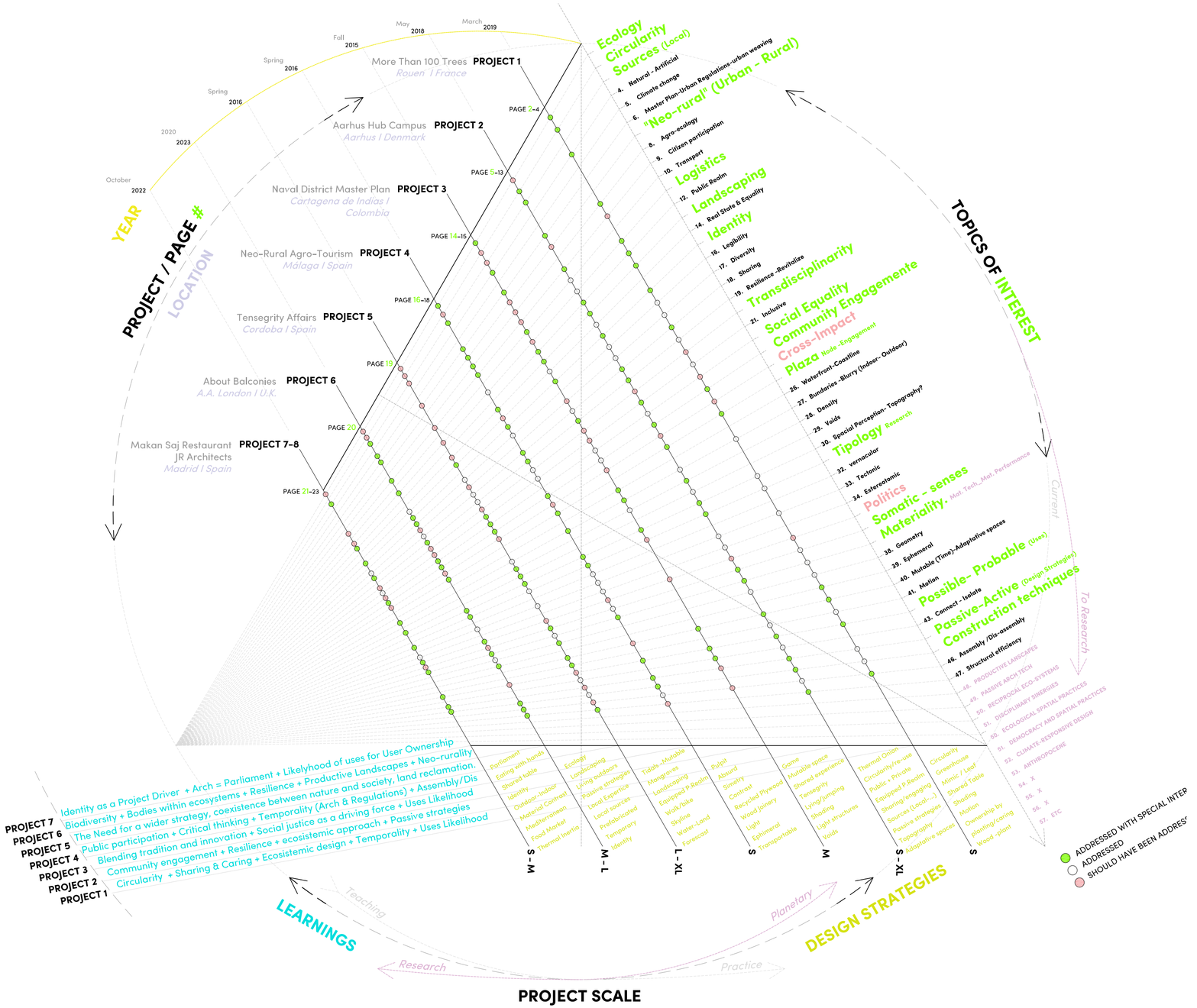
INDEX

+ Research Affairmations



01

International Competition

More Than 100 Trees
Ephemeral pavilion

March 2019
La rioja I Spain- Rouen I France

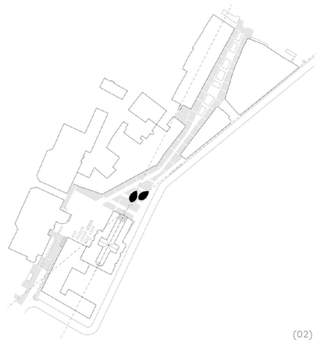
Competition:
Concéntrico - La Forêt Monumentale
Authors *(throughout all phases)*
Santiago del Aguila I Clara Álvarez I
Manuel Bouzas I Juan Álvarez-Vijande

01. BACKGROUND

International competition organized by the Concéntrico festival in collaboration with Métropole Rouen Normandie, on the occasion of La Forêt Monumental, an art biennial focused on the integration of art and the forest in Rouen, France. Candidates are invited to create a temporary installation lasting one month in a pedestrian, popular, and multicultural public space located at the intersection between the Church Square and a commercial street.

The aim is to promote coexistence between the natural and the artificial.

