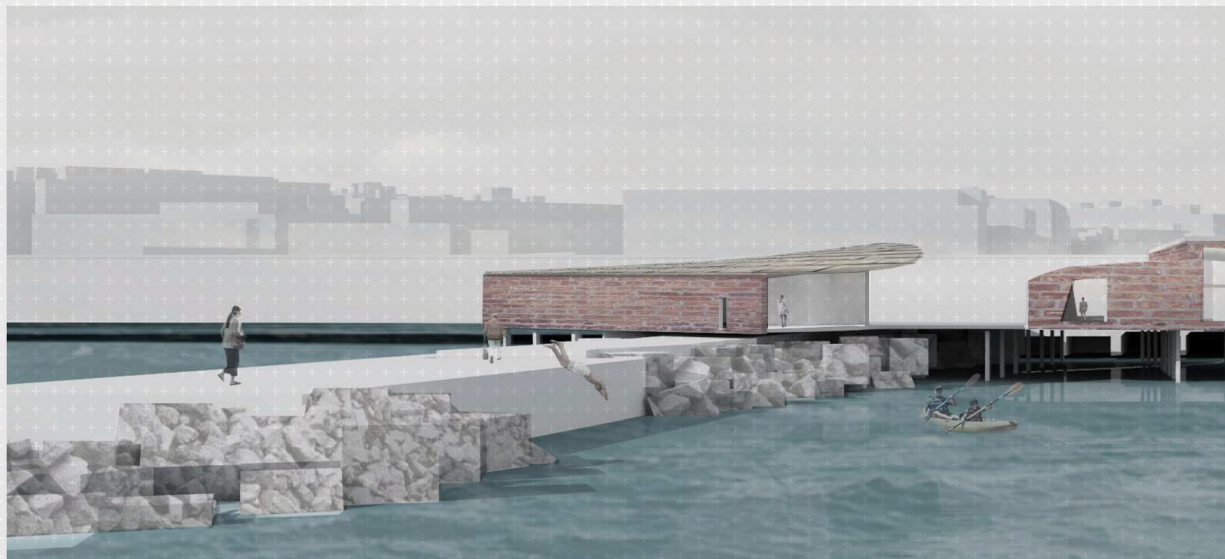
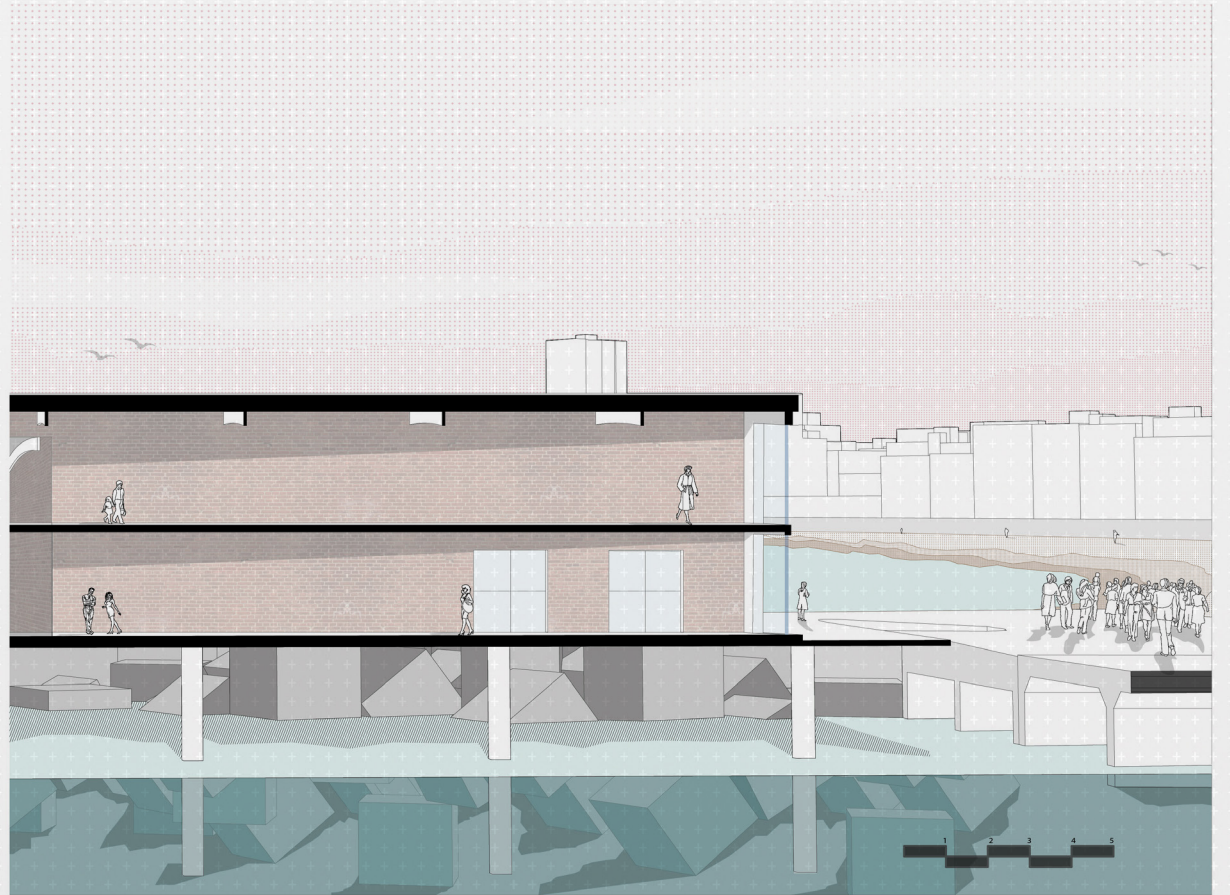
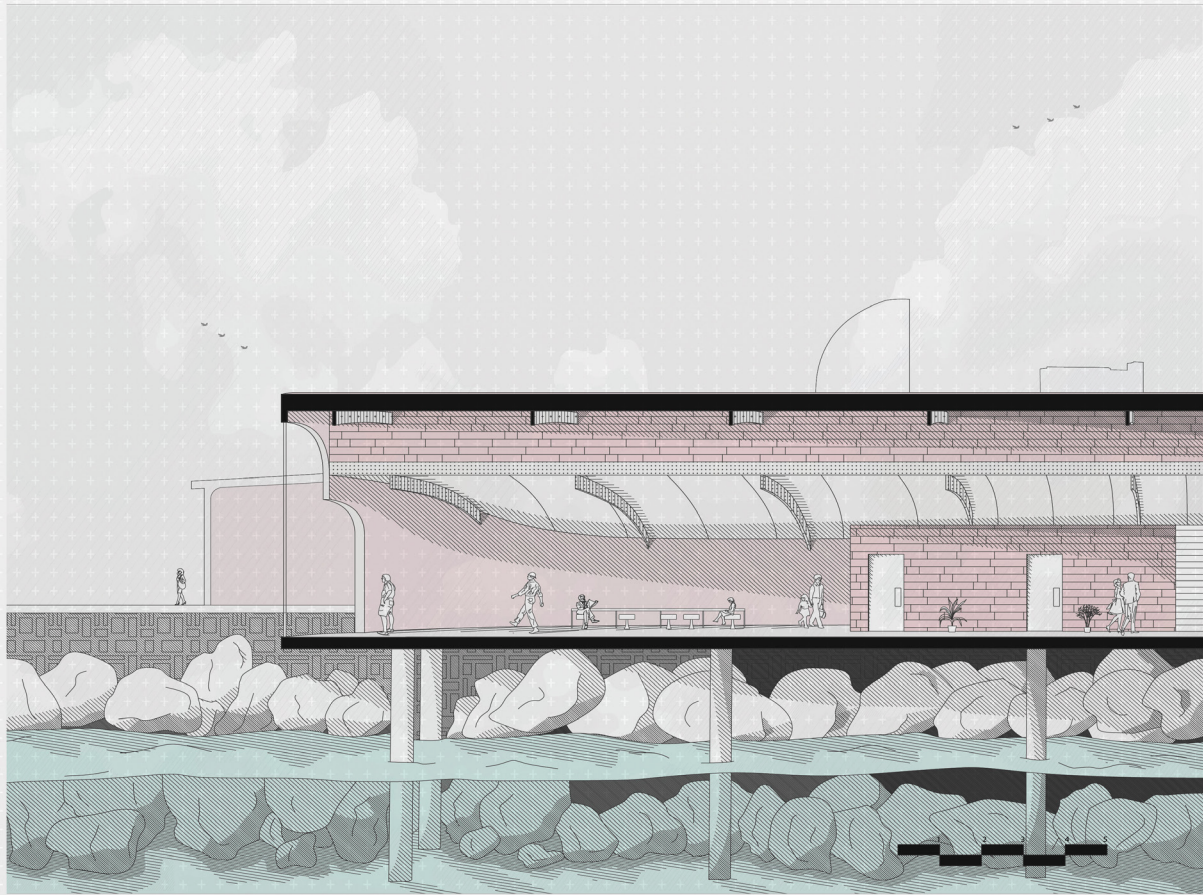
FRAMING BARCELONA 02  
 Jesus Frias, Sahil Shah / TAMU / Undergraduate











# PREFAB PARK

Garrett J Schappell, Clemson University, Architecture Graduate

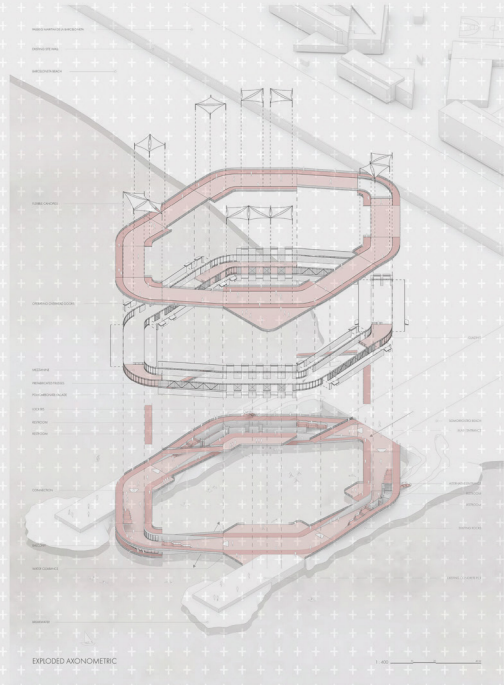
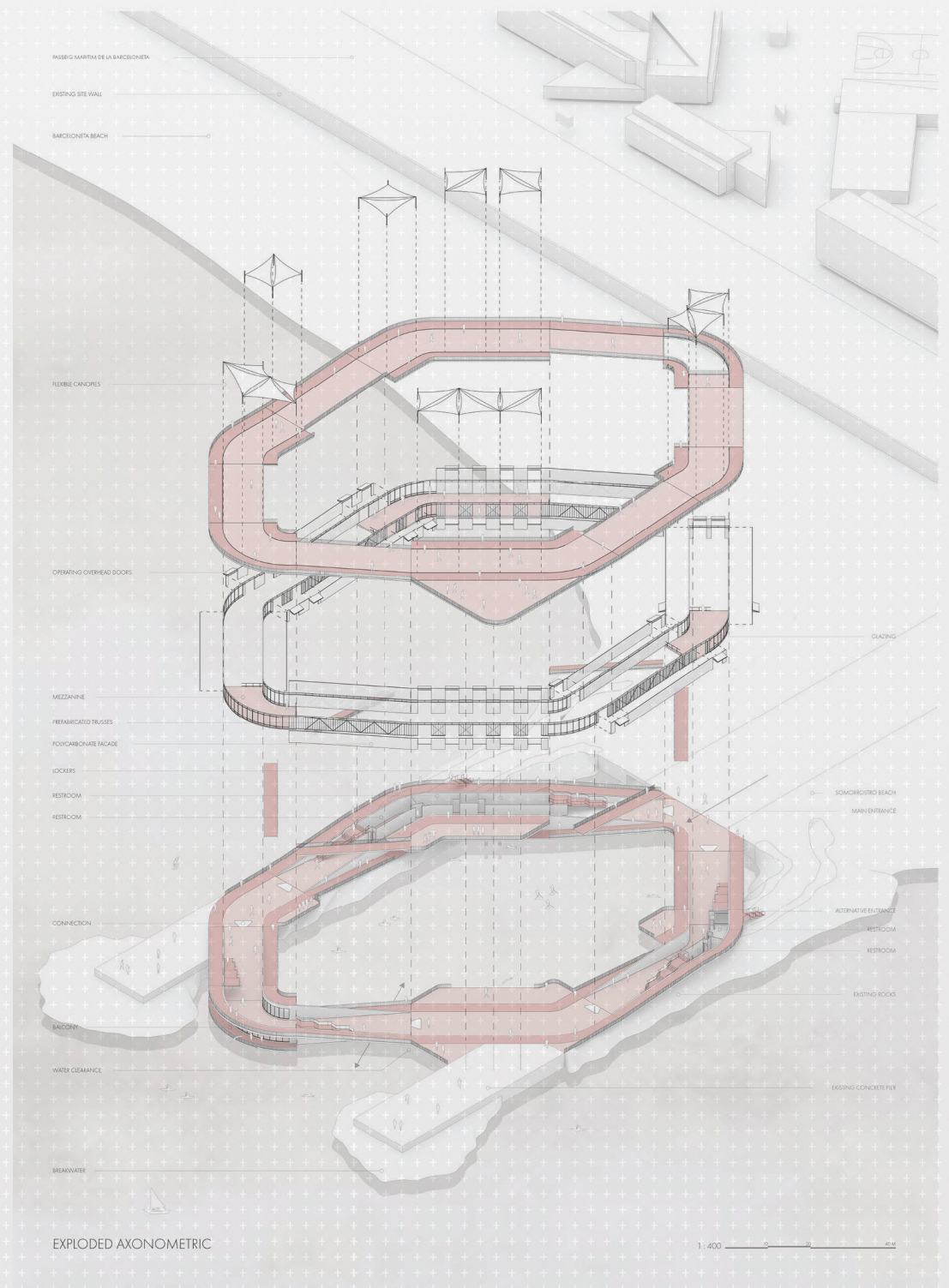
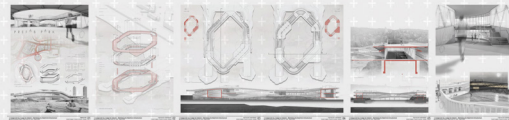
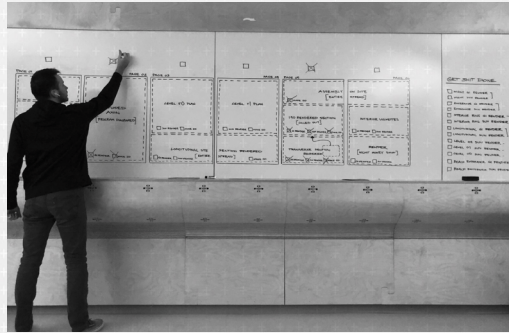
Situated adjacent to one of the busiest areas of Barcelona, Prefab Park is a temporary urban recreation area that also serves as facilities support to the nearby activities. Whereas Barcelona has now become known for some of the best beaches in the world, it is an unsustainable practice that is starting to bring more concern than good. Within the next couple decades, the beaches of Barcelona will look vastly different, and Prefab Park is fit to thrive during the transition period and beyond.

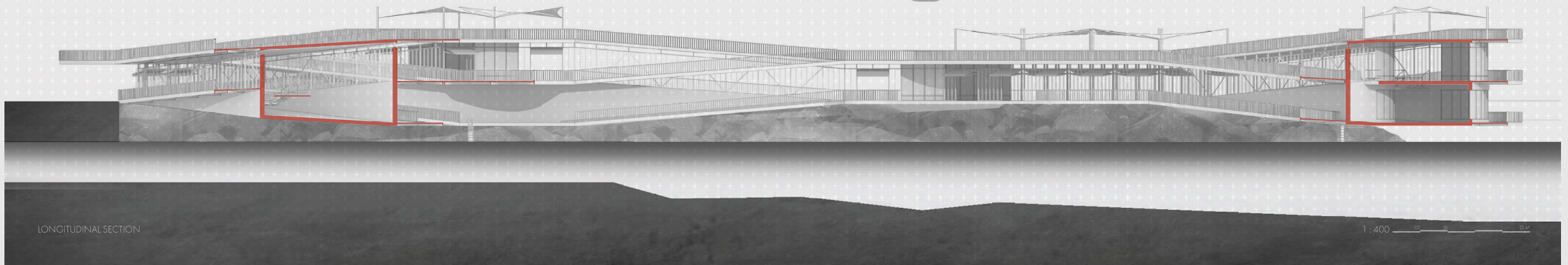
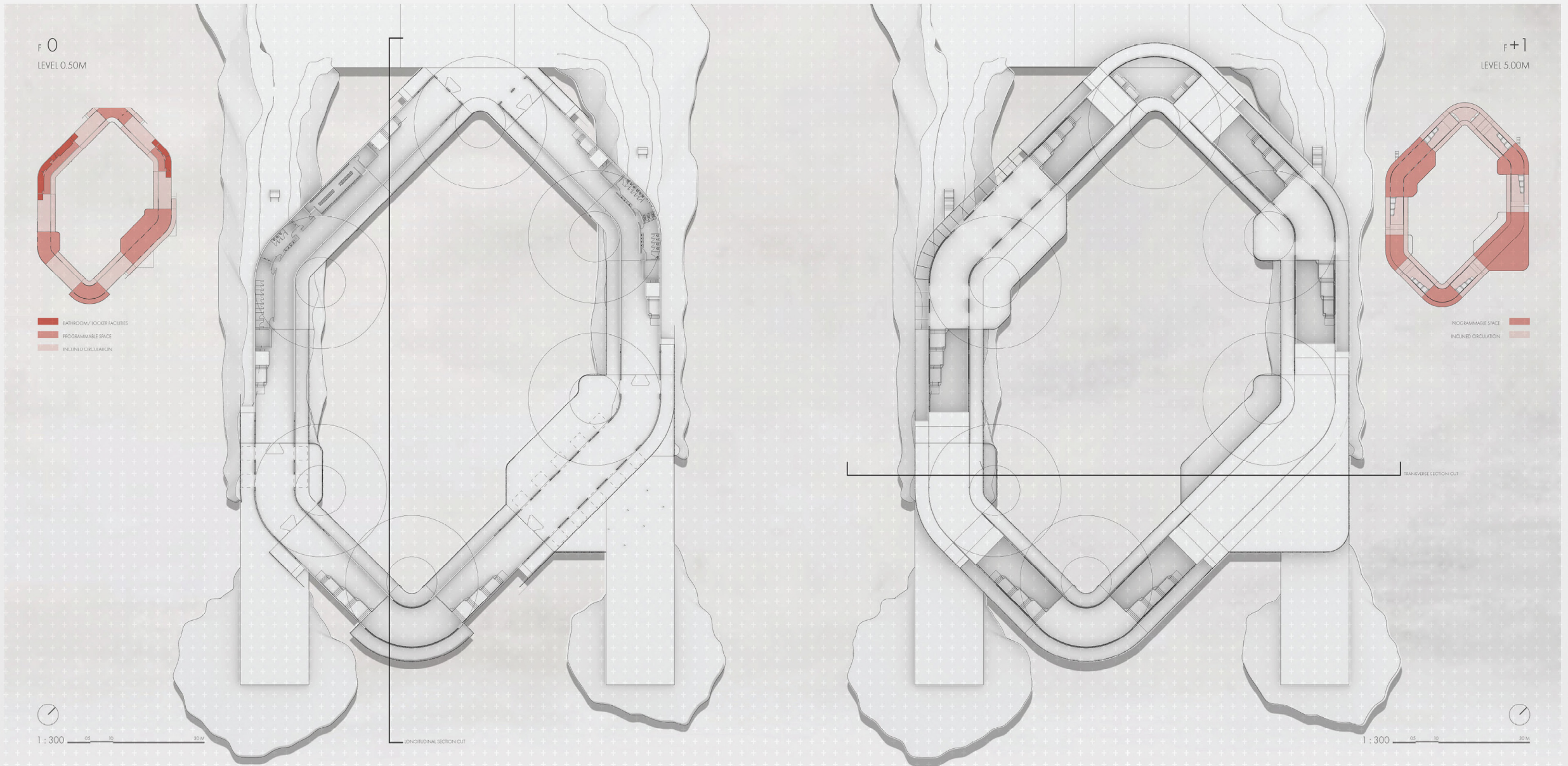
A host for hyperactive people and activity, this park features opportunities for engagement with exercise equipment, games, sports, and several different relationships to the ocean. Whereas the beaches consist of a single gradient of interaction with the water, the multiple jumps, docks, and ramps of Prefab Park create more variety and excitement for tourist and locals alike. This space will also serve as a comfortable and safe space for runners 24/7 that will have interesting interactions with the several different transparency design strategies of the facade. The building is designed around the sun in mind to create a comfortable inner-outside atmosphere all year round.