02. SITE */ EMPLAZAMIENTO*



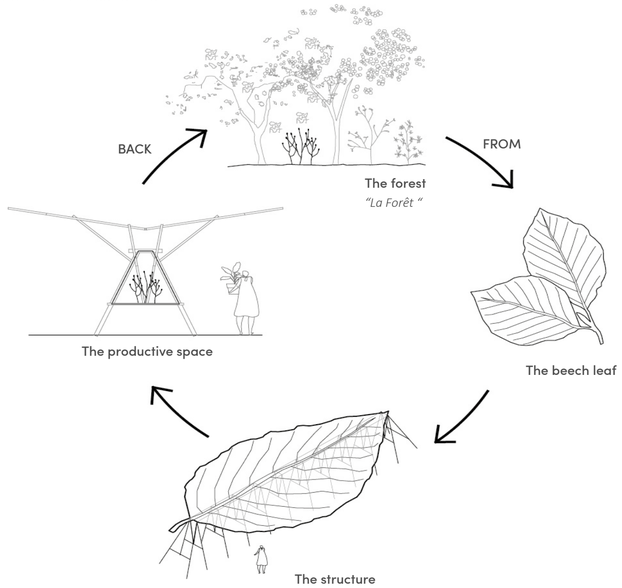
(02)

01. ANTECEDENTE

Concurso internacional organizada por el festival Concéntrico en colaboración con Métropole Rouen Normandie, con motivo de La Forêt Monumental, una bienal de arte centrada en la integración del arte y el bosque en Rouen, Francia. Se invita a los candidatos a crear una instalación temporal que durará un mes en un espacio público peatonal, popular y multicultural ubicado en la intersección entre la Plaza de la Iglesia y una calle comercial.

El objetivo es promover la convivencia entre lo natural y lo artificial.

03. PAVILION CYCLE + CONCEPT
/ CICLO PABELLÓN + CONCEPTO



(03)

04. MAIN GOAL */ OBJETIVO PRINCIPAL*

The goal is to prompt reflection on urban domain and the appreciation of natural heritage by integrating it into the city. This will be achieved by establishing a dialogue that fosters a shift in perspective among citizens and visitors. Through the implementation of two public facilities: a nurturing greenhouse and a social gathering table.

El objetivo es fomentar la reflexión sobre el entorno urbano y la apreciación del patrimonio natural al integrarlo en la ciudad. Esto se logrará estableciendo un diálogo que promueva un cambio de perspectiva entre los ciudadanos y visitantes. A través de la implementación de dos instalaciones públicas: un invernadero de cuidado y una mesa de reunión social.

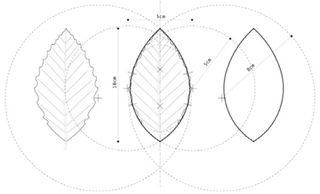
In Normandy, there was a vast forest containing thousands and thousands of beech trees. As autumn began, two of its leaves flew with the wind through the woods, eventually landing in the middle of a square in the center of a town. Initially surprised by their size, the inhabitants began to occupy them: one was a greenhouse, while the other was a table. Both pieces became part of their daily lives.

Under the first leaf, they planted seeds, participated in workshops, and learned about gardening and ecology. On the second leaf, all the residents displayed shows, played games, and interacted with each other.

One month later, the leaves disappeared at the beginning of winter, and the only trace they left behind was the multiple plants that the citizens took care of.

Consequently, they decided to transplant those trees into the same forest to help them grow. They hoped that two more leaves would appear on the same square in the same town in the following autumn.

05. GEOMETRY */ GEOMETRÍA*



(05)

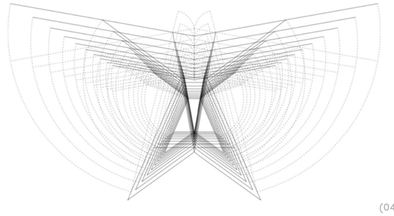
En Normandía, había un vasto bosque que contenía miles y miles de hayas. A medida que comenzaba el otoño, dos de sus hojas volaron con el viento a través del bosque, aterrizando finalmente en medio de una plaza en el centro de un pueblo. Inicialmente sorprendidos por su tamaño, los habitantes comenzaron a darles uso: una se convirtió en un invernadero, mientras que la otra se convirtió en una mesa. Ambas piezas pasaron a formar parte de sus vidas.

Bajo la primera hoja, sembraron semillas, participaron en talleres y aprendieron sobre jardinería y ecología. En la segunda hoja, todos los habitantes realizaron espectáculos, jugaron e interactuaron entre sí.