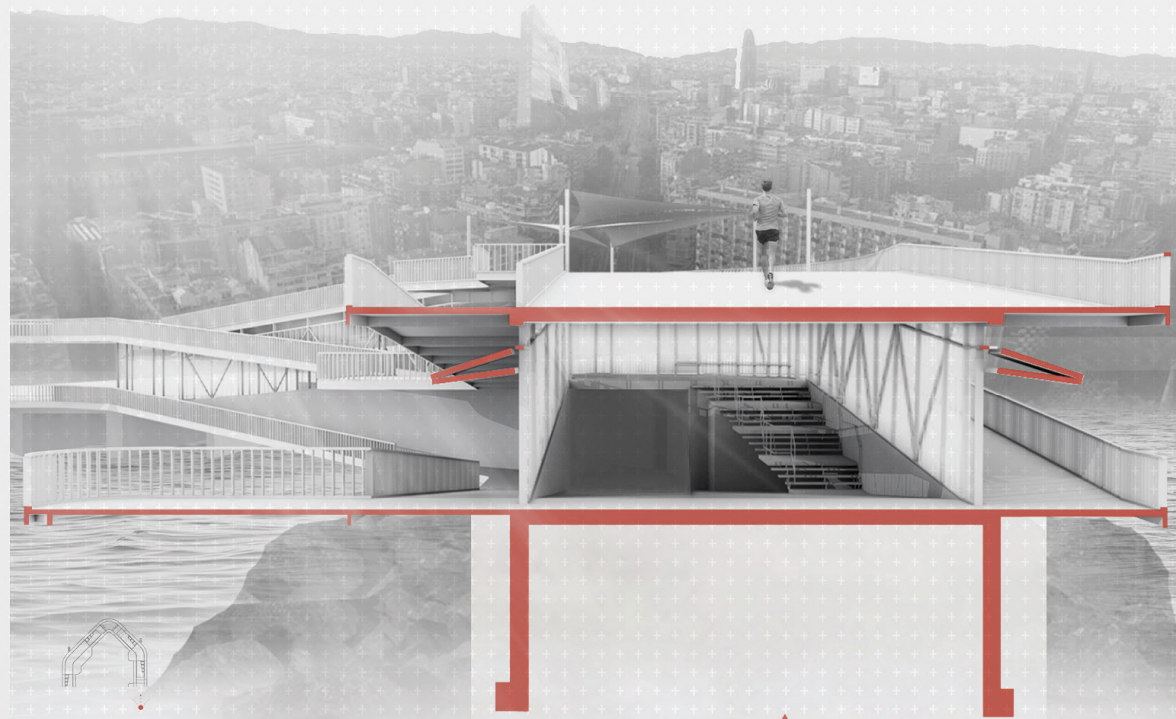
The actual construction of Prefab Park is what makes the project fit the site so well, since it will hardly need much site and construction time at all. Whereas traditional projects can easily take over a year to construct and finish, the majority of Prefab Park is built offsite and then transported to the breakwater when the time is right for it. This will save months from beach closure and be able to be up and open as fast as possible.

Just as assembling the structure is efficient and effective, the removal of the building is planned in advance and the same 6 main ring pieces that act as the structural trusses of the project can be removed in reverse order and moved from site. The project can be a chain of revitalization of different waterfront areas or even inland.

Prefab Park will be able to safely and comfortably serve not only inhabitants interested in the various programs it sports, but also be of service to people enjoying the leisure activities close by and need lockers, restrooms, showers, etc. Just as the site itself acts as an urban flood relief for the city, the same can be said of Prefab Park and its program. A subtle, but well-designed intervention that will positively impact the area.

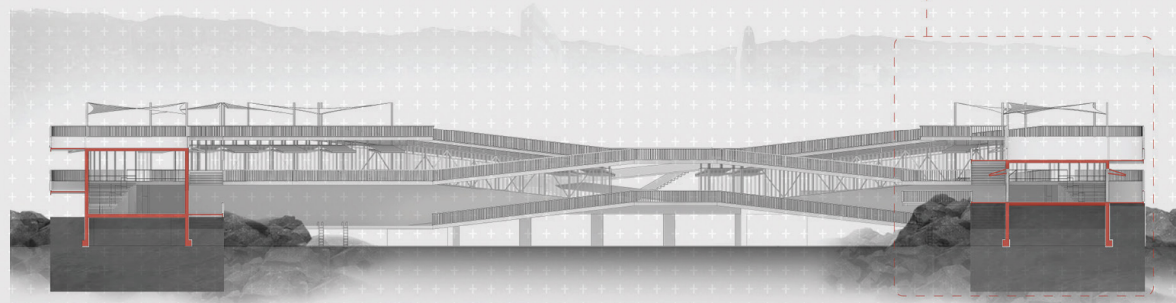






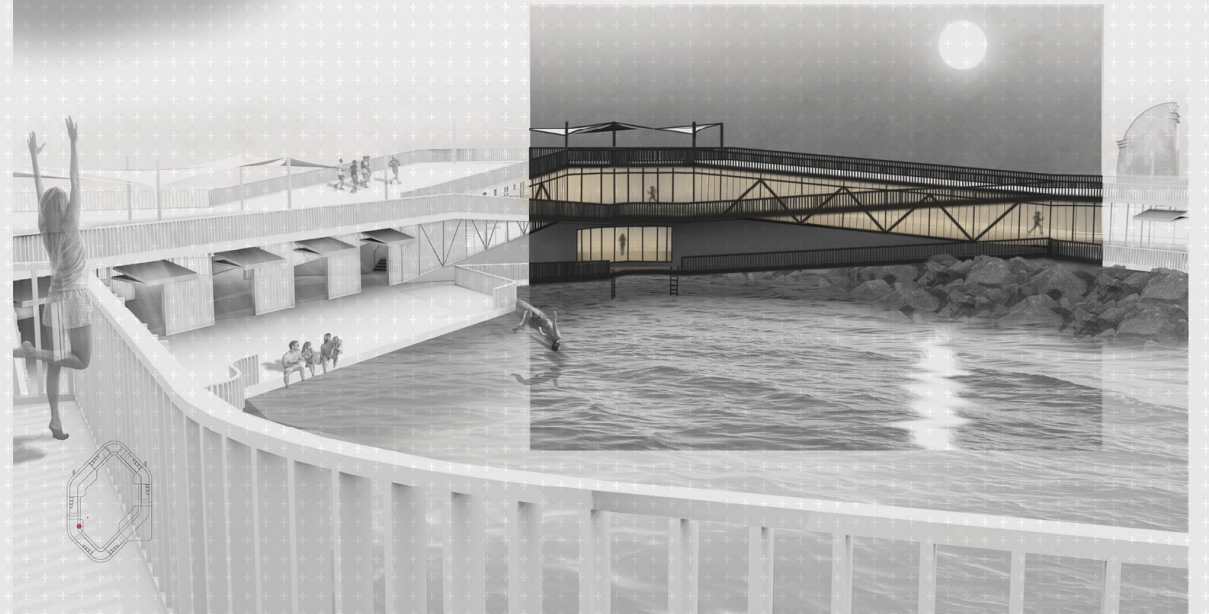
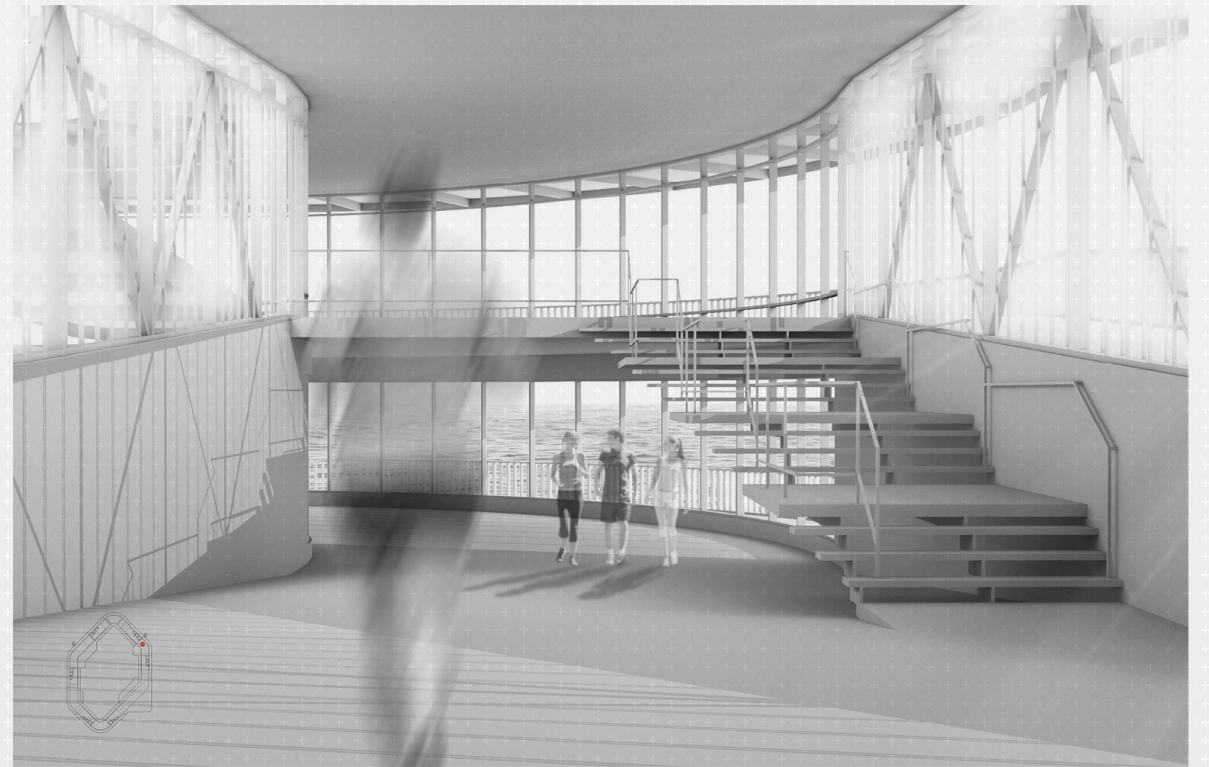
SECTION PERSPECTIVE

1:50 0 5M



TRANSVERSE SECTION

1:50 0 25



# THE CHAMBER: THE AXIS POINT OF SOUND AND SEA

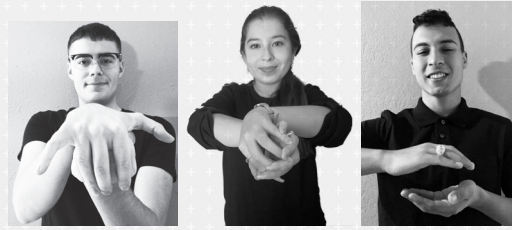
Preston Reid Baird, Texas A&M University, Architecture Undergraduate  
 Alissa M Flores, Texas A&M University, Architecture Undergraduate  
 George R Hass, Texas A&M University, Architecture Undergraduate

Barcelona harnesses maritime energy in numerous ways; whether that be through the activity on beaches or with the boats in the marinas, with the fishermen at the ports, or most pertinently within the walls and roofs found throughout the city. The dependence on the water not just as a source of business but also as a tourist attraction places greater importance and emphasis on it, allowing for revenue to be generated from both entities being taken out of the water (i.e. fish and shells) and entities going into the water (i.e. beach-goers).

Branching off from the beach lays our site, a two-pronged, concrete-floored pier extending into the ocean flanked on either side and each end by rocks, primed for added context. Situated away from the city though closer in proximity to the local marina, this breakwater acts as an interim space, prepared to disperse the wave energy and to provide an outcropping for passersby to venture out to observe the sea at play.

Our proposal serves to bridge the gap between the two piers converting that divergent circulation into a convergence point, harnessing the waves and propelling them towards the city in a closed circuit. We plan to preserve the properties of the site as a breakwater whilst also adding a destination for people to travel towards and through. The additional plaza flowing outwards from our construct hopes to capture the interplay of waves in the median space between the two piers.

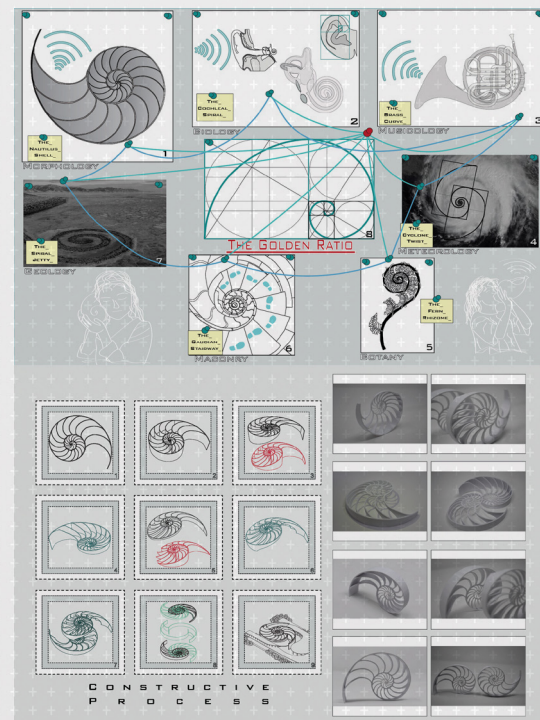
This proposal was generated in the spirit of a completed circle, a structure that utilizes the integrity provided by fiberglass construction in order to support natural geometric forms and to create an exceptional acoustic environment.



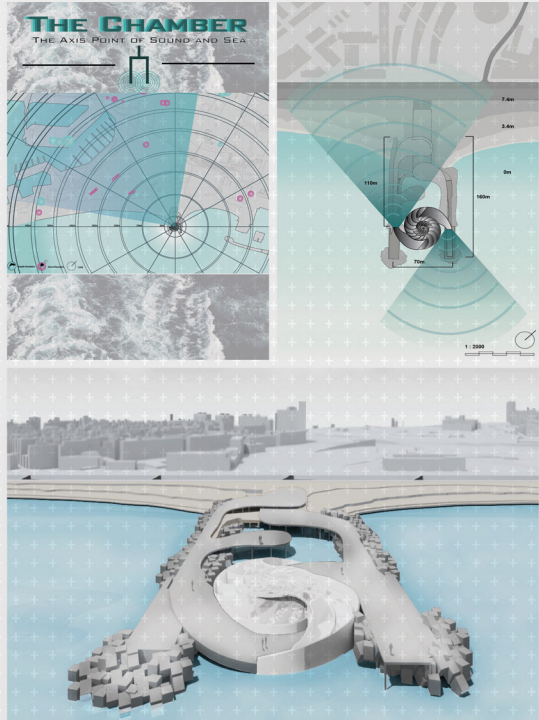
A concert hall that descends beneath the surface of the water, following curves while naturally blending arch and ramping elements in a helical approach to make the most conducive space for people and sound to travel through. The proposal includes a ticket booth, restroom facilities, a congregational space, a stage for performances, a private seating area outside, and a 2-sided raised plaza.

The proposal centers around the concept of a concert hall or an acoustic area in which performance is undertaken; an artistically made space in which musical and creative endeavors can be given life. Spanning the width of the two piers, this space allows for upwards of 400 attendants to sit and enjoy symphonics, theatrics, and speaking events and also allow the option to step out to listen to the inherent natural acoustic performance of the waves on the piers.

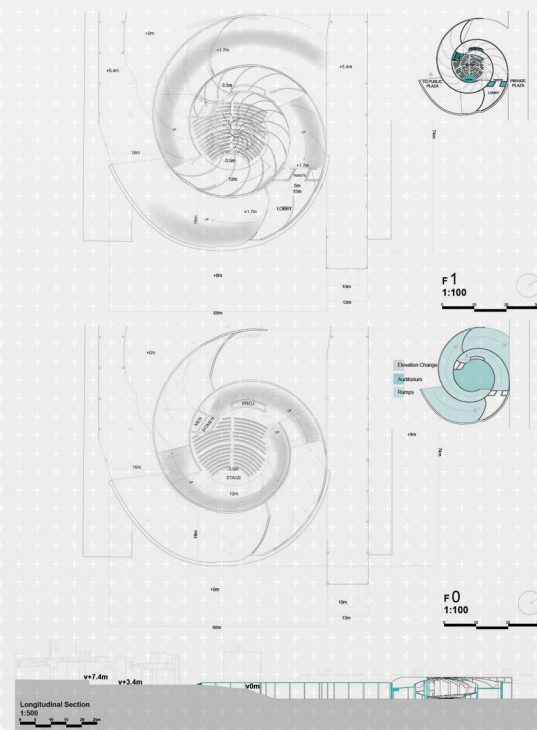
Our site is situated away from both the aquatic and sound-based recreation of the city, far enough away that the only noise being heard is that of the waves lapping against the sand and crashing against the stone. By situating a concert hall in that pivotal position, we are making that the focal point for tourists and locals alike, converging at a place that captures the resonance of waves of all kinds.



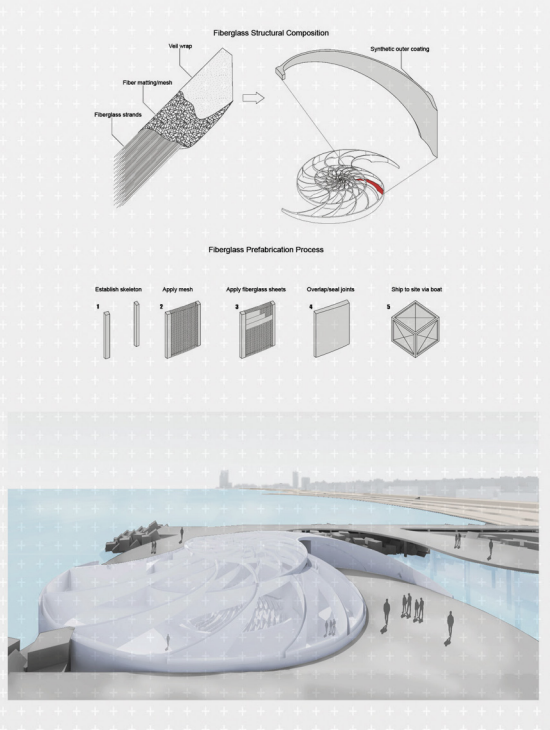
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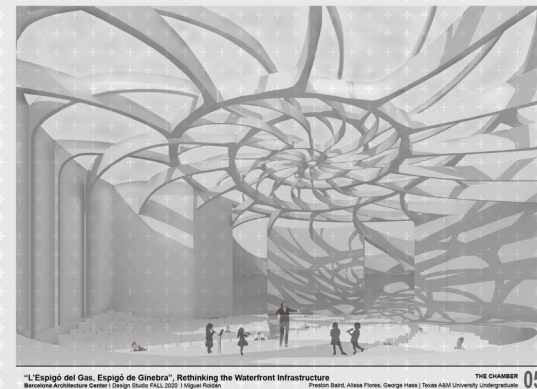
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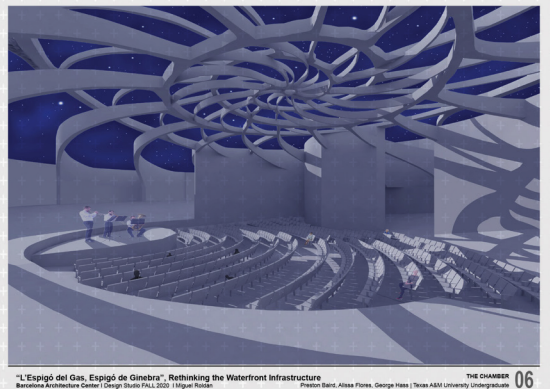
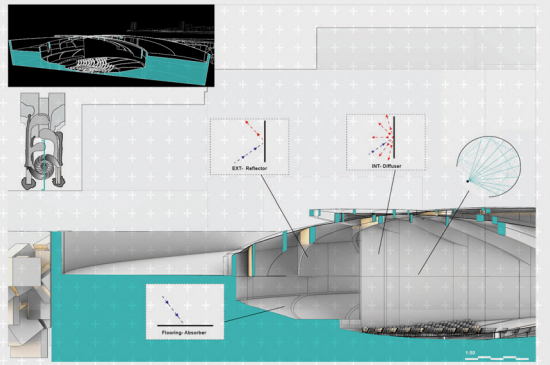
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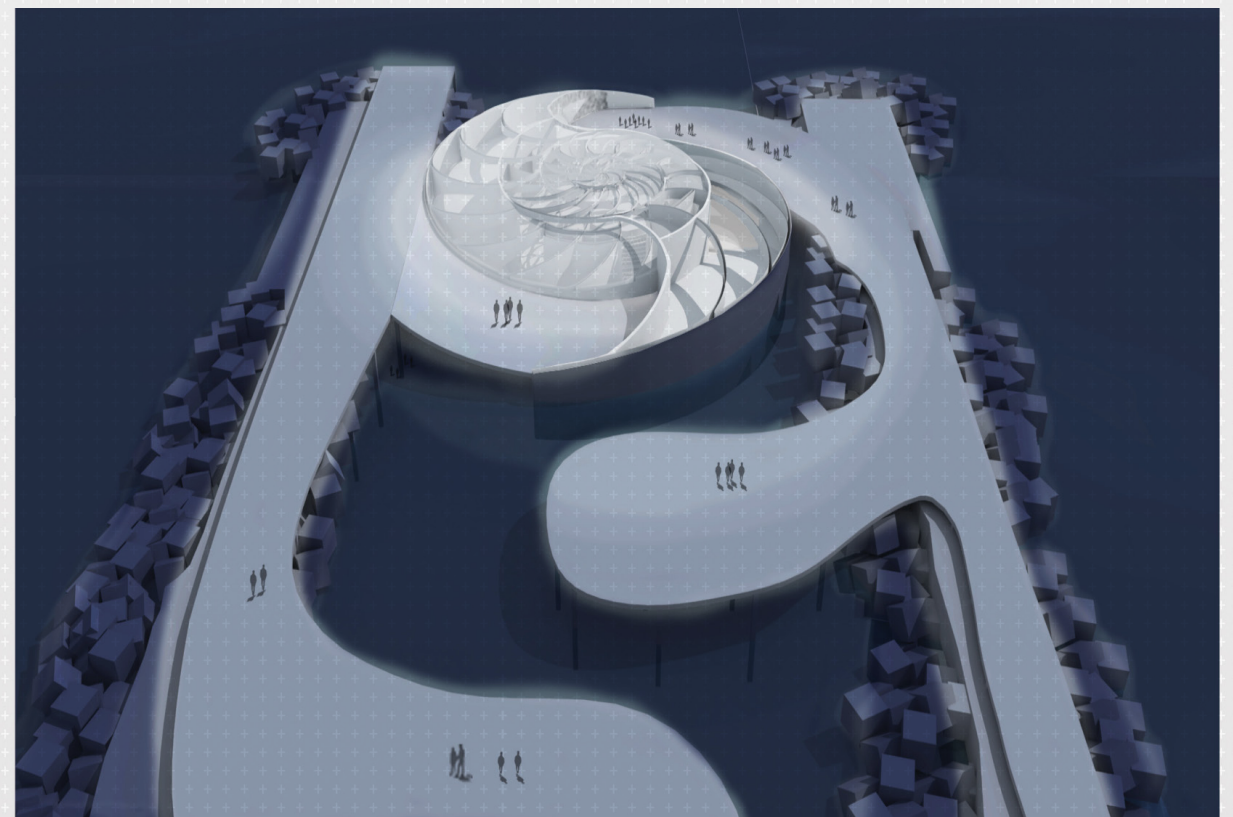
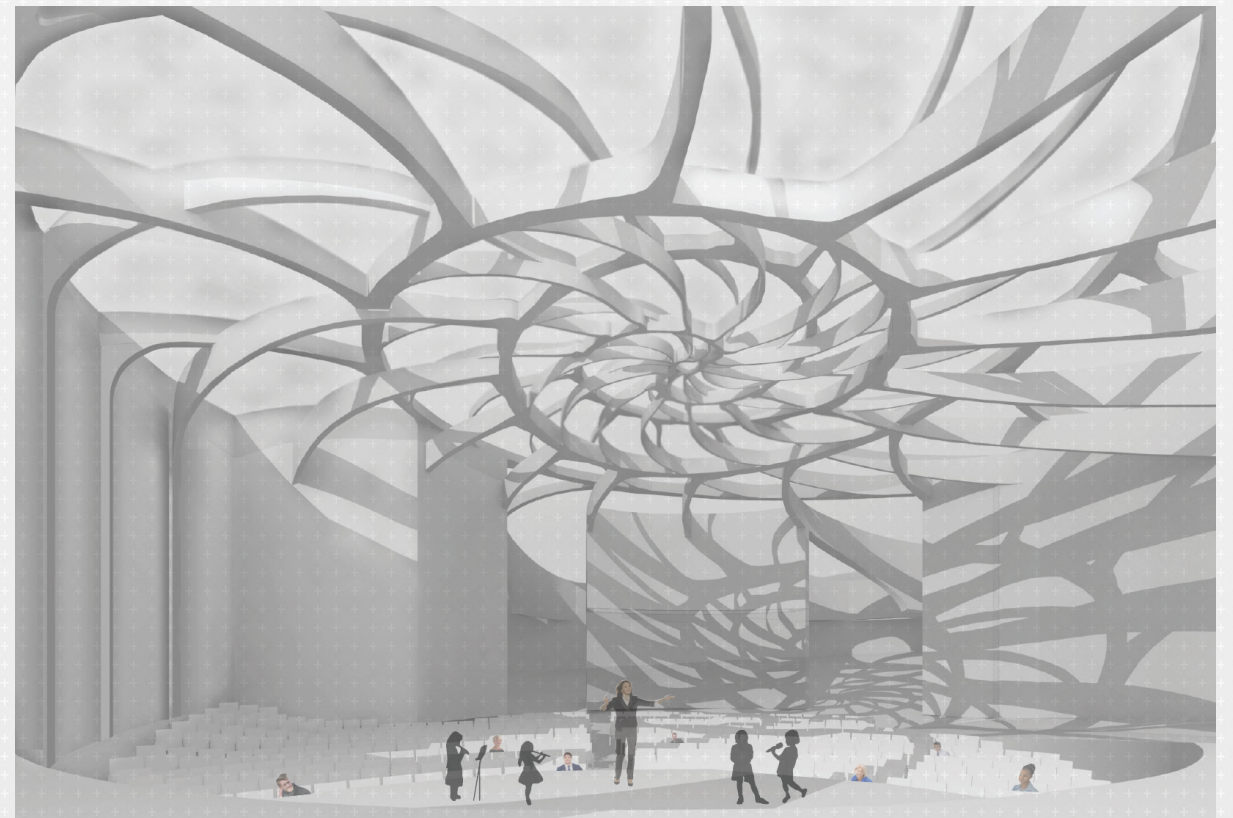
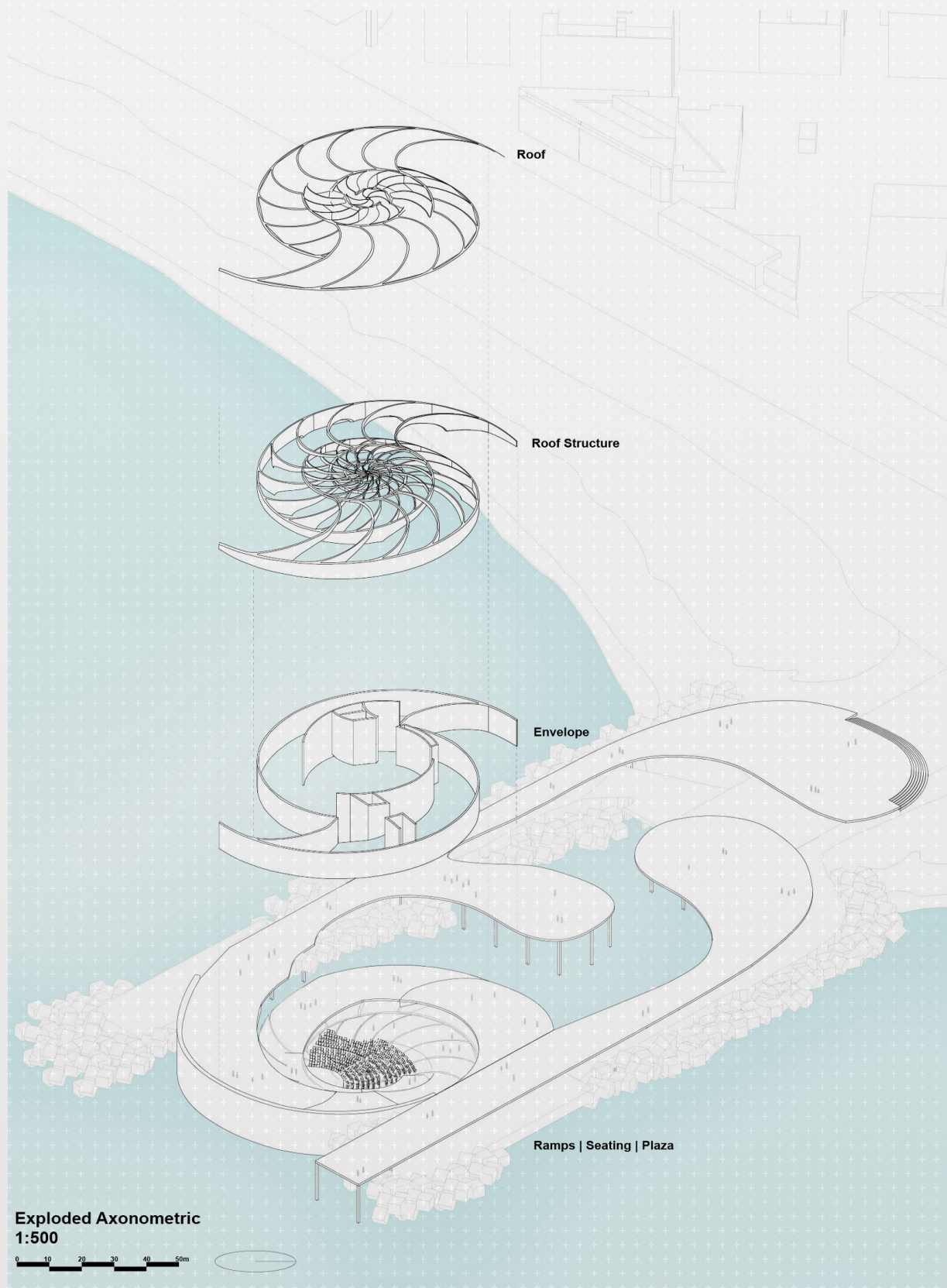
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# SERPENTINE EFFECT

Paige Ashworth, Clemson University, Architecture Undergraduate  
 Elaina D Vaughn, Clemson University, Landscape Undergraduate

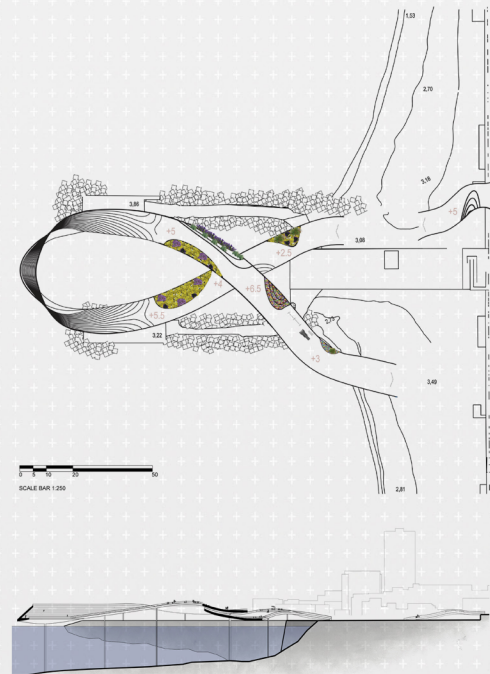
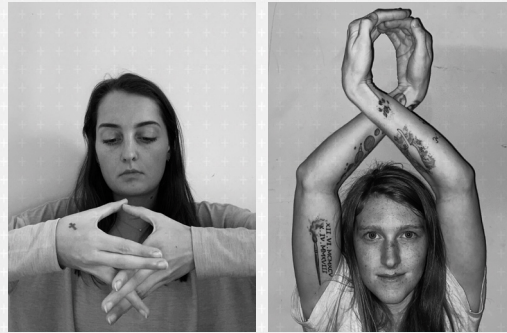
Our design is meant to connect the city and beach in one fluid motion. The idea is to unify two democratic spaces into one. When we studied Barcelona we noted no shortage of public gathering spaces, each one encompassing one or two of Barcelona's core values of people, landscape, and the sea, but the most welcoming of these being the coastline. We knew it was necessary to design with these same values in mind, and when thinking of the people who would come to this area, finding the balance between leisure and functionality became necessary.

The beauty of the design is the structure's use of only one surface that weaves within itself to create multiple spaces with varying functions. The most obvious of these is the amphitheater space created through the curve's own topography lines, a space of relaxation and seating during the day, and potential event and show space in the evenings. This area is intended to be one of the main revenue sources for the structure.

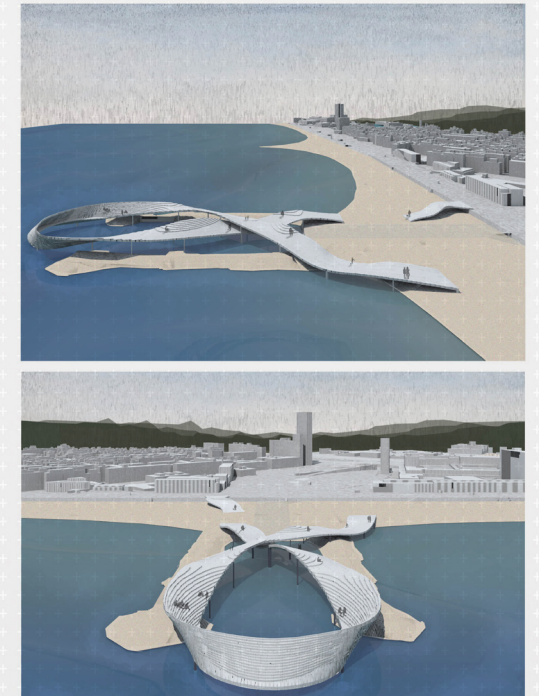
Because of its constant slope, our structure begins to address handicap accessibility to the beach, and begins to play with the idea of a constant sloping structure, fortunately for those in need, and those who enjoy any form of recreational skating.

Also through use of topography lines, spaces become separated into pathways and varying landscape areas, meant for leisure and relaxation for the public.

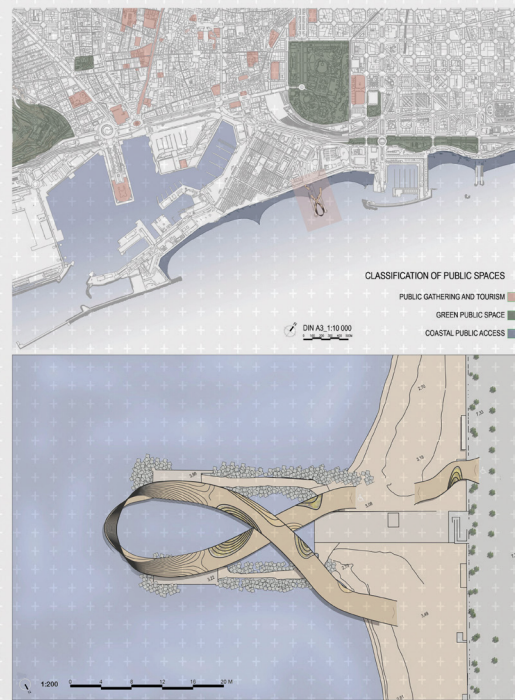
Looking at the proposed structure from the beach, the left side has a small playscape incorporated for children to enjoy while parents sit, relax, and take in the gorgeous views of the city, beach, and ocean. Gardens are places throughout the proposed site, each giving a different ambiance at everyone. Some seating areas are placed within the gardens to add more interaction with those plants and some gardens act as the perfect backdrop for photos.



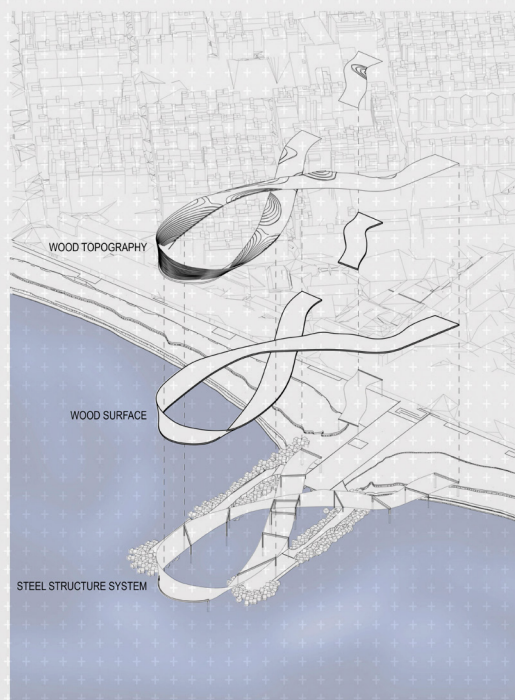
"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rueda  
 Paige Ashworth and Elaina Vaughn | Clemson University | Undergraduate  
 Serpentine Effect 03



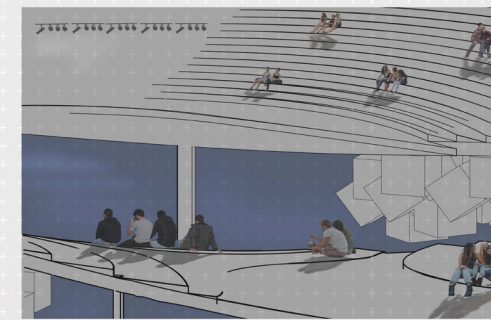
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 Serpentine Effect 04



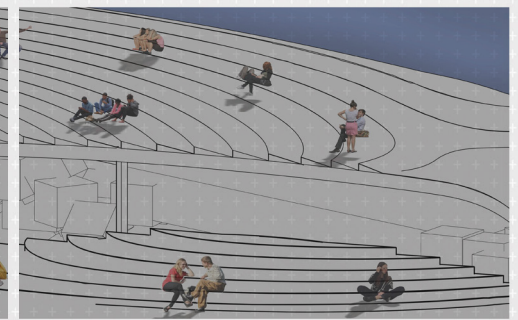
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 Serpentine Effect 01



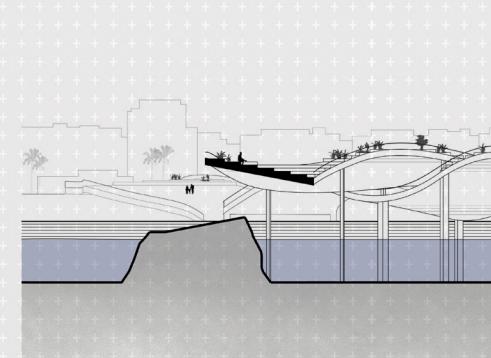
"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rueda  
 Paige Ashworth and Elaina Vaughn | Clemson University | Undergraduate  
 Serpentine Effect 02



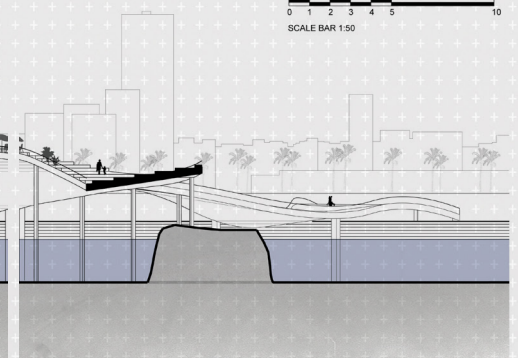
SCALE BAR 1:50



SCALE BAR 1:50



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 Paige Ashworth and Elaina Vaughn | Clemson University | Undergraduate  
 Serpentine Effect 05



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 Paige Ashworth and Elaina Vaughn | Clemson University | Undergraduate  
 Serpentine Effect 06

## 2000M2 X 5MM

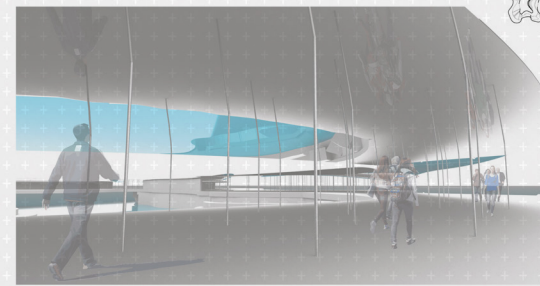
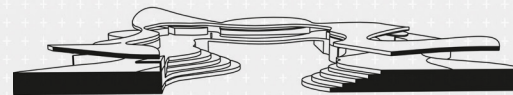
Jason Ariel Fuentes, Texas A&M University, Architecture Undergraduate  
 Thomas Patrick McCormick, Texas A&M University, Architecture Undergraduate

Barcelona is one of the most diverse cities in the world. The goal is to cultivate a vehicle of symbiotic multicultural interaction. At the void intersection of international centers and local markets in the area, a multicultural market is the answer.

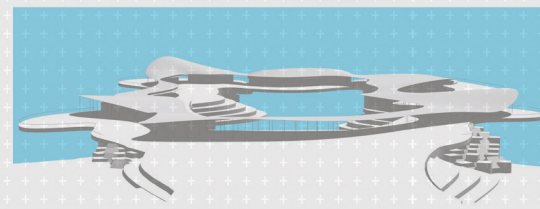
The open-air markets (one for each prominent nationality), accessible from all directions, visitors will come from every neighborhood. This will cross both local residents' and tourists of each of the five major nationalities of our city in one attractive location - a place where multiculturalism can flourish both socially and economically.

The design encapsulates the nature of Barcelona, avoiding disruption of the flow of natural elements contrasted to the breakwater's founding purpose. The market on piers is designed to experience something unique from each individual market, pavilion, or overlook.

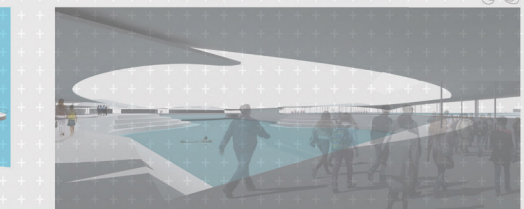
There is no identical or repetition. The pavilion is comprised of a 5mm thin aluminum perforated sheet atop 10cm diameter vertical poles. The roof bends to reflect the sea, sky, or city, as well as also highlighting the mixture of people groups. Multicultural calls for multiuse. Each market will host local international vendors, encapsulating the largely diverse culture of Barcelona under one roof.