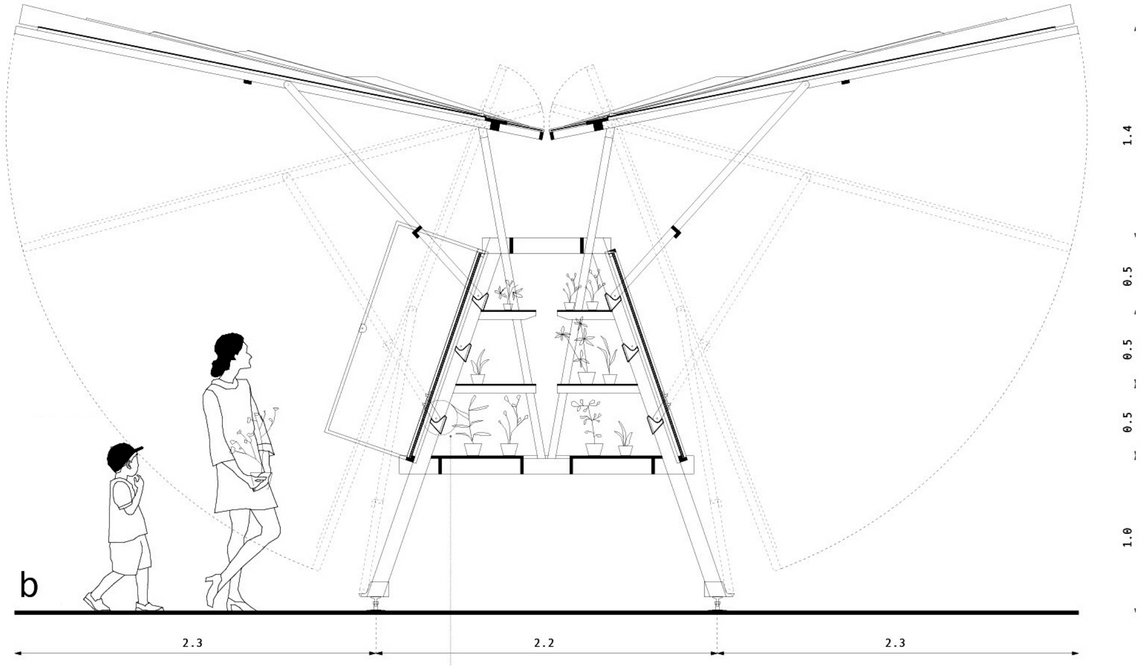
Un mes después, las hojas desaparecieron al comienzo del invierno, y la única huella que dejaron atrás fueron las múltiples plantas de las que los ciudadanos se ocuparon.

En consecuencia, decidieron trasplantar esos árboles de vuelta al mismo bosque para ayudarlos a crecer. Esperaban que dos hojas más aparecieran en la misma plaza de la misma ciudad en el otoño siguiente.

07. MOVEMENT SCHEME
/ ESQUEMA DE MOVIMIENTO

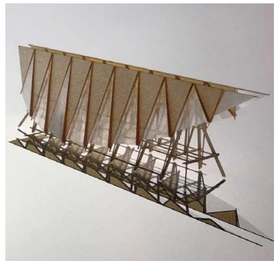


(04)

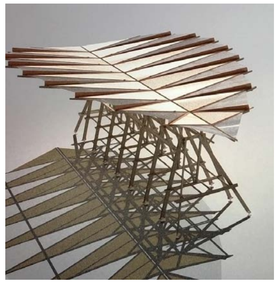


06. CROSS-SECTION B / SECCÍON TRANSVERSAL B

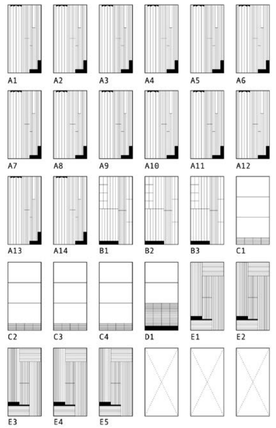
06. NIGHT PROTECTION
/ PROTECCIÓN NOCTURNA



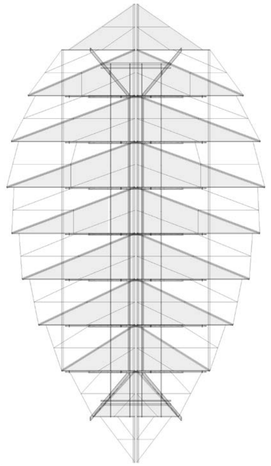
07. SHADING
/ SOMBREAMIENTO



08. BOARD CUTTING AND MATERIAL LOSS
/ DESPIECE TABLEROS Y PERDIDA DE MATERIAL

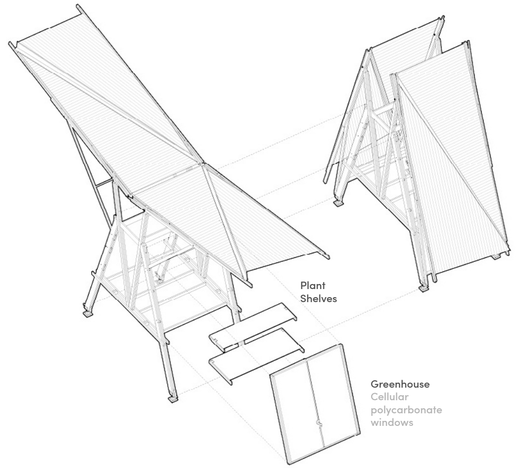


09. COVERINGS PLAN VIEW
/ PLANTA REVESTIMIENTOS



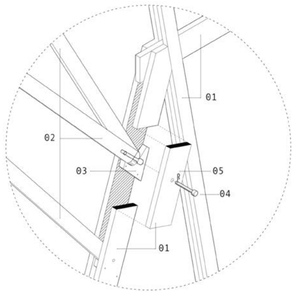
(09)

10. COVERINGS & SHELVES
/ REVESTIMIENTOS Y BALDAS



(010)

11. COVER MOVEMENT SYSTEM
/ SISTEMA DE MOVIMIENTO DE LA CUBIERTA

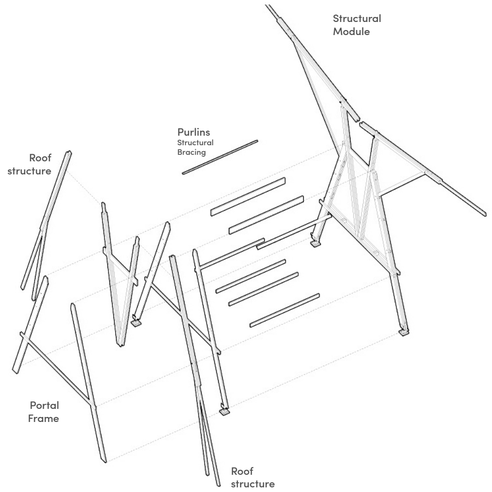


1. *Plywood Strip 100 x 20 mm*
2. *Plywood Strip 50 x 20 mm*
3. *Rotation support*
4. *Stainless Steel Bolt Ø 20mm*
5. *R-Type Spring Cotter Pin*

1. *Listón contrachapado 100 x 20 mm*
2. *Listón contrachapado 50 x 20 mm*
3. *Soporte de rotación*
4. *Perno de acero inox. Ø 20 mm*
5. *Chaveta tipo "R"*

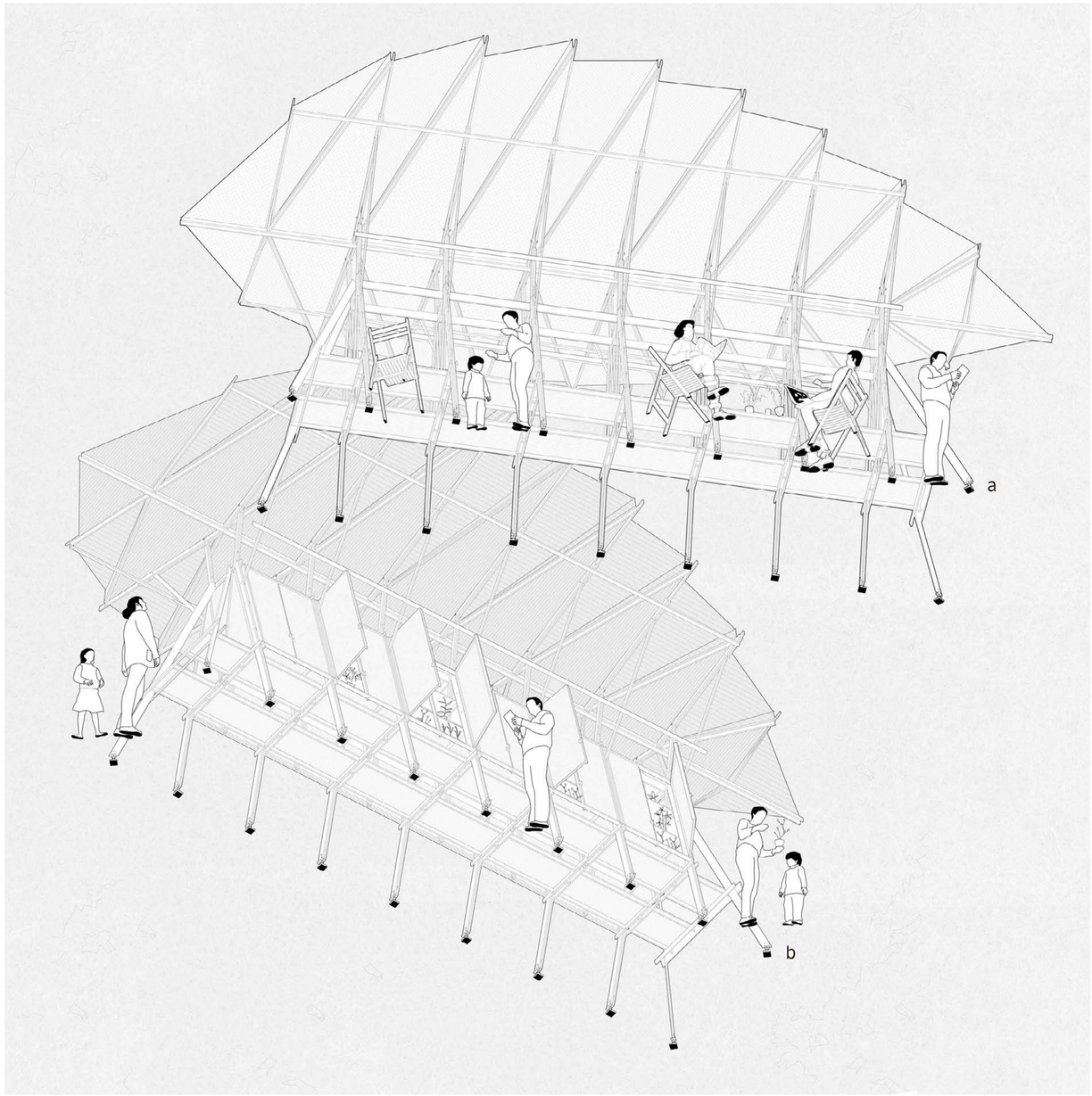
(011)