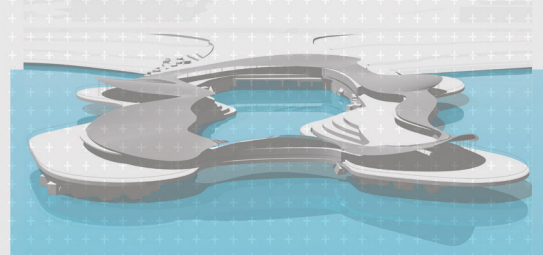
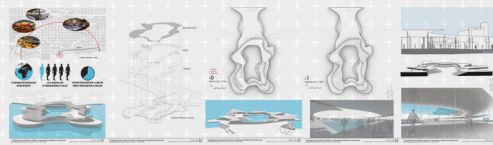
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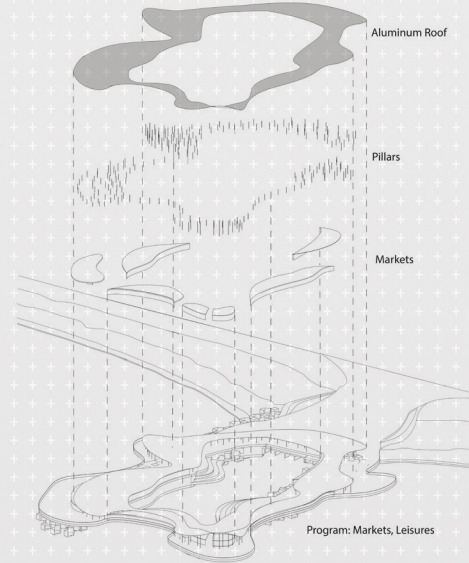
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# SALT WATER PAVILION

Sergio Espinosa, Texas A&M University, Architecture Undergraduate

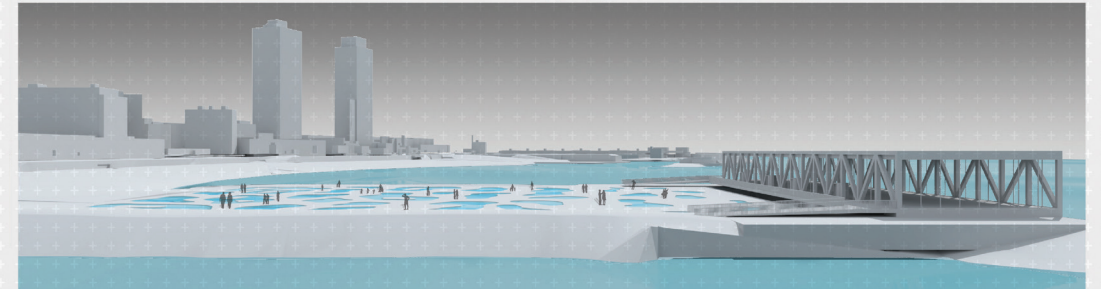
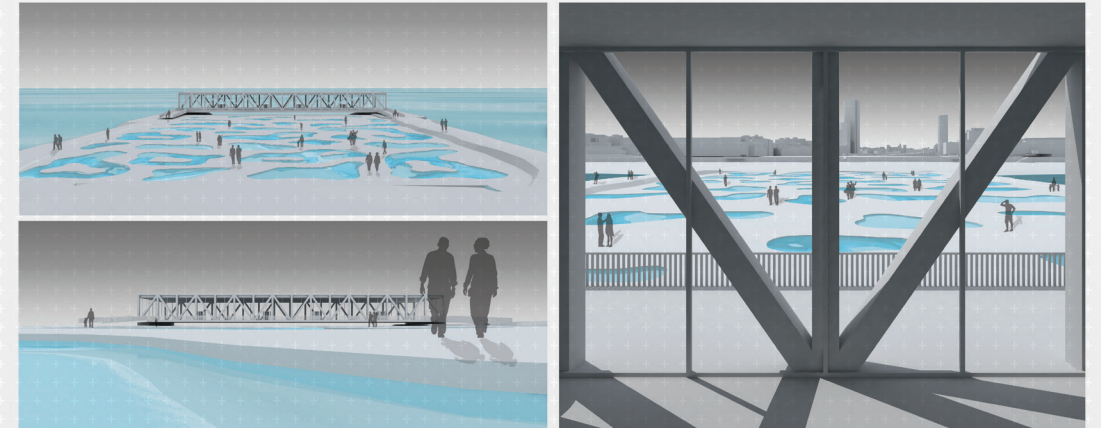
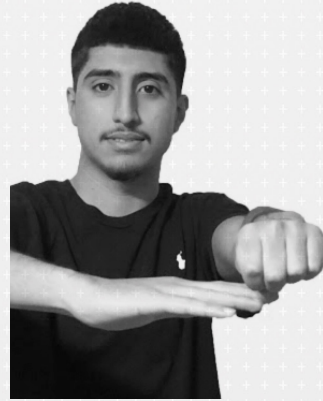
Barceloneta beach is one of Barcelona's iconic landscape, which it features a place to swim, socialise, and enjoy the city's nightlife. This beach is also remarkable for being on the doorstep of the city centre.

Furthermore, Barcelona is also known for its wonderful pavilion it has, which was design by the famous architect Miss van der Rohe. This pavilion is known for the modernist classic design, simple form, and its spectacular use of materials. I decided to bring another pavilion to Barcelona, but instead of having both pavilions in the city. Why not design one by the sea? Right on top of the ocean. Instead of just building a pavilion, I decided to add a landscape that will connect the sea to the pavilion. So as you will like to go to the pavilion, you will have to go through the salt water landscape that is design like a sponge.

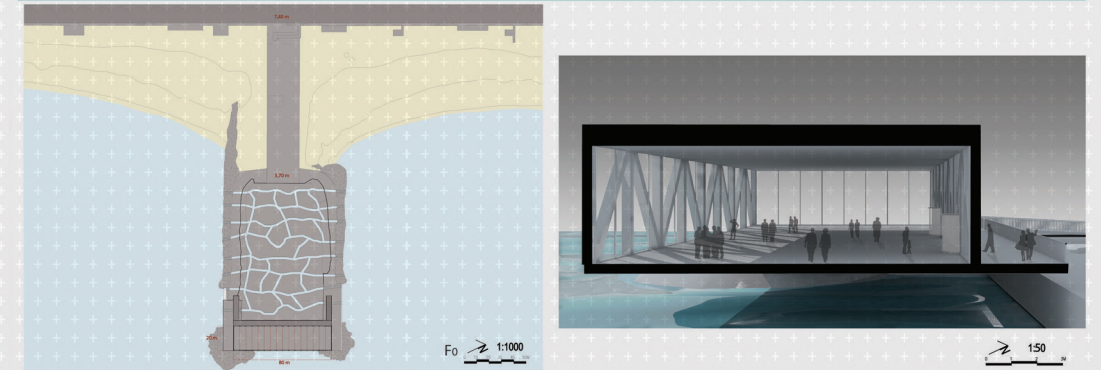
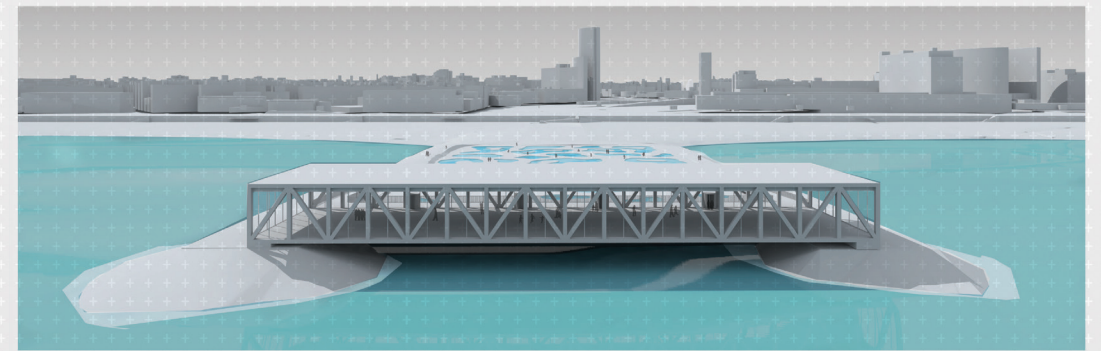
The salt water landscape works in a way, which it will infiltrate the sea water from both sides of the breakwater. When the water emerge into the breakwater it will create the landscape that will be made out of the salt water from the sea. At the end of the salt water landscape is where the pavilion will be located. The pavilion will be design as a bridge, because the pavilion will be in a higher level than the landscape and it will be floating over the sea.

This pavilion can be used in many ways, such as a public or private space for manyorganizational events just in front of the sea. This pavilion will have many wonderful views all around the building, so I decided to surround the pavilion with windows to provide a 360 view inside the building.

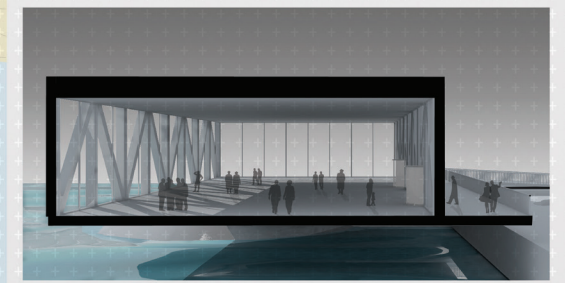
In addition, coming from the beach and into the salt water landscape, you will have the landscape's view and at the back the pavilion will seem like it is standing on top of the sea, because it is not standing on the surface. The landscape area has many different paths to get to the pavilion, so the people won't have to repeat the same path every time. Furthermore, looking from inside the pavilion and towards the city, you will have the view of the wonderful city and salt water landscape. As a result, this site will have a great connection with its surroundings, such as the sea, beach, city, and also the Barcelona Pavilion.



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 Sergio Espinosa / TAMU / Undergraduate  
 ART GARDEN 05



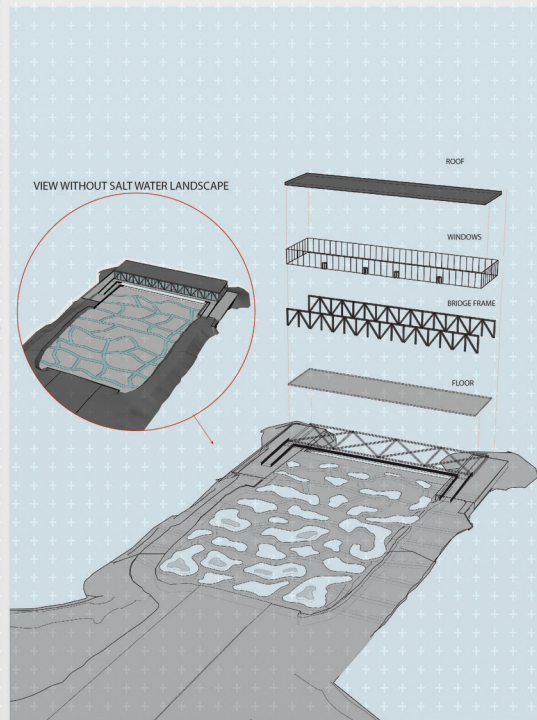
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 Sergio Espinosa / TAMU / Undergraduate  
 ART GARDEN 03



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 Sergio Espinosa / TAMU / Undergraduate  
 ART GARDEN 04



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 Sergio Espinosa / TAMU / Undergraduate  
 ART GARDEN 01



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 Sergio Espinosa / TAMU / Undergraduate  
 ART GARDEN 02

# WETLAND MARKET

Hayden Joseph Holt, Clemson University, Landscape Undergraduate  
 Luis Horacio Guzman, Clemson University, Architecture Undergraduate

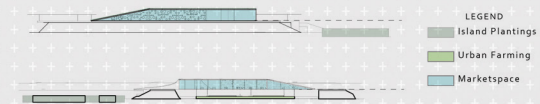
During our studies this semester, we learned how important culture and food is to the people of Barcelona. Throughout our learning experience we took inspiration and themed our site around these attributes. Barcelona's market scene is a prominent aspect of the city and provides people with economic stability, communal experiences, and a trustable food source. Barcelona's growing green connections in the city also gives us an opportunity to create a unique market space integrated with native vegetative space. Our site will strive to intertwine protective coastal greenspace and a communal agricultural market.

The location of our site allows us to connect with greenspace and commercial connections throughout the city. By incorporating native vegetation and a market in the coastal beach of Barcelona we can strengthen the city's connections with the ocean and nature. On site, floating urban farming plots provide sustainable farming options for the market while embracing the natural food producing plants of the region. Native vegetation growths parallel to the site allow coastal habitats to develop, protecting the integrity of the beach while raising ecological awareness among the community.

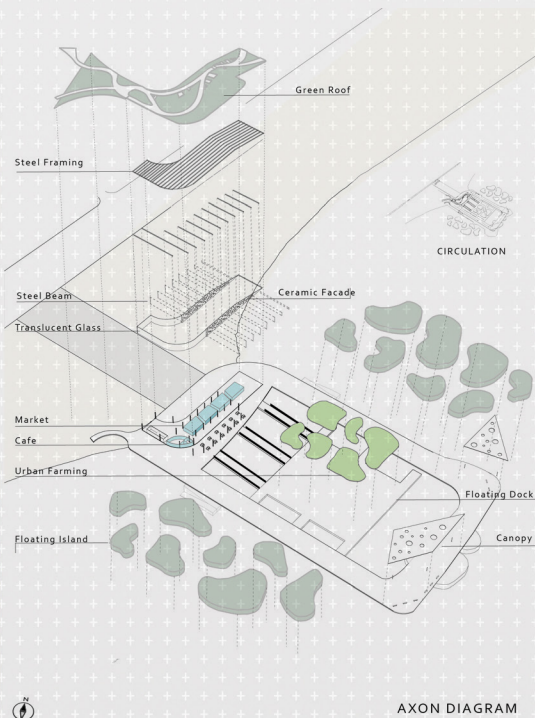
Urban farming techniques incorporated with our design allows fresh crops to be harvest directly on site and sold in the market stands. By farming only native food producing plants of the region the site strengthens visitors understanding of Barcelona's natural foods and provides a sustainable source of agriculture within the city. With Barcelona's unique native selection of crops we can provide a unprecedented experience for visitors. Reserving space for coastal habitats to develop allows nature to reclaim a lost part of the city while educating visitors on the coastal ecology of Barcelona. Floating islands would provide protected space for habitual growth. Accessible to visitors, the islands provide a unique coastal experience unlike no other in the city. Not only does our approach to the existing site expand Barcelona's green infrastructure, it also provides a communal and educational experience for visitors. It shows them a side a unique side of the city's forgotten ecology through native greenspace while providing a local marketplace.



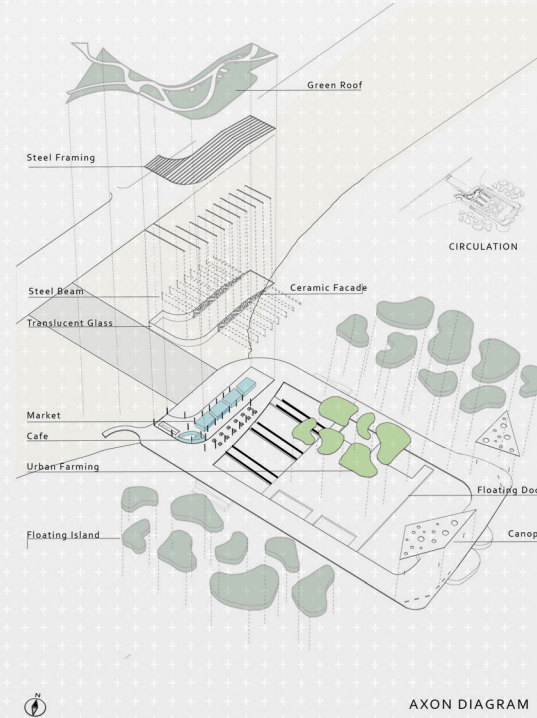
## WETLAND MARKET



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 THE TITLE OF YOUR PROJECT  
 Student's names / Schools / Undergraduate or Graduate 01

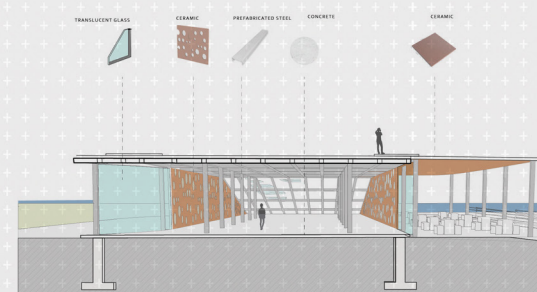


"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
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 THE TITLE OF YOUR PROJECT  
 Student's names / Schools / Undergraduate or Graduate 02

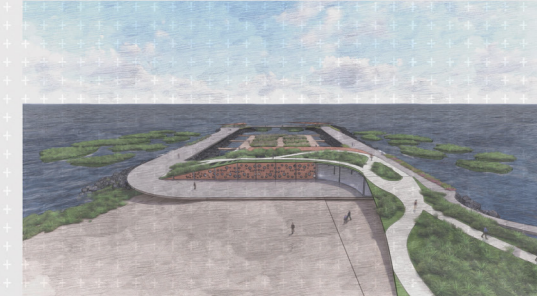


"L'Espigó del Gas, Espigó de Ginebra", Rethinking the Waterfront Infrastructure  
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 THE TITLE OF YOUR PROJECT  
 Student's names / Schools / Undergraduate or Graduate 02

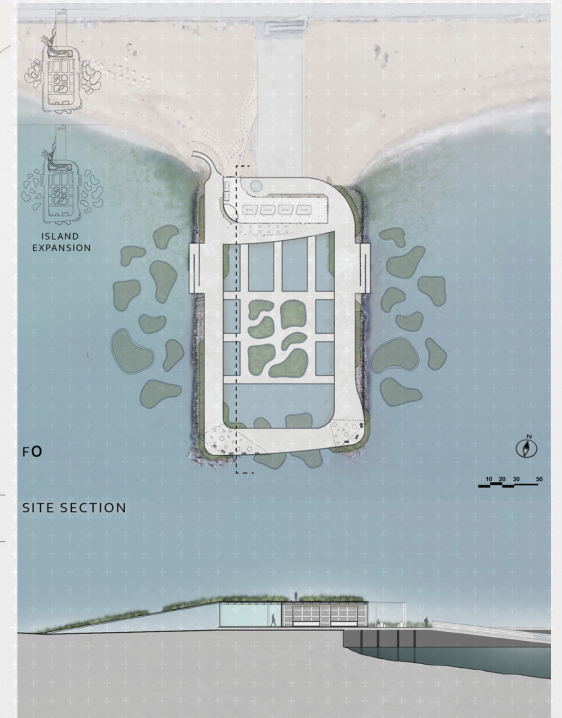
## STRUCTURAL SECTION



## BIRDSEYE VIEW

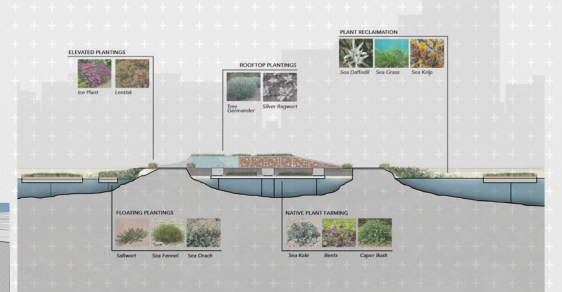


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 Student's names / Schools / Undergraduate or Graduate 05



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 THE TITLE OF YOUR PROJECT  
 Student's names / Schools / Undergraduate or Graduate 03

## VEGETATION SECTION



## URBAN FARMING



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 Barcelona Architecture Center | Design Studio FALL 2020 | Miguel Rotán  
 THE TITLE OF YOUR PROJECT  
 Student's names / Schools / Undergraduate or Graduate 06

# MERCADO DELTA

India E Young, Clemson University, Landscape Undergraduate  
 Jamal Smith, Clemson University, Architecture Undergraduate

For our project, we wanted to create a threshold to the sea by bringing in a large, open-air food market as well as a series of green spaces. The idea of a threshold, greatly influenced our form. Which is split into four different platforms at three different elevations.

With our design, we wanted to bring some of Barcelona's most unique elements to its coast; connections, movement, light and material. The paths we have created work much like a delta, allowing visitors to enter the site at a few specific points, then disperse freely throughout the space and out towards the sea.