12. ASSEMBLY*/ ENSAMBLAJE*



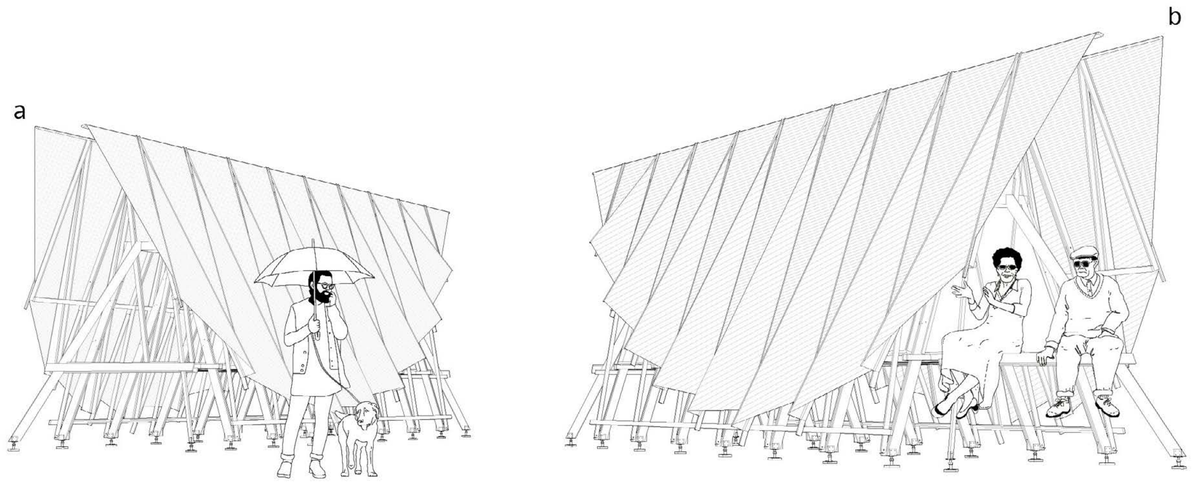
(012)

13. BOTTOM AXONOMETRIC*/ AXONOMÉTRICA INFERIOR*



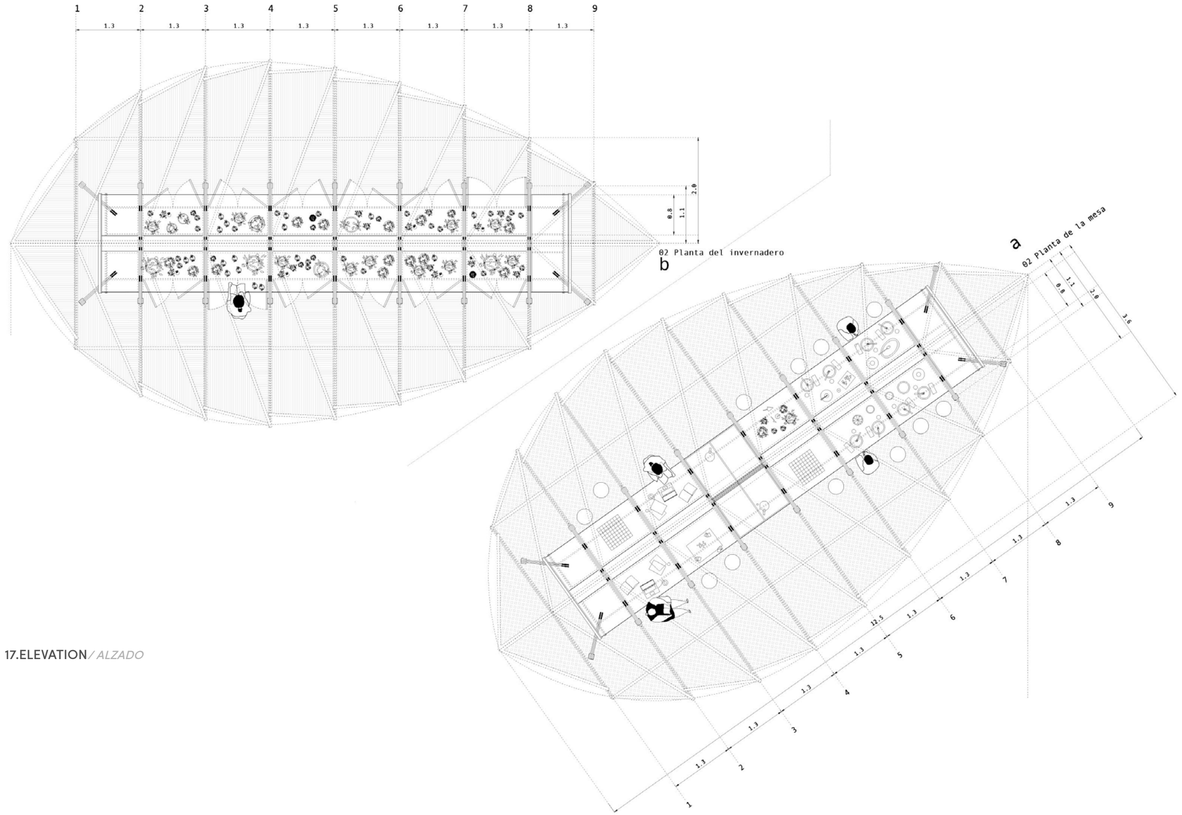
14. OPENED COVERS I *PERSPECTIVE VIEW*
/ COBERTURAS ABIERTAS I PERSPECTIVA

15. CLOSED COVERS I *PERSPECTIVE VIEW*
/ COBERTURAS CERRADAS I PERSPECTIVA

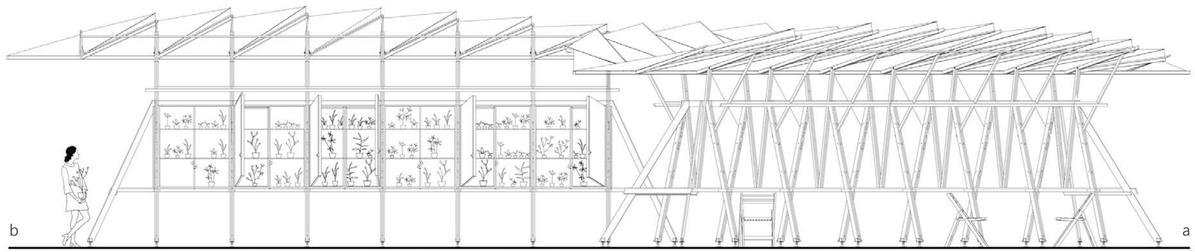


16. PLAN VIEW*/ PLANTA*

(a) The table*/ La mesa*
(b) The greenhouse */El invernadero*



17.ELEVATION*/ ALZADO*



Academic Work

02

Scapes of Intention

Time's Arrow, Time's Cycle

Landscapes | Energy | Matter

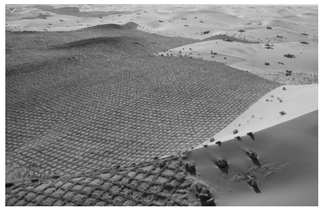
Spring Semester 2025
Harvard Graduate School of Design
Cambridge, MA | U.S.A.

Instructor: Pablo Pérez-Ramos

Location: Qaidam Basin | China

Team:
Bochuan Zheng & Juan Álvarez-Vijande

WIND BARRIER GRID



ECOSYSTEM REGENERATION

Energy-Positive Feedback Loops

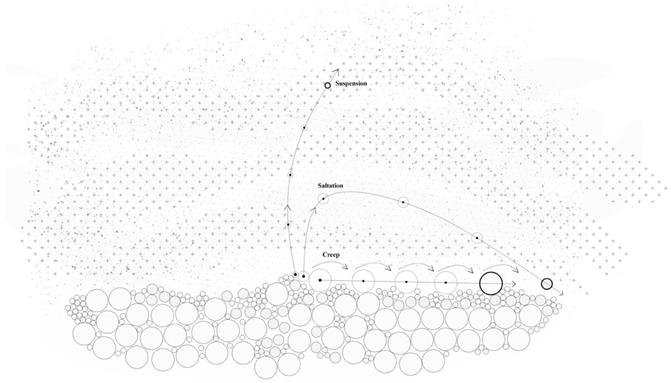
Confronting the entropic tendencies of degraded environments, this proposal explores how regenerative landscape practices can **harness energy-positive feedback loops** to reorganize energy flows, recalibrate ecological rhythms, and **reactivate latent environmental memory** embedded in arid, cold-region ecosystems.

By framing landscapes as dynamic interfaces between human intention and material agency, the project investigates how spatial configurations, anchored in both ecological processes and infrastructural logic, can amplify energy density and catalyze the emergence of new, self-sustaining arrangements.

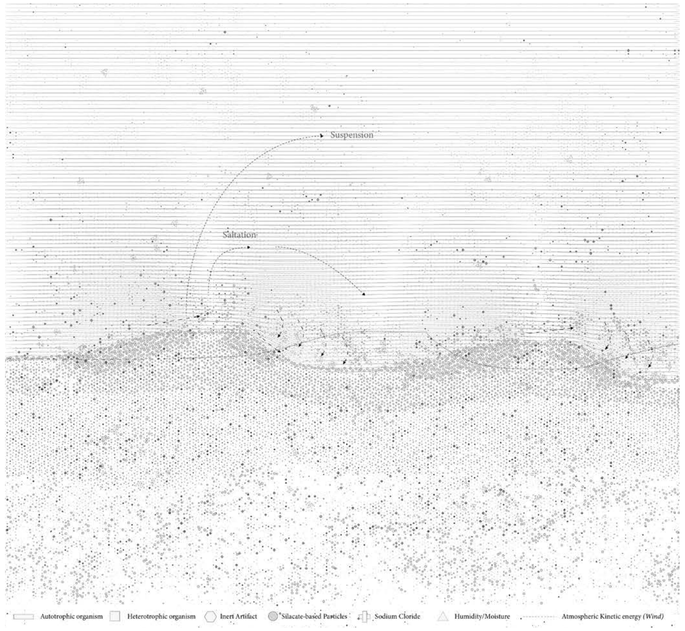
Grounded in field-based practices from the Qaidam Basin, the proposal focuses on the synergistic deployment of Haloxylon ammodendron (Saxaul) in conjunction with Cistanche and other medicinal species. These are complemented by Nitraria tangutorum and Artemisia desertorum, whose combined ecological functions enhance soil stabilization, moisture retention, and habitat complexity.