## AXONOMETRIC

FLOOR TWO

FLOOR TWO STRUCTURE

FLOOR ONE

FLOOR ONE STRUCTURE

GROUND FLOOR ON SITE

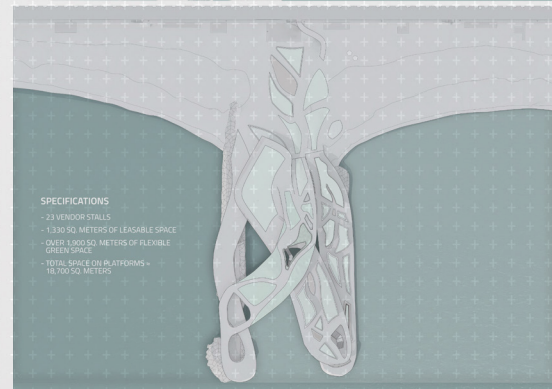
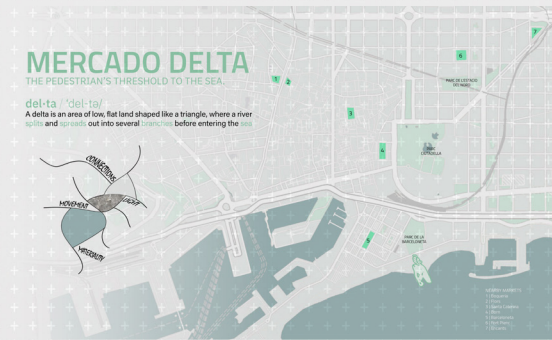
STRUCTURE DETAIL

WOODEN GRID FRAME

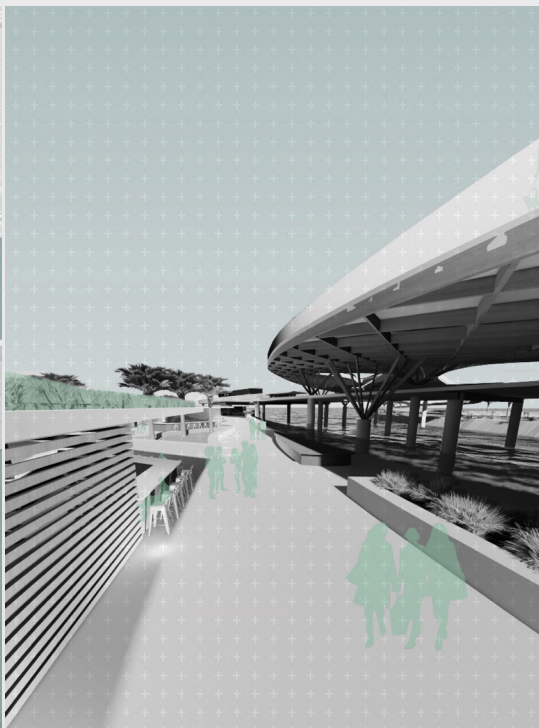
WOODEN SUPPORTS

CONCRETE COLUMN

## CIRCULATION



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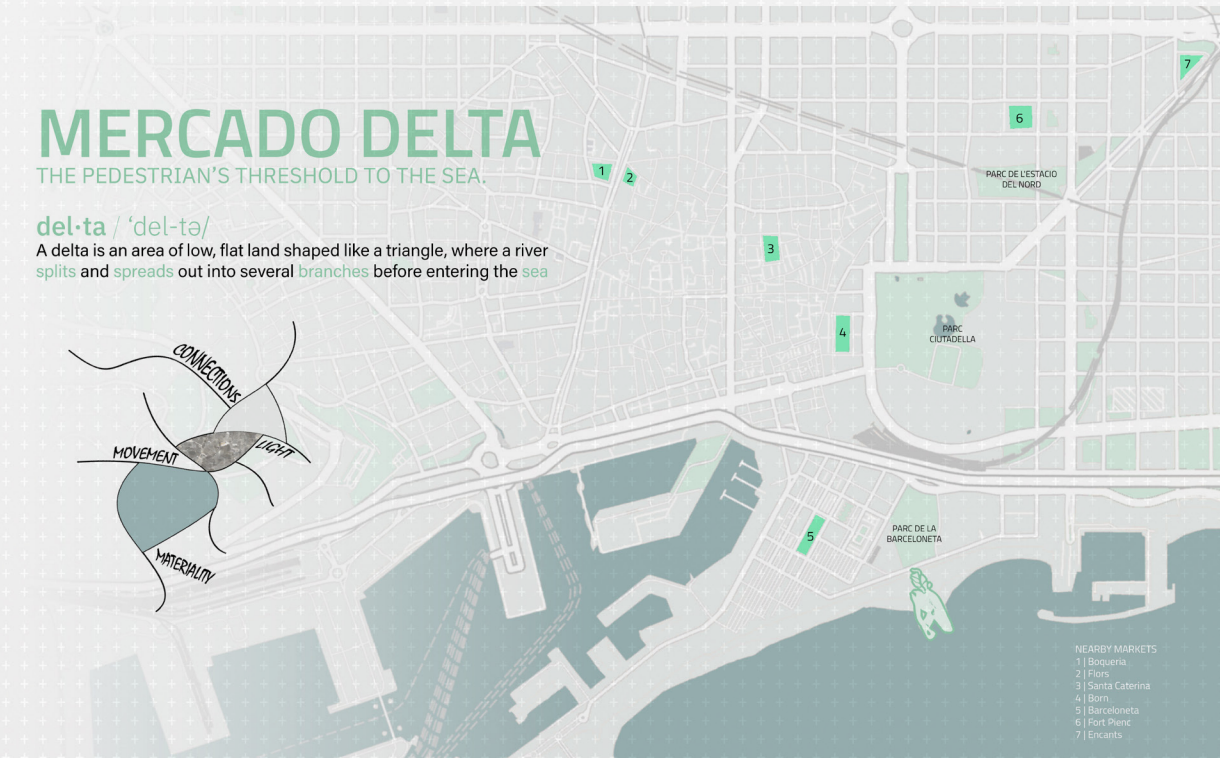
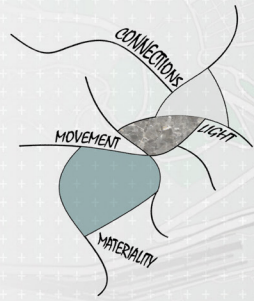
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# MERCADO DELTA

THE PEDESTRIAN'S THRESHOLD TO THE SEA.

del·ta / 'del-tə/

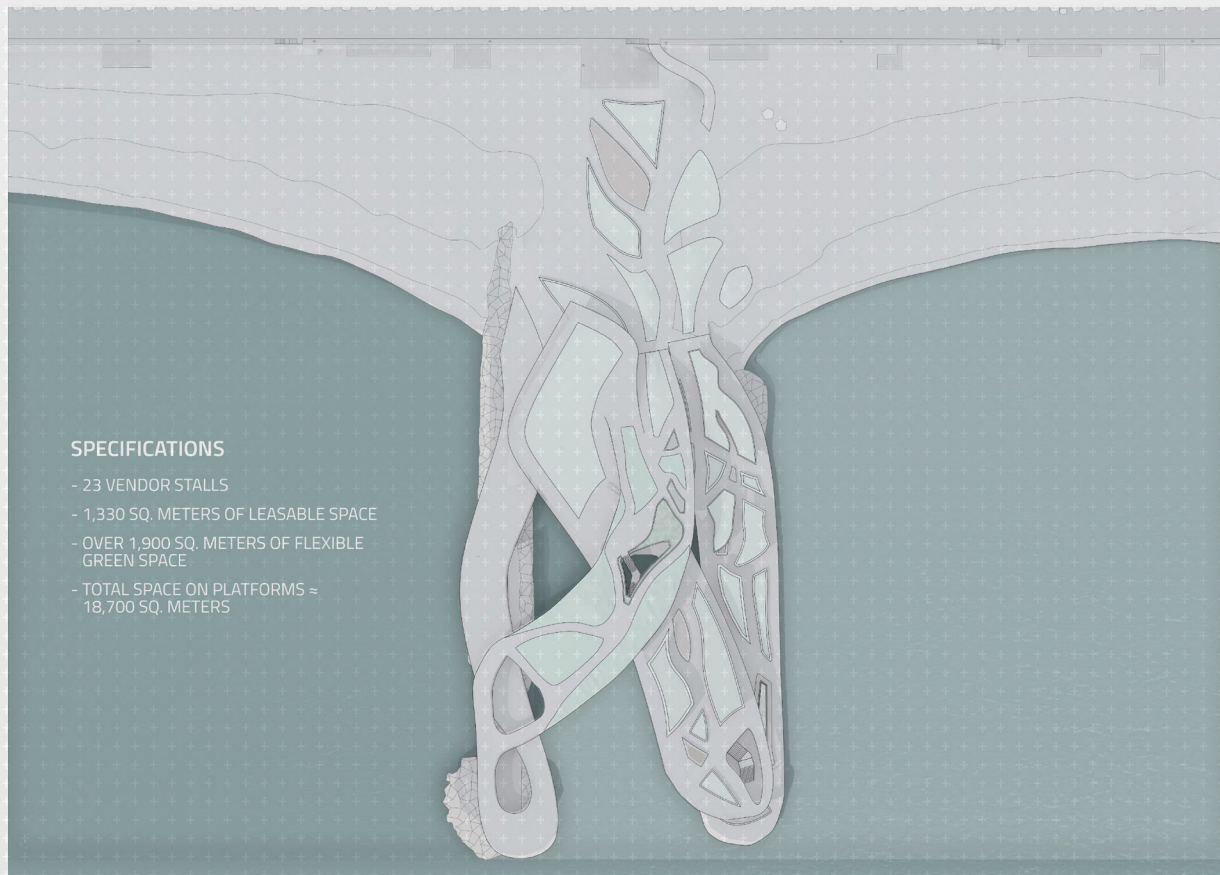
A delta is an area of low, flat land shaped like a triangle, where a river splits and spreads out into several branches before entering the sea



- NEARBY MARKETS
- 1 | Boqueria
  - 2 | Flors
  - 3 | Santa Caterina
  - 4 | Born
  - 5 | Barceloneta
  - 6 | Fort Pienc
  - 7 | Encants

## SPECIFICATIONS

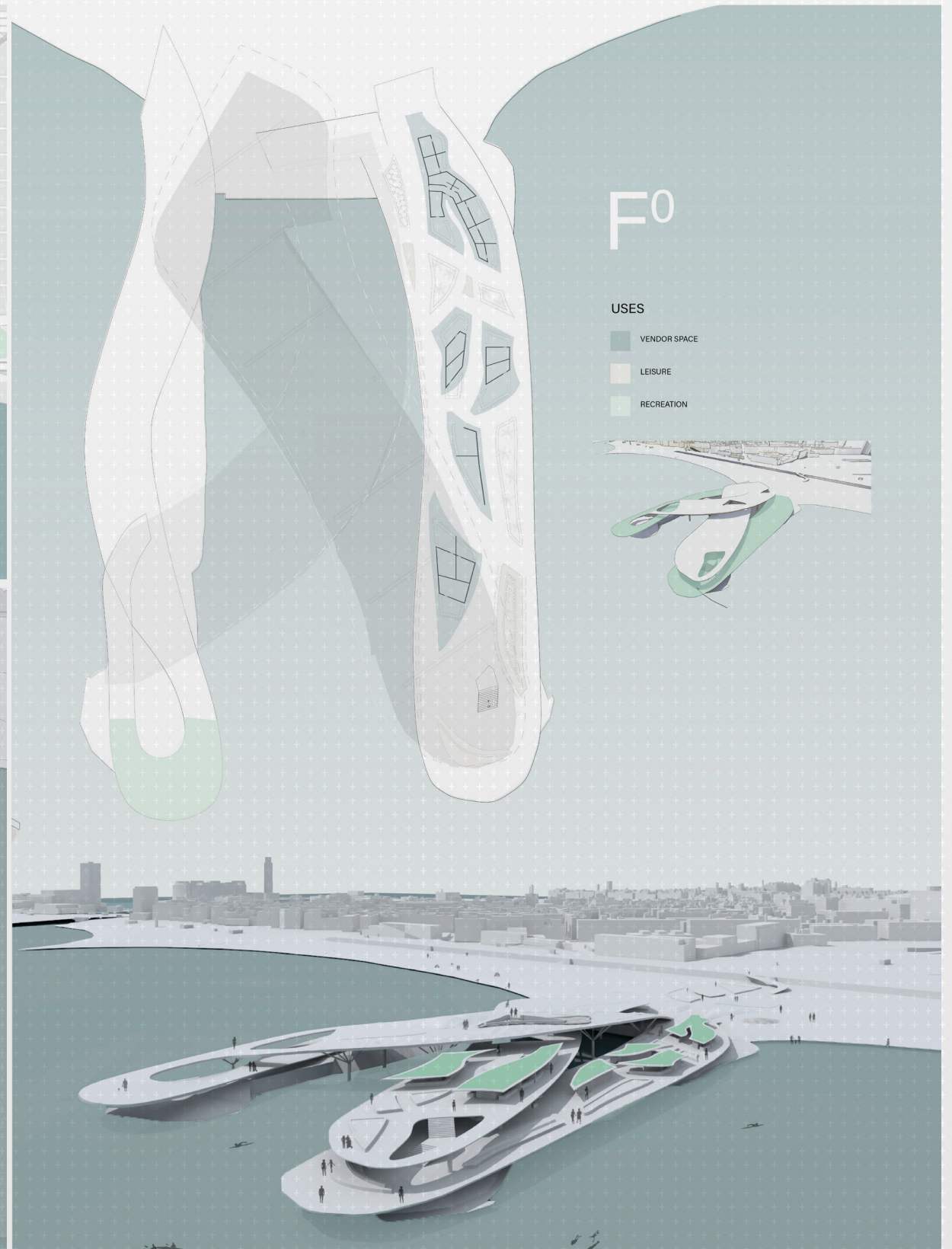
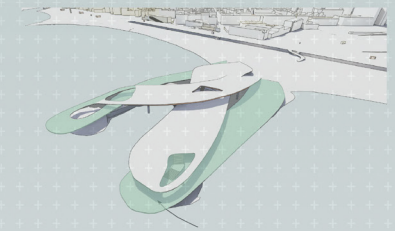
- 23 VENDOR STALLS
- 1,330 SQ. METERS OF LEASABLE SPACE
- OVER 1,900 SQ. METERS OF FLEXIBLE GREEN SPACE
- TOTAL SPACE ON PLATFORMS ≈ 18,700 SQ. METERS

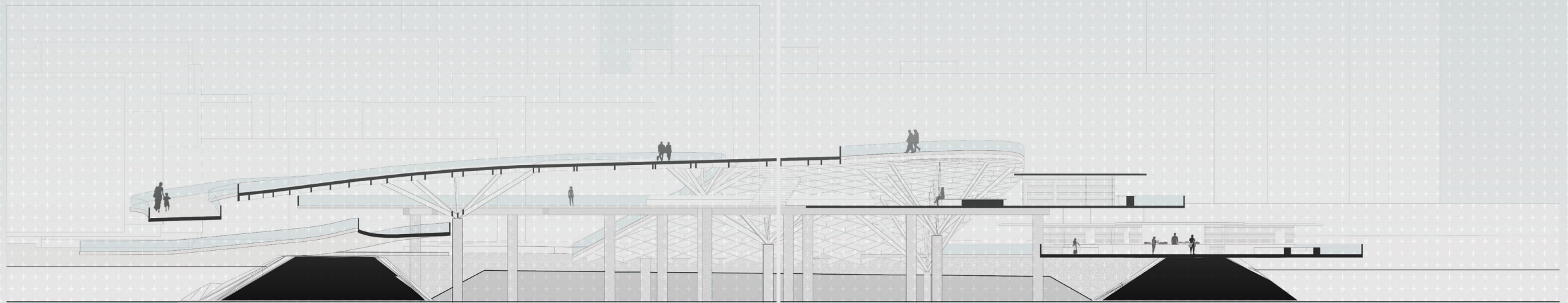
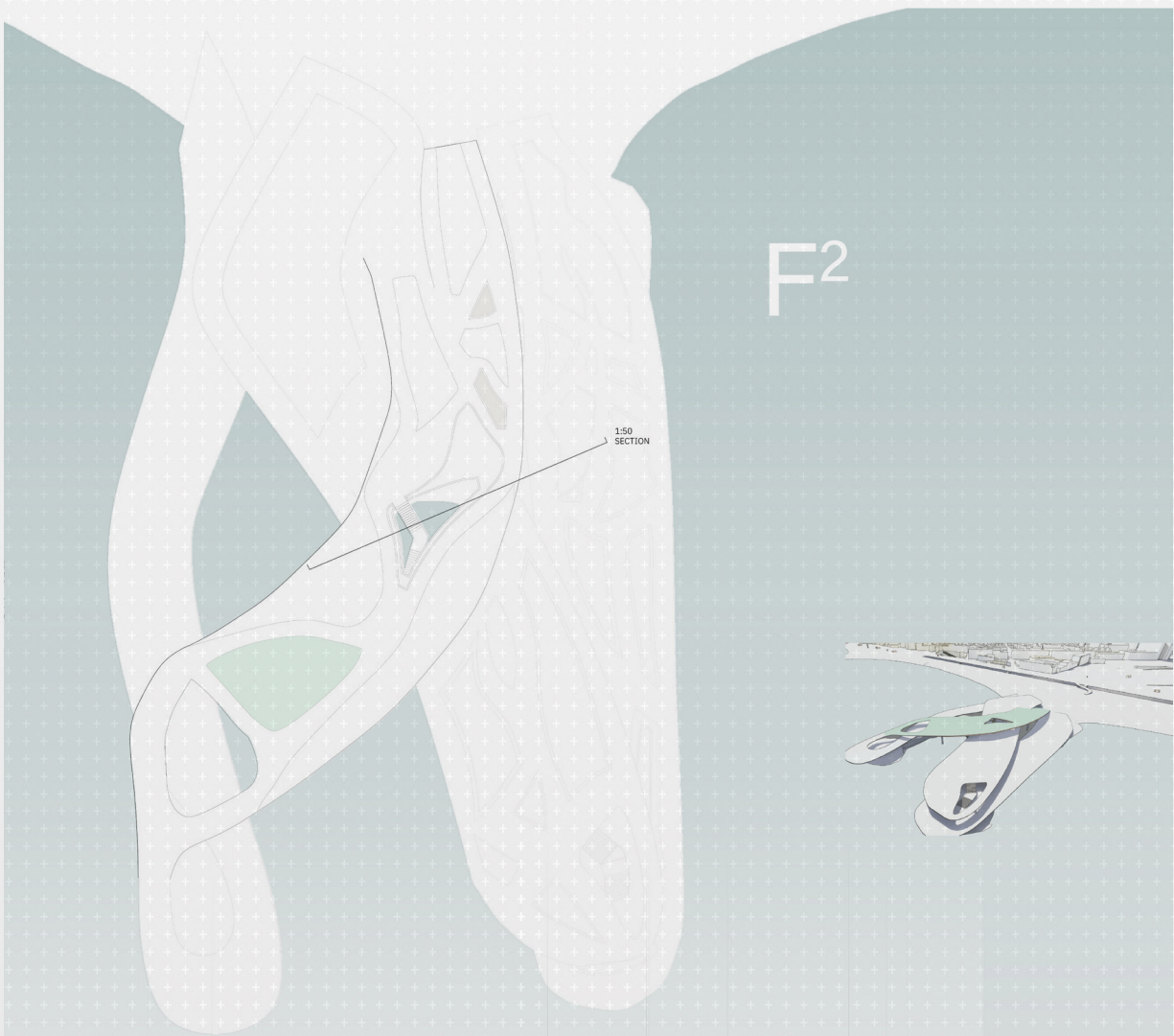
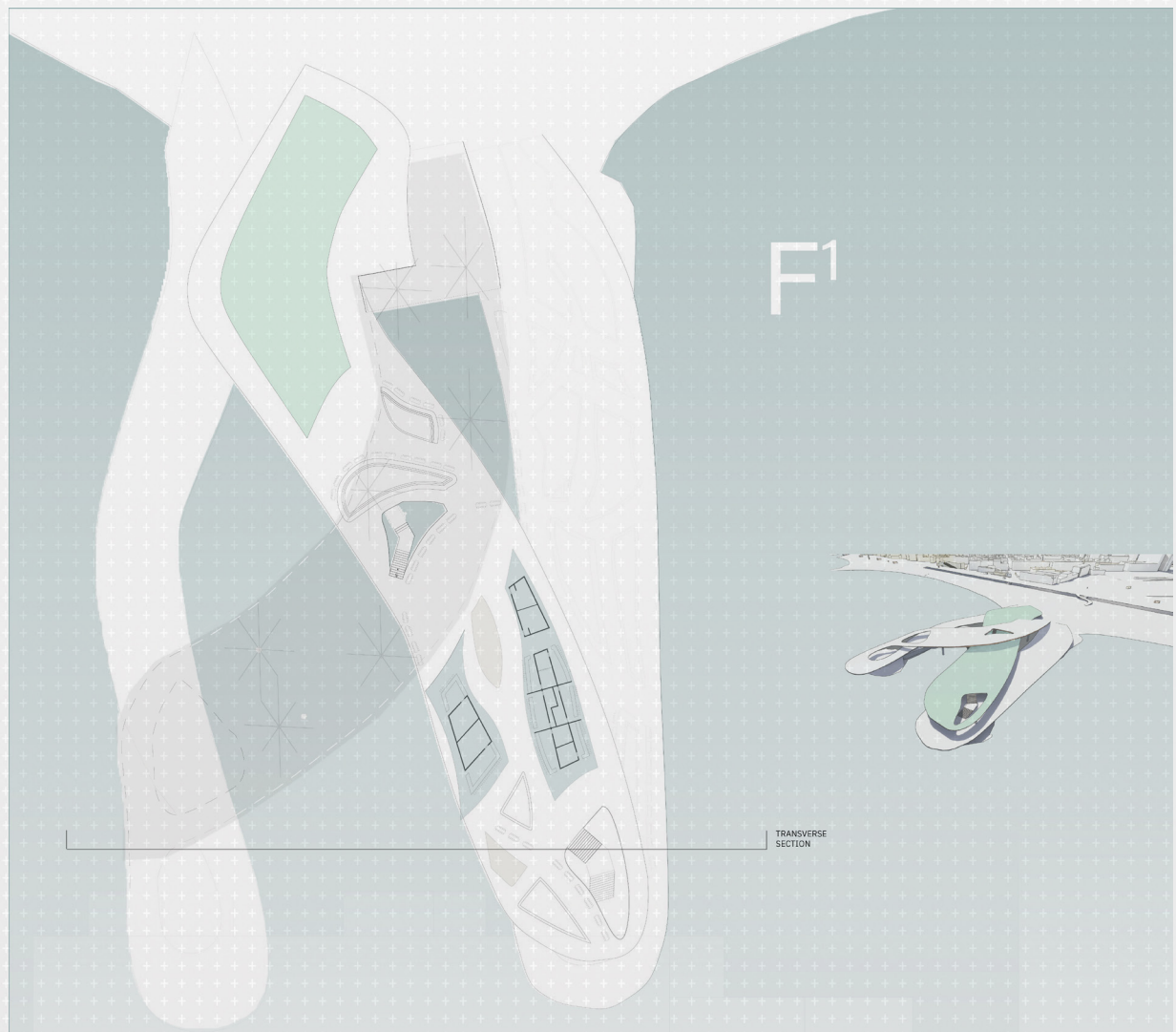


# F0

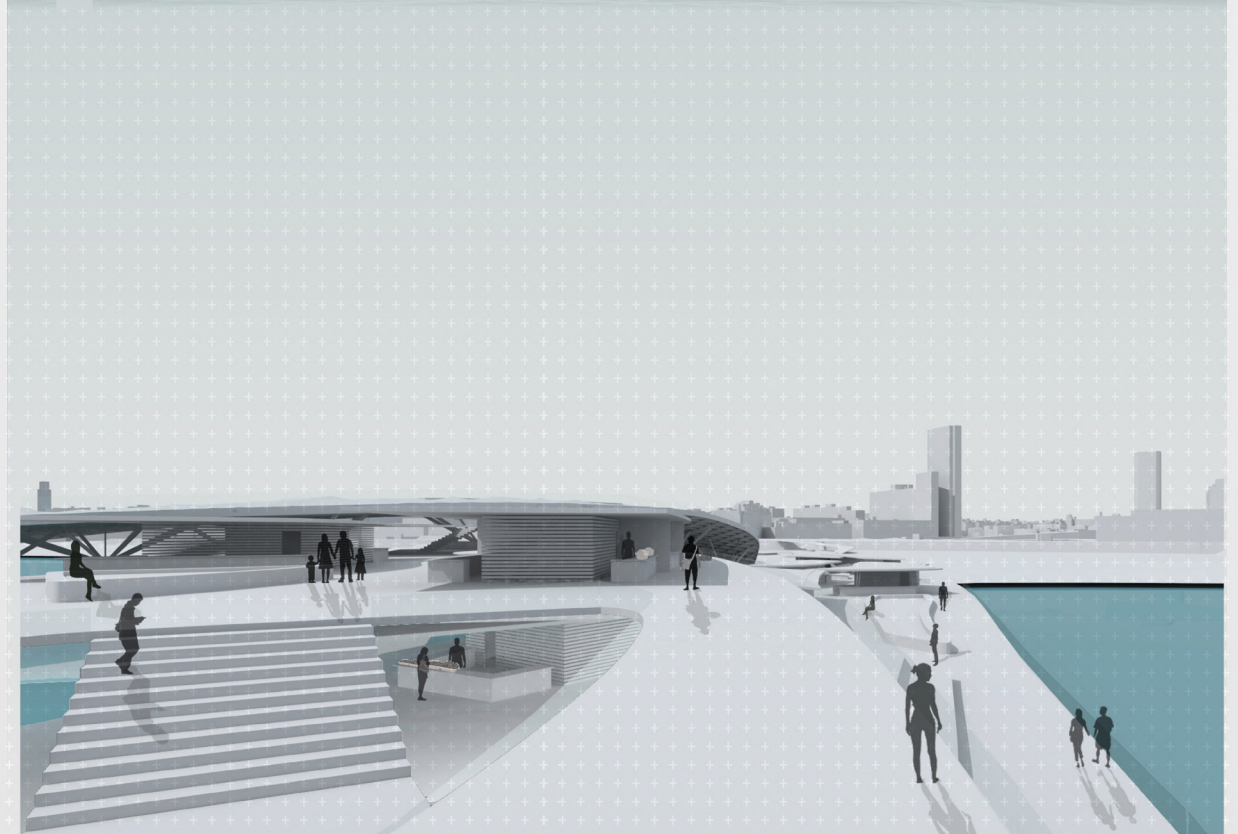
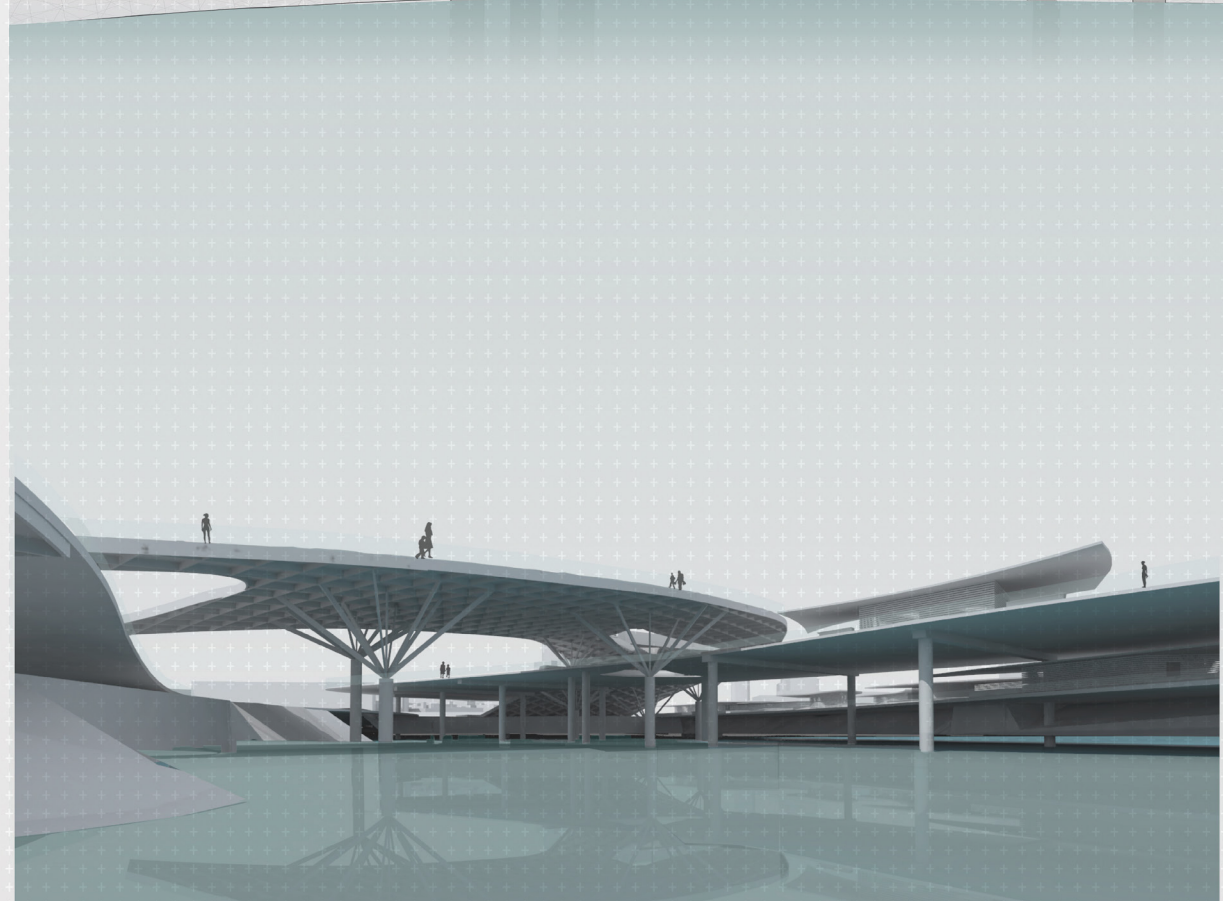
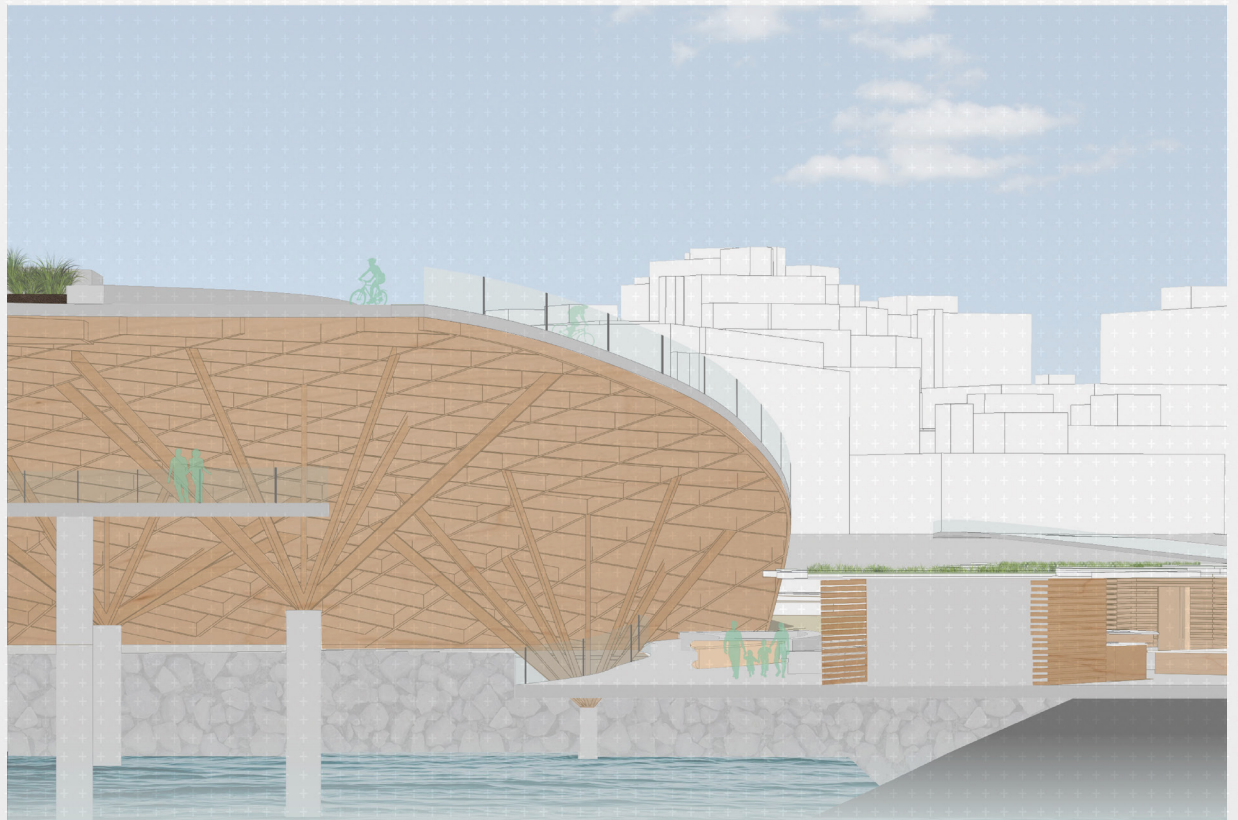
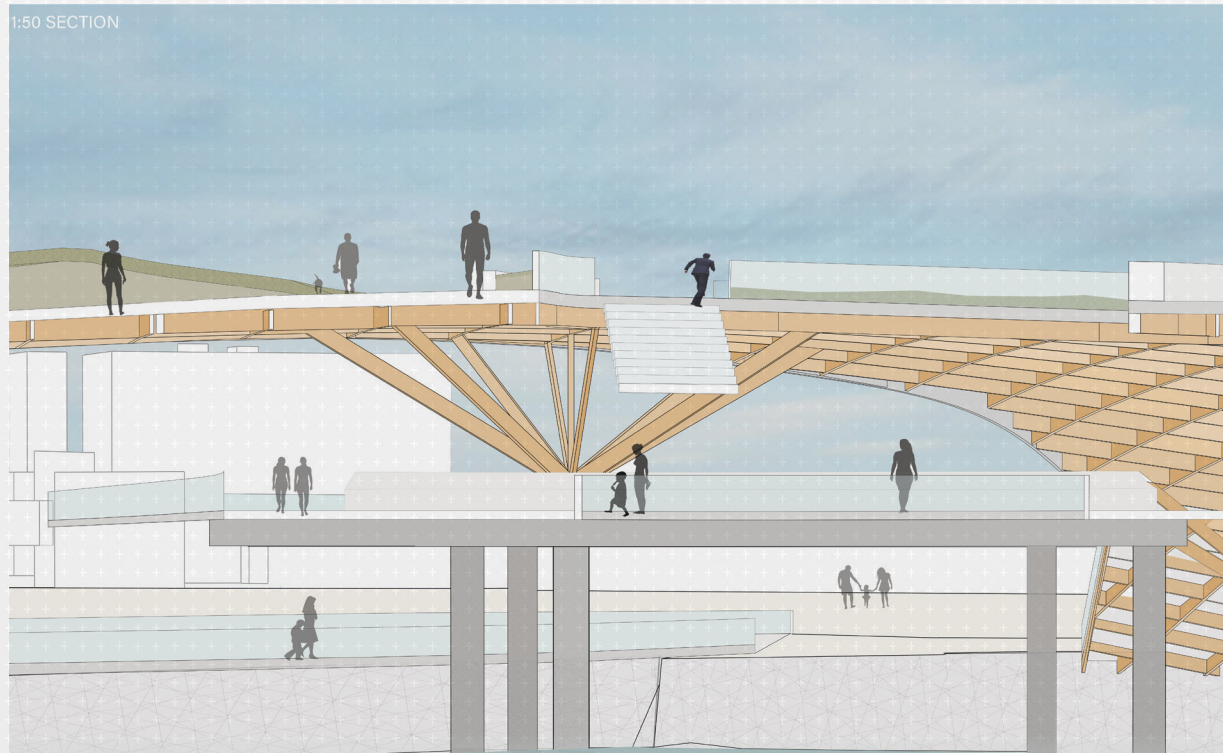
## USES

- VENDOR SPACE
- LEISURE
- RECREATION





1:50 SECTION



# ELEVATE

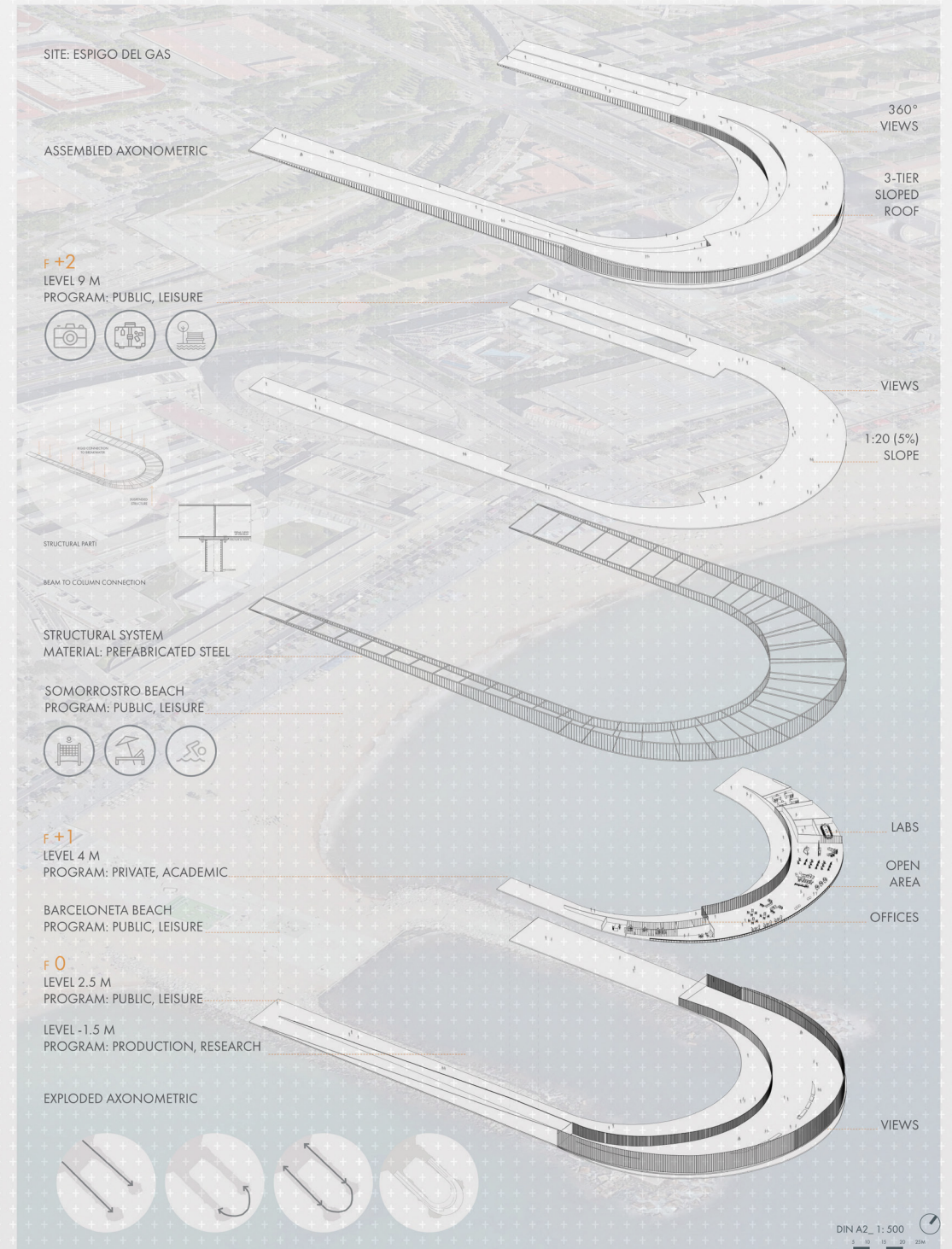
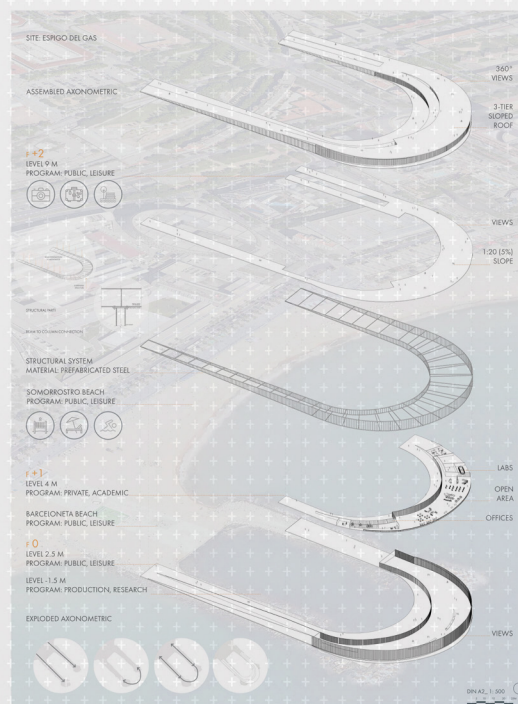
Celia Gannaway, Clemson University, Architecture Graduate

Reclaim the Coast, Experience the Sea...  
Upon studying the city and culture of Barcelona itself, it became very apparent that there was currently a lost connection to the sea. Locals are being pushed off of the coast due to increasing tourist populations. This creates a separation between the city and the sea.

Barcelona is home to many universities and research institutes which offer programs studying marine sciences and oceanography. This is an opportunity to provide a shared marine research center on the coast that could be used by scientists and students alike. What better place to study the sea than being suspended over the breathtaking Mediterranean. Sitting between Barceloneta Beach and Somorrostro Beach is the Espigo del Gas Breakwater. This breakwater would typically go unnoticed and underused, however this proposal aims to soften that visual and physical barrier.

A goal of this site is to bring the city and the locals back out to the water to connect the land and sea. The site as it is now brings you out to the sea, but does not provide a way back to the city, nor does it provide a destination to draw you out to the sea. The fluid form of the site creates various paths, levels, and curving tiers that wrap back around to the city.

The site spans the breakwater and projects over the sea to provide the user with 360° views of Barcelona, while not disrupting the beach views or iconic Barcelona skyline. Not only will this site be a place for studies and research... it is also a destination for locals and tourists, offering views of the city one would not be able to get standing on the beach.