Together, these plant-based interventions initiate a cascade of regenerative effects: they increase soil water-holding capacity, gradually reduce salinity, and establish favorable microclimates that attract spontaneous vegetation and faunal return. In doing so, they support the reemergence of resilient grassland and forest, creating conditions not only for ecological renewal but also for the formation of new socio-ecological configurations. These include climate-adaptive human settlements grounded in co-creative stewardship, agroecological productivity, and long-term ecosystem care.

DUNE FORMATION



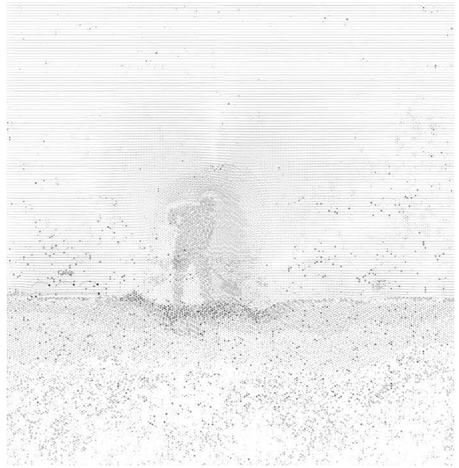
01. DUNE MIGRATION | KINETIC ENERGY | WIND/MASS FLOW



02. PRELIMINARY WIND BARRIER LAYOUT

Topographic Grid Tracing as Landscape Infrastructure

The intervention begins with the manual delineation of a 1-meter-spaced grid system directly on the desert terrain, following the natural undulations of the dune topography. Using shovels, this step marks not only the physical extent of the restoration site but also establishes a foundational spatial logic for subsequent infrastructural placement. By aligning the grid with prevailing wind dynamics, this phase operationalizes the landscape's existing form to enable a future system of microclimatic regulation.



03. WIND BARRIER INSTALLATION

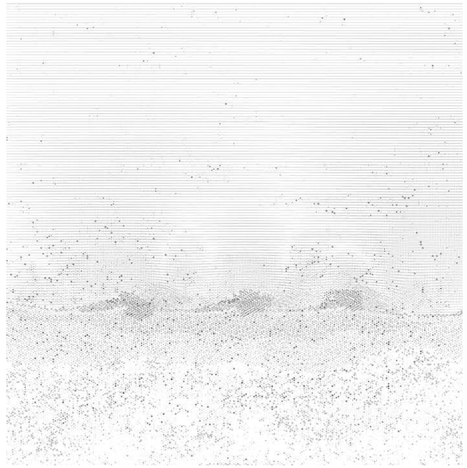
Linear Infrastructures for Wind Modulation

Following the grid layout, biodegradable wind-blocking materials, such as hail, is distributed along the traced lines and lightly buried with sand for anchoring. These linear interventions function as landscape infrastructures that deflect and diffuse wind energy, initiating spatial differentiation in moisture retention, temperature, and sediment deposition. Their strategic placement lays the groundwork for the emergence of sheltered microhabitats, essential to the self-organizing potential of arid ecosystem regeneration.

04. DUNE STABILIZATION

Microclimate Engineering through Wind Diversion and Manual Reshaping

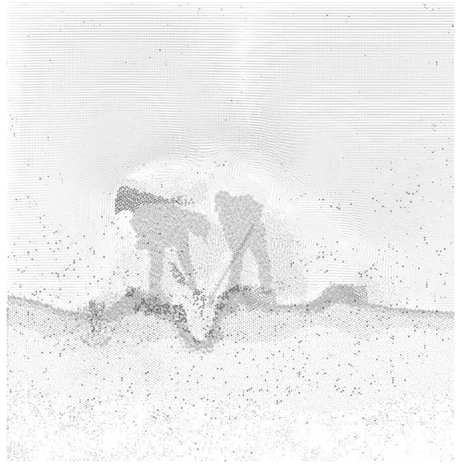
As wind is intercepted by the barriers, a patterned mosaic of protected zones emerges, characterized by reduced solar exposure and increased humidity. These microclimatic niches, supported through targeted manual digging and soil aeration, create favorable conditions for plant establishment. This phase engages geomorphological design as an agent of ecological feedback, wherein modified energy flows (wind and heat) reinforce environmental stability and catalyze early successional dynamics.



05. PLANTING PHASE

Species Assemblage for Functional Diversity and Soil Rehabilitation

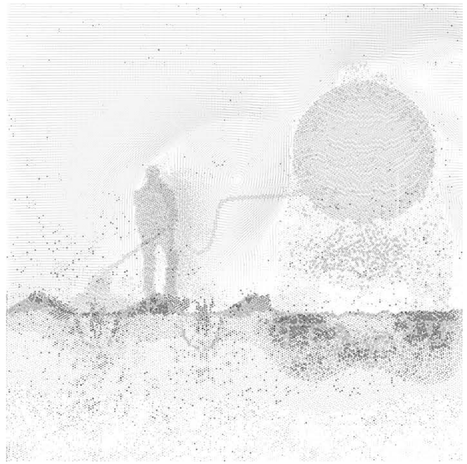
This phase introduces greenhouse-raised seedlings into stabilized zones.
The use of Haloxylon ammodendron (Saxaul) as a structural pioneer species is complemented by Cistanche and other medicinal herbs, along with Nitraria tangutorum and Artemisia desertorum. Collectively, these species support multiple ecological functions: enhancing soil structure, reducing salinity, capturing airborne moisture, and creating a layered habitat.