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ELEVATE 01  
Celia Gannaway / Clemson University / Graduate

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ELEVATE 02  
Celia Gannaway / Clemson University / Graduate

BARCELONETA BEACH



ENTRANCE TO LEVEL F 0

ENTRANCE TO LEVEL F +1

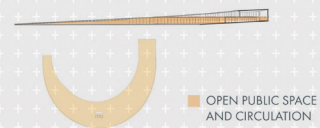


ENTRANCE TO LEVEL F +2

ENTRANCE TO LEVEL F +1  
RAMP 1:20M, 5% SLOPE

OUTDOOR AREA  
INDOOR AREA

**F 0**  
LEVEL 2.5M  
AREA: 6723.964 M<sup>2</sup>  
PROGRAM: PUBLIC, LEISURE



DIN A2\_1: 350

ESPIGO DEL GAS



ENTRANCE TO LEVEL F 0

ENTRANCE TO LEVEL F +1



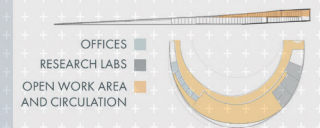
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ENTRANCE TO LEVEL F +1

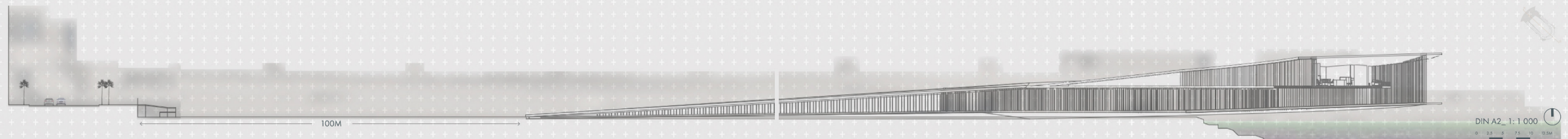
ENTRANCE TO LEVEL F +2

OUTDOOR AREA

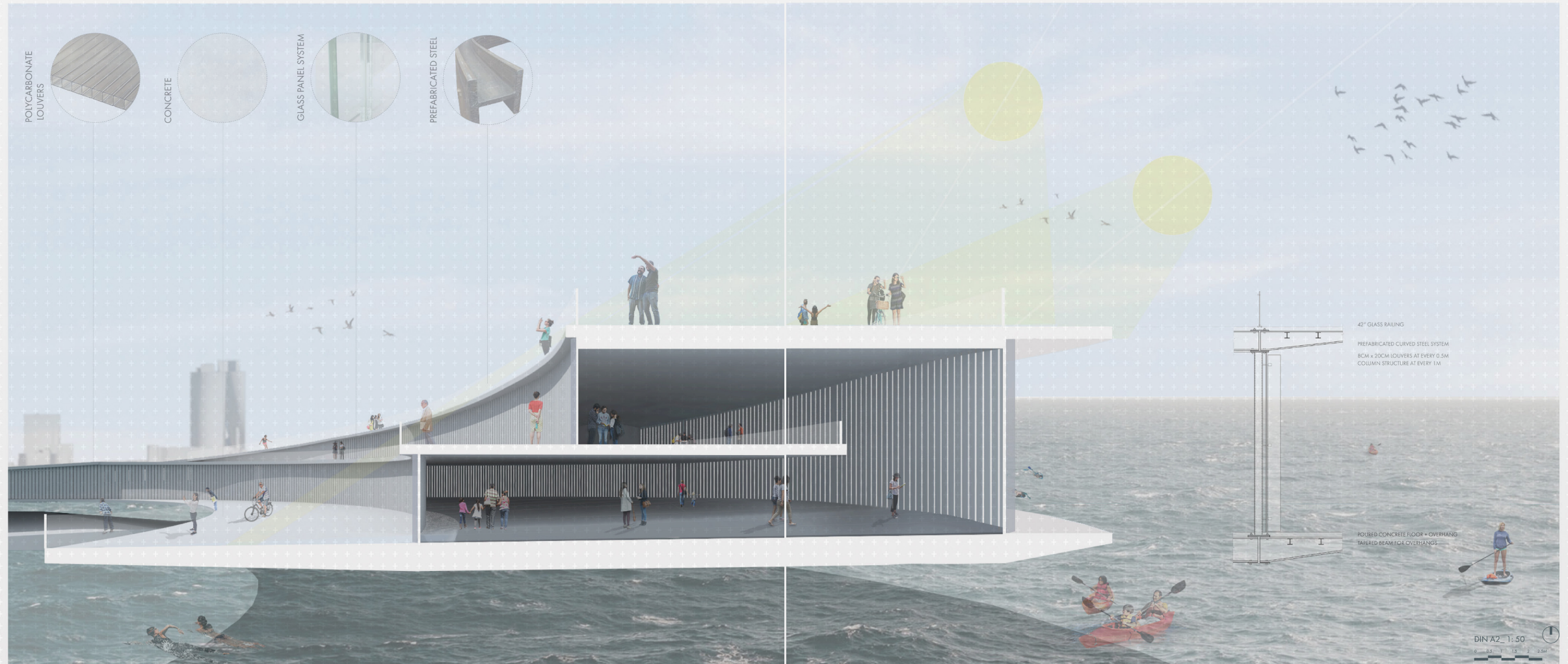
**F +1**  
LEVEL 4M  
AREA: 2734.599 M<sup>2</sup>  
PROGRAM: PRIVATE, ACADEMIC



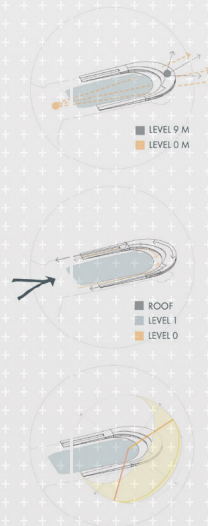
DIN A2\_1: 1 000







INTERIOR VIEW TOWARDS CITY F+1



EXTERIOR VIEW FROM WATER

# 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



ENRIC BATLLE



JOAN VIDAL



PAU VILLALONGA



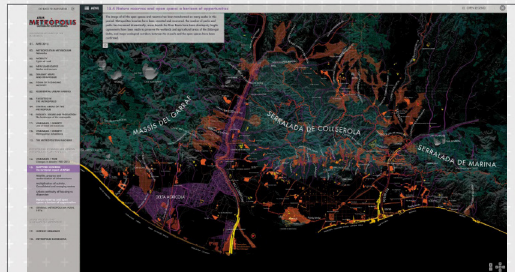
PASQUAL BENDICHO



MIQUEL RODRIGUEZ

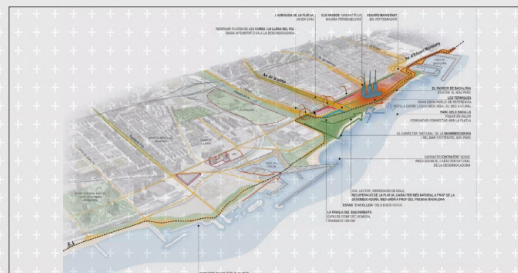
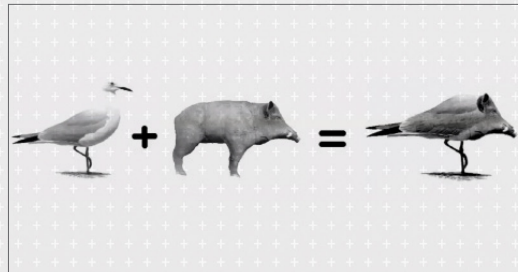
### 27.08 Lecture Green Barcelona Miguel Roldan

The lecture leads a discussion on the idea of whether or not Barcelona is in fact a "green net" as Cerda intended it to be. Understanding the history of the city will allow new narratives to be built. Architecture is all about layers, which is especially true in Barcelona because the architecture works with the surrounding history to revive, preserve, and even celebrate its roots. The lecture ended with a list of the strategies used in the development of Barcelona including: Portes Collserola, Zoo's Bridge, Block Courtyards, Super-Illes, Traffic-Pacification, and Smart-City.



### 31.08 Lecture: Barcelona Waterfront Joseph Bohigas, Municipality Barcelona

A compelling discussion about Barcelona's retaking of the coast, where he addressed the past, current and future relationship the built environment should have with the sea. Barcelona has seen an excess of success over the years that while in many ways is beneficial to the city it also caused a lack of attention to the "frontier", to use Joseph's words. There are ample places of opportunity along the coast that have not yet been gentrified, that we as architects must learn how to develop without escalating the current issue of social inequality in Barcelona.



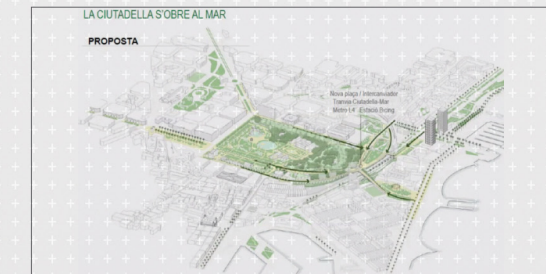
### 03.09 Lecture: Waterfront Projects in Europe Ivan Blasi, Mies van der Rohe Foundation

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).



### 10.09 Lecture: Passos Cap Al Mar Enric Batlle, Batlle i Roig Architects

Enric presented his research and current proposals for connecting Ciutadella Park to the Mediterranean Sea. This proved to be a very beneficial lecture because of its relevance to our current project and provided many points for consideration going forward.



All texts of this chapter are written by our Graduate Architecture Student Celia Gannaway from Clemson University.

14.09 Lecture

### Coastal processes


Joan Vidal, Tecnoambiente

Joan Vidal, a marine biologist from Barcelona, spoke with us about some of the aspects of building on the coast that maybe we hadn't considered before.

Some of these issues that arise on the coast are waves, currents, floods, wind, sediment transport, erosion and scour. The challenge presented to us was to design a building that can withstand while not intruding or impeding the natural functions and occurrences on the coast.

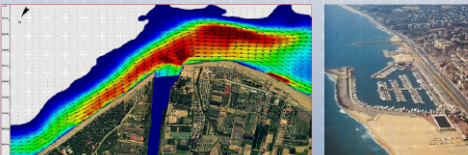
**INDEX**

1. The coast of Barcelona. Main features
2. Marine dynamics and maritime climate
3. Impacts on marine infrastructures
4. Coastline protection. Typologies
5. Climate change. Environmental impact




**Marine dynamics and maritime climate**

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



**Climate change. Environmental impact**

- Impact of climate change on the Mediterranean Region
  - Sea-level rise
  - Increase of intensity and frequency of storms
  - Increase of water temperature



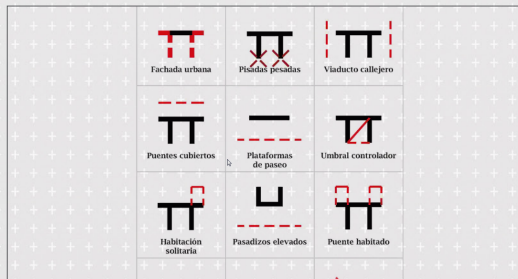
Lecture

### 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.

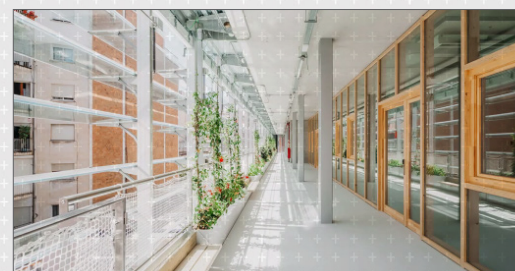
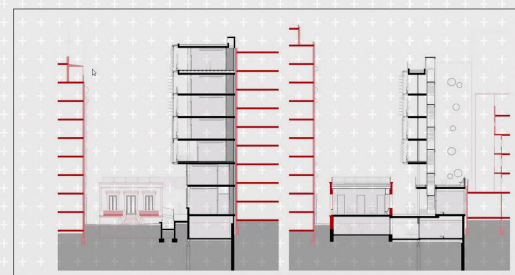
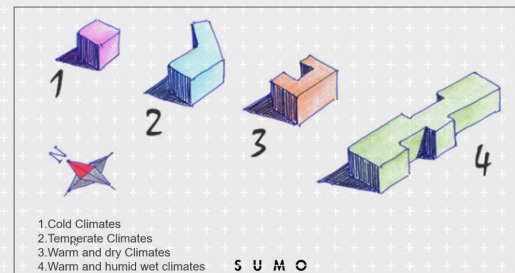


Lecture:

### 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.

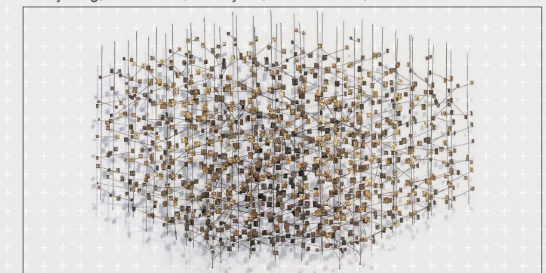


Lecture:

### Materiality

Miquel Rodriguez

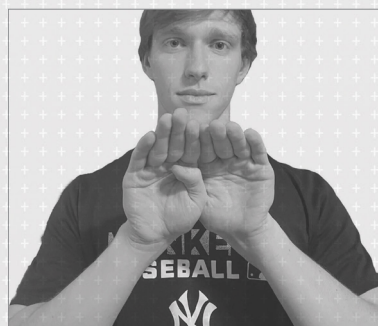
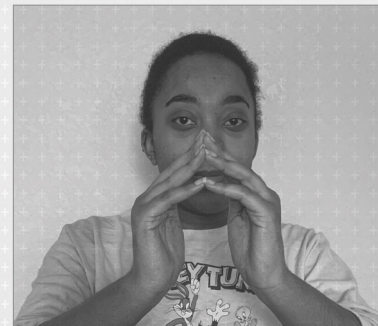
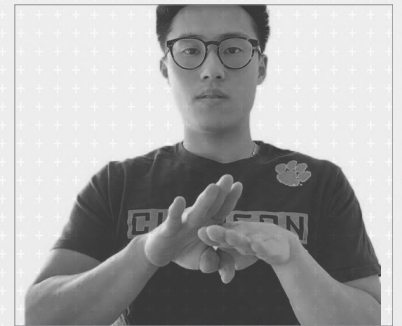
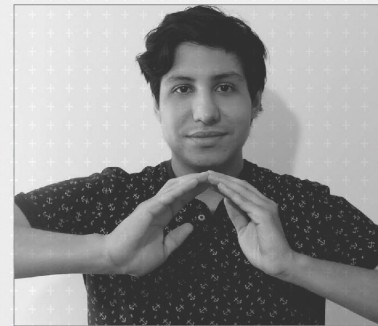
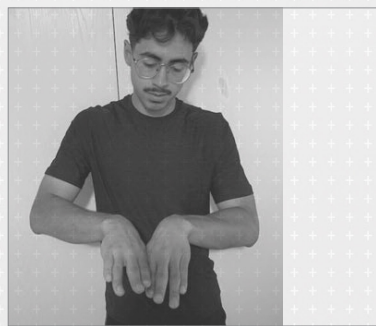
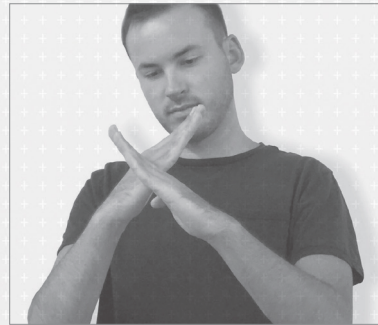
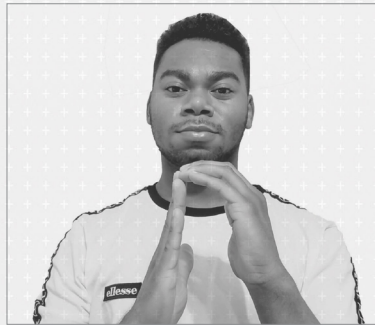
Miquel Rodriguez discusses previous projects, defining the materials and the structures of each. One project he discussed was this project of Ecology, where he tried to reduce the materials by using wooden structures and facades, as well as glazing. He used local spruce glue laminated timber and the 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.



bcn \_drawing with hands



bcn \_drawing with hands



# 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.

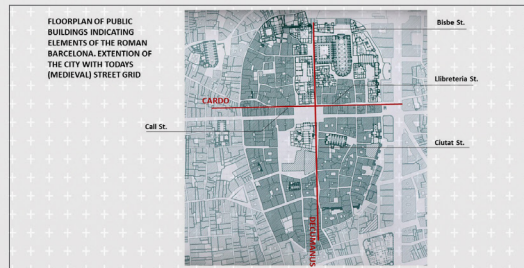
Just as Parthenon was once used as an ammunition storage or a Cristian church was built in the centre of the Roman Emperor's palace in Split, several residential houses of Barcelona or Tarragona have absorbed portions of Roman walls as their supporting structure or 19th century factories have been converted into education or 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

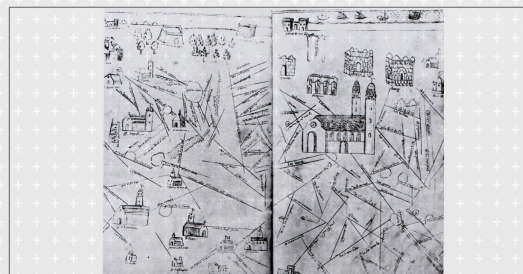
Urban history as a links between the past and the future. Tools for analysis and project.

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.



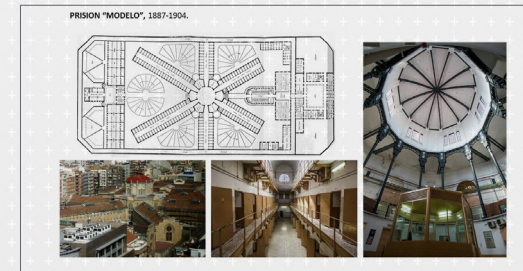
Professor



JELENA PROKOPLJEVIC

### Session 3. Industrial city

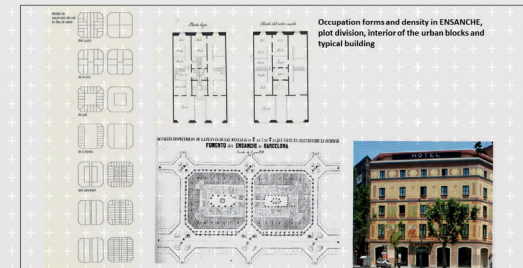
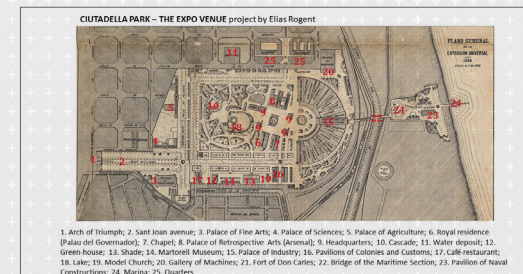
Urbanization of Ramblas: the new city centre. Industrial revolution and the appearance of the new bourgeoisie. Their impact on the cityscape and creation of secular referents: factory – market place- railway station. The new connectivity: roads and railroads. Expansion outside the city walls: Barceloneta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



## Part TWO. FUNCTIONALIST UTOPIA

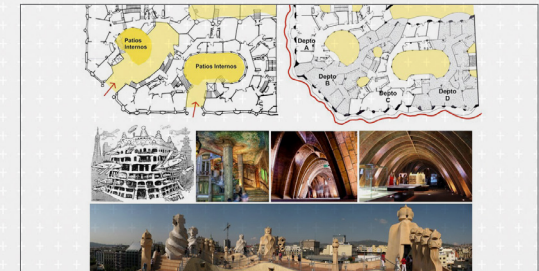
### Session 4. Expanding the city. City as Stage

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. Gaudi and structural experimentation.



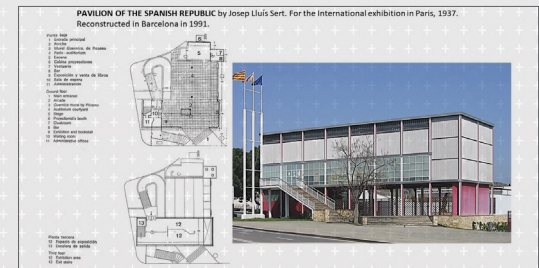
### Session 5. The New Century

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

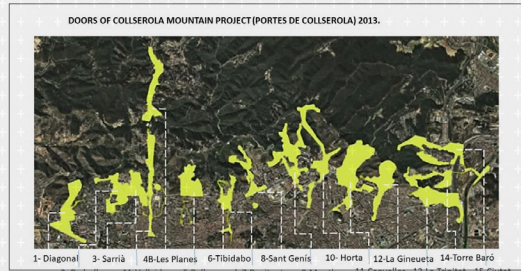
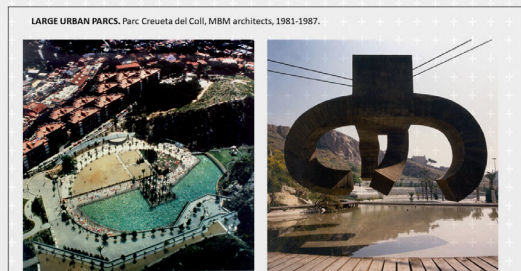
### Session 7. Postwar reconstruction and new models

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.



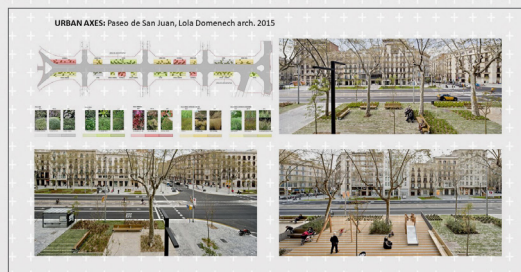
### Session 9. New challenges

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



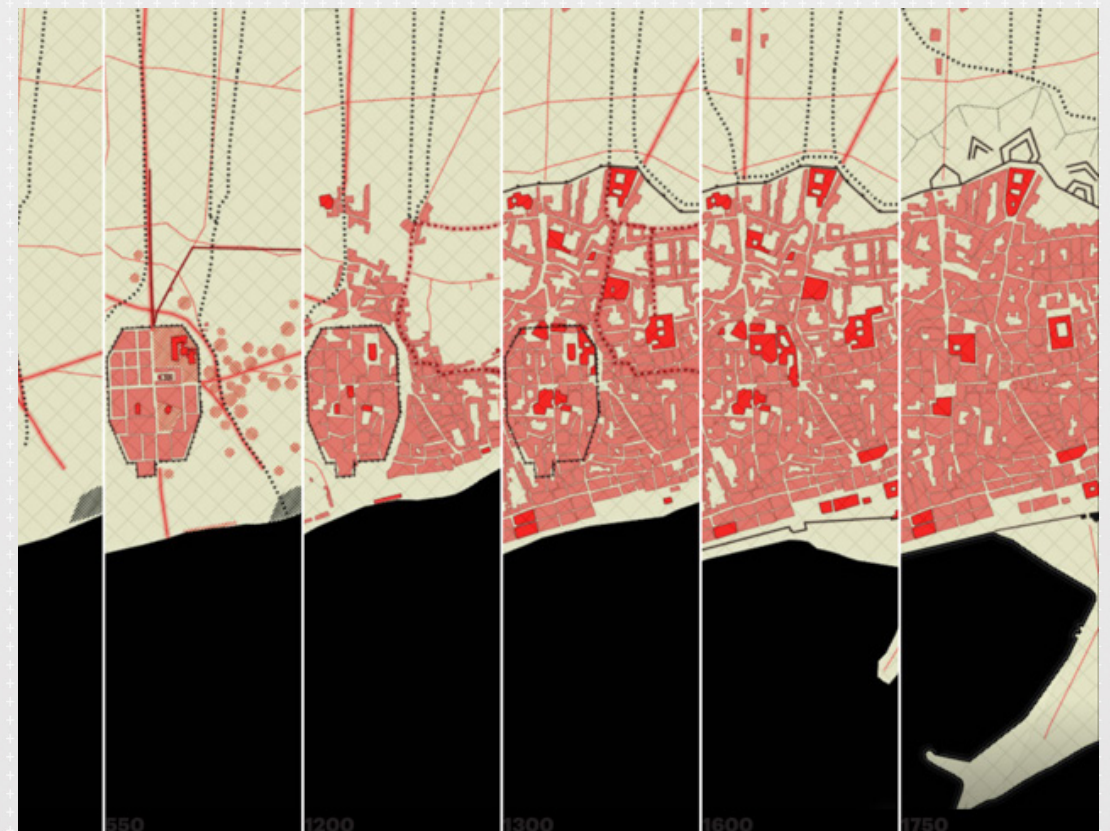
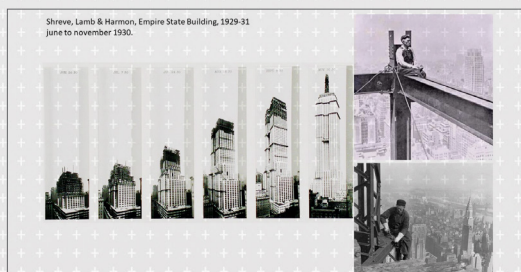
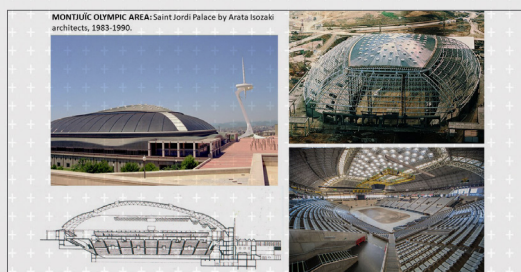
### Session 8. Barcelona model

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.



### 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

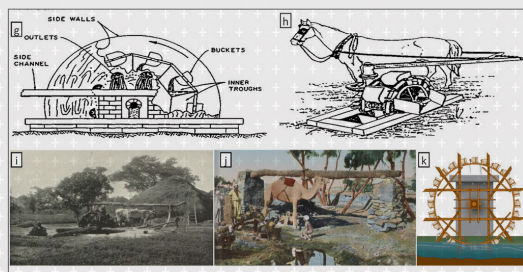
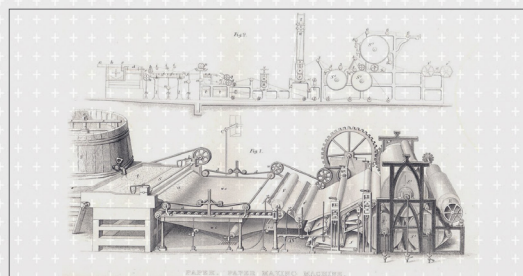
Instructor: Pia Wortham

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.

#### Session 1.

##### Intro - Technology: a brief history

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



Professor

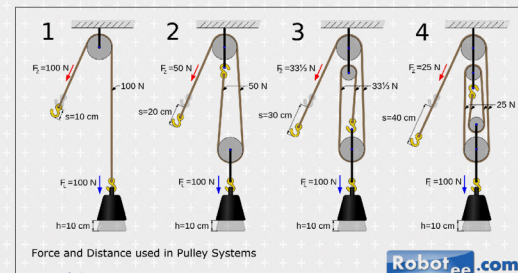
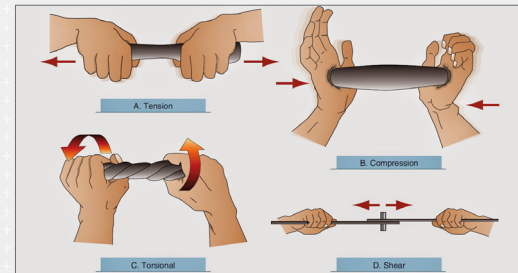


PIA WORTHAM

#### Session 2.

##### Intro - Structure: basic building elements

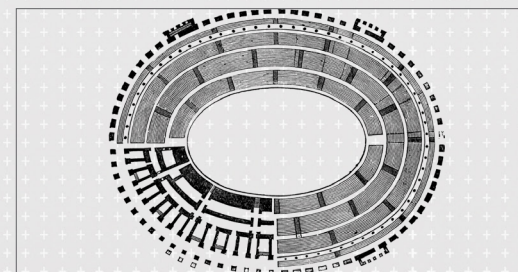
Introduction to technological advances beginning with the six simple machines and their application to salient technological breakthroughs throughout history.



#### Session 3.

##### Ancient structures: Egypt Greece and Rome

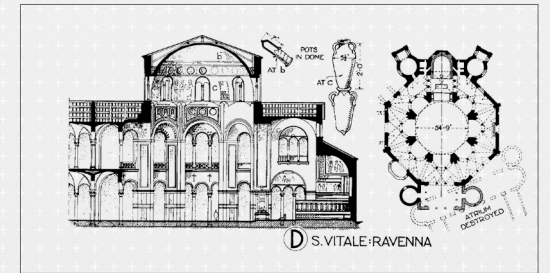
Egypt, Greece and Rome. How the process of construction reflects each culture as well as the technological advances that contributed to the success of each civilization.



#### Session 4.

##### Gothic: Santa Maria del Mar to the enlightenment

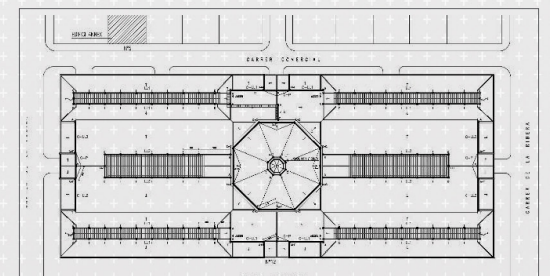
The Romanesque and the middle ages; how are technology and innovation affected by a radical change in the political structure of Europe. A close look at the advances in technology that will lead to the



#### 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.

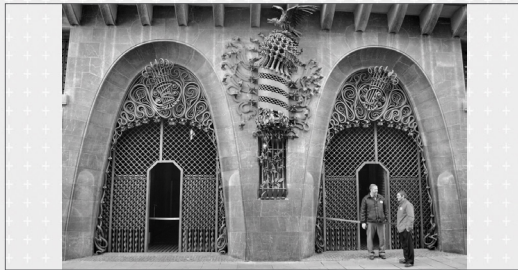




Session 6.

**Gaudi: Geometry and Structure**

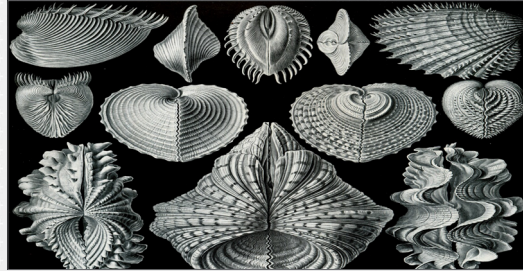
The art nouveau movement in Europe with a concentrated focus on Gaudi and Catalunya, how Gaudi fit into the Modernista movement and most importantly his structural innovations.



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**

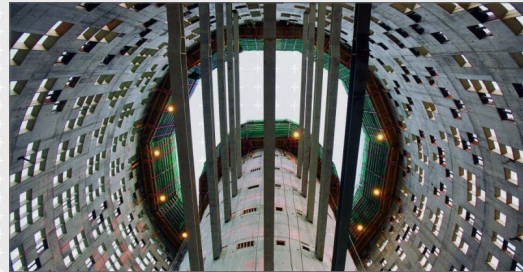
The Catalan vault! Structural innovations in brick industrial buildings in Catalunya and Guastavino's contribution to hundreds of iconic buildings in the United States.



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.



## 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.

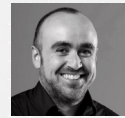
Cities have historically constituted a strategic area of intense exchange, dialogue and conflict. This space continues to play a key geopolitical role at a global scale. While in Europe, students will be able to travel to different locations on their own with some tools provided in Field Studies. Film 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).

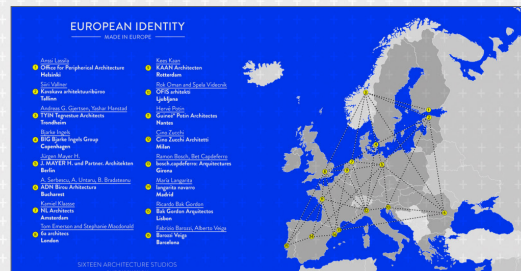
Address the current problems and new solutions for re-naturalization of the urban space.

Professor



IVAN BLASI

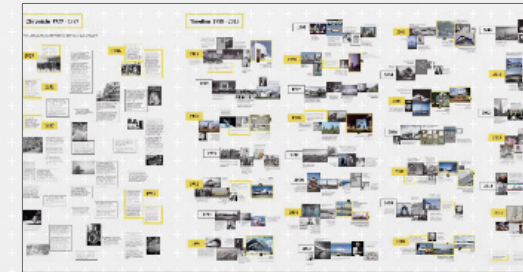
### Session 1. Introduction to European Capitals



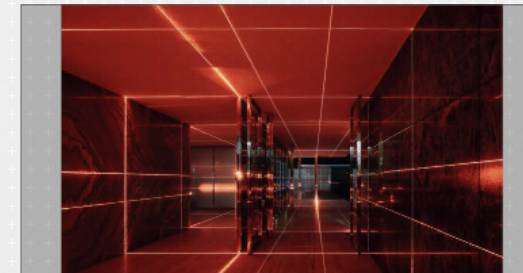
### Session 2. Montjuïc and Mies van der Rohe Pavilion



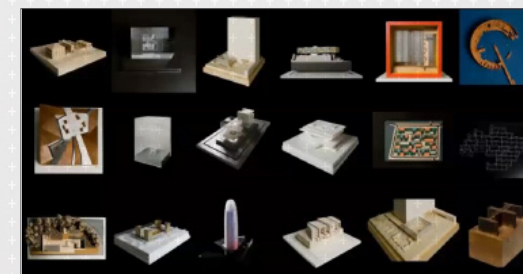
### Session 3. European Identity and Diversity through Architecture



### Session 4. Installations of the Barcelona Pavilion



### Session 5. EU Mies Award



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



### Session 4. Culture and architecture: The New Rijks Museum



### Session 5. Infrastructures: Train Stations, Barcelona



## 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 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). 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 metropolises 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

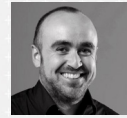
Session 2\_Berlin, Germany

Session 3\_Amsterdam, the Netherlands

Session 4\_London, United Kingdom

Session 5\_Paris, France

### Professors

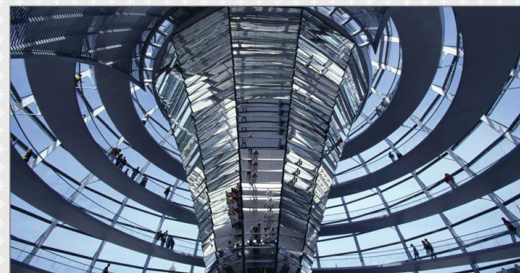
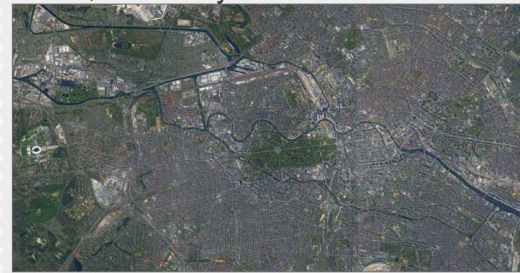


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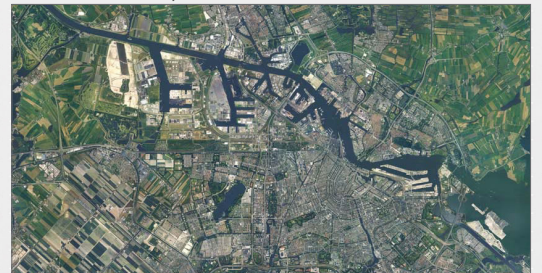
### Session 1. Madrid, Spain (Toledo, Segovia, )



### Session 2. Berlin, Germany



### Session 3. Amsterdam, the Netherlands

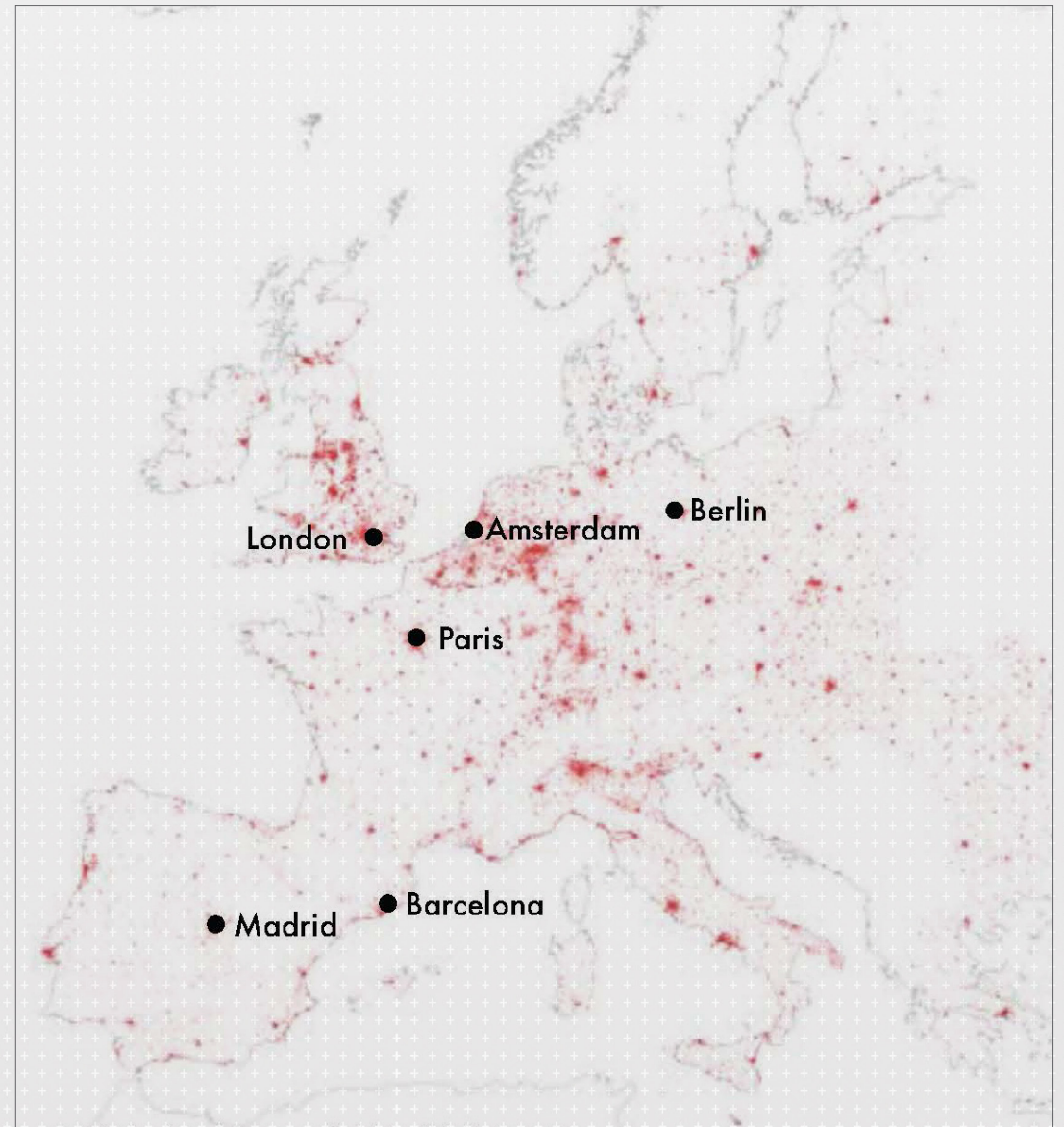
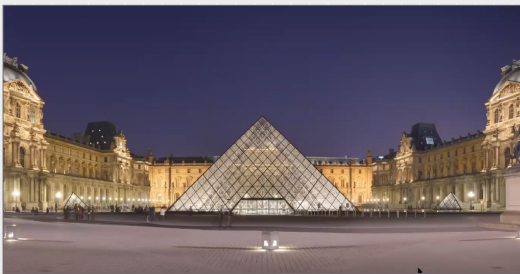




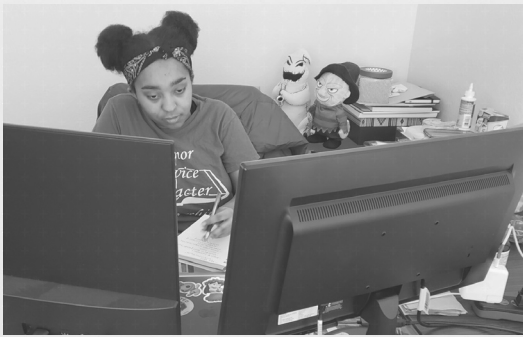
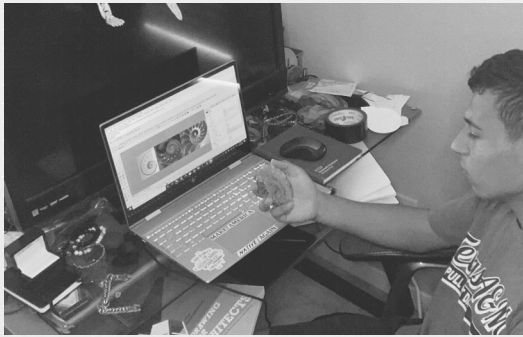
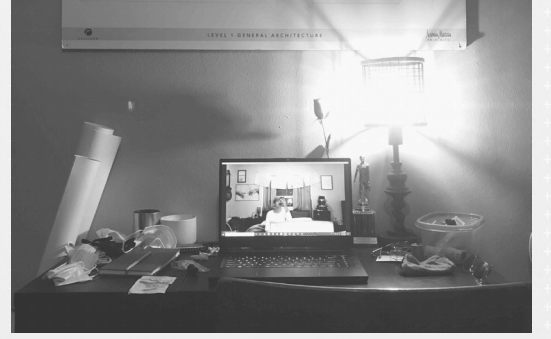
Session 4.  
London, UK



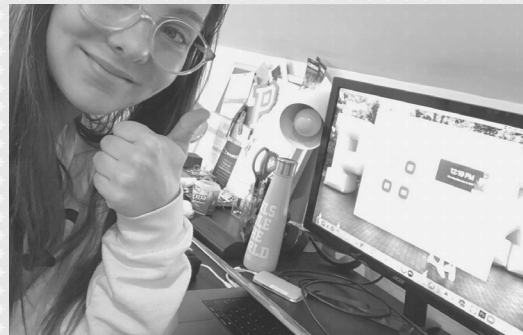
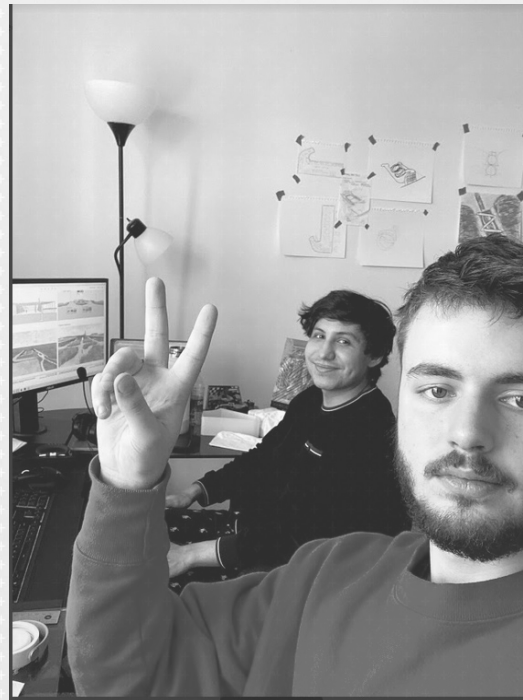
Session 5.  
Paris, France



behind the zoom scenes:



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# Thank you all!

# BAC Fall 2020



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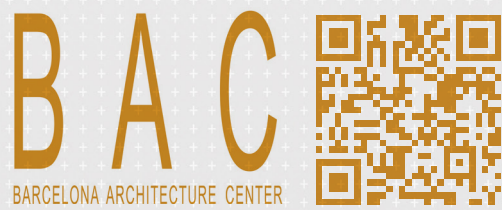


# Thank you all!

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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.