06.IRRIGATION AND INITIAL MAINTENANCE

Activating Feedback Loops through Climatic Care

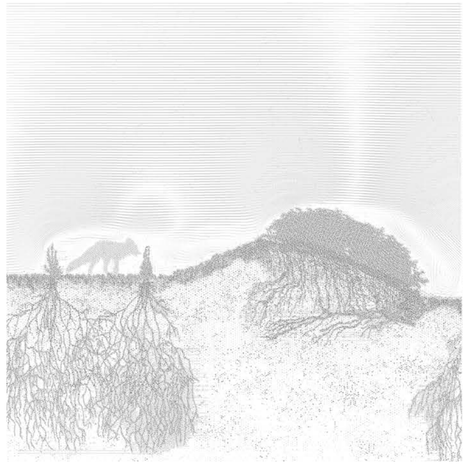
Initial irrigation is deployed to stabilize plant growth during the early establishment period. However, the altered environmental conditions - moderated solar exposure, reduced wind stress, and improved soil moisture retention – begin to self-sustain through **energy-positive feedback loops**. These loops reduce dependence on external inputs over time, allowing the landscape to transition from managed intervention to autonomous regeneration.



07. ECOSYSTEM EMERGENCE

From Microclimatic Repair to Multispecies Co-Habitation

As environmental conditions stabilize, the improved microclimate fosters the spontaneous return of native flora and fauna, reinforcing ecological diversity through self-organizing processes. Beyond the initial planted species, new plant communities emerge, attracting insects, birds, and small mammals that contribute to seed dispersal and pollination. This evolving habitat forms the basis for climate-adaptive human settlement, enabling co-creative practices such as agroecology and medicinal plant harvesting that further integrate social life into regenerative cycles.



03

Profesional Practice

Agro - Tourism
"Neo-Rural"
Productive communities

March 2020 - Present
Benagalbón I Rincón de la Victoria
Málaga (Spain)

Authors:
Rafael García-Monge Pozo
Juan Álvarez-Vijande Landecho

Collaboratos:
José Luis Zabala (M.E.P)
Mariano Molina Iniesta (M.E.P)
Gabriel Muñoz Moreno (Architect)

01. DESIGN ISSUE/BACKGROUND:

The project is located in a rural environment in the South of Spain where, until now, olive farming has been the predominant agricultural activity. Currently, intensive production models of non-native plantations with excessive water demand are emerging. This situation is leading to the disappearance of native products, altering the Mediterranean gastronomic and agricultural production scheme, and posing a risk to local small farmers who cannot compete with large consortia and monopolies. The project aims to revitalize and reconfigure the area to ensure the continuity of this activity over time, preserving the local agricultural practices.

02. DESIGN GOAL:

The intervention consists of establishing an educational tourist complex focused on promoting sustainability in agricultural resources and production methods. Through agroecology, both agricultural practices and a social movement are integrated, aiming to foster the identity and culture of the region, as well as the revitalization and self-sufficiency of rural areas. The project encourages community participation and equitable access to agricultural resources by adopting a collaborative model involving various stakeholders such as local producers, employees, and customers.

03. DESIGN CONCEPT:

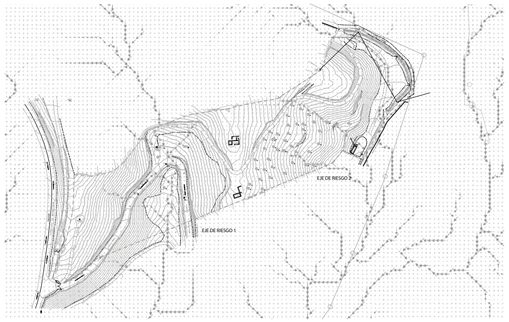
The proposal advocates for a low-impact architecture, emphasizing minimal interior built spaces and integrating small interventions and facilities in the natural surroundings.

The accommodation units will be constructed with lightweight wooden post-and-beam structures and traditional permeable enclosures, facilitating local production and on-site assembly. Meanwhile, service buildings will follow traditional load-bearing wall construction methods, utilizing thermoclay blocks and local aggregate rendering to blend harmoniously with the landscape and enable construction by local workers without specialized skills.

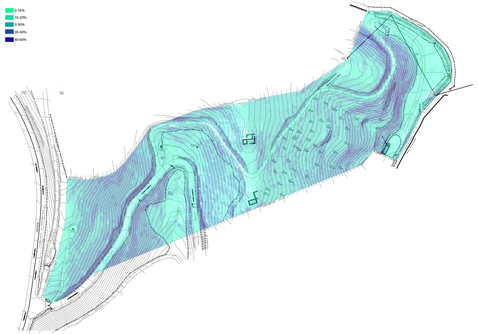
Passive strategies derived from the Givonni diagram are adopted, including natural ventilation from prevailing winds, shading systems, and thermal inertia from the terrain. Additionally, water recirculation systems for irrigation and waste collection for composting are implemented.

The site's slope is thoughtfully considered to position vegetation and architecture in alignment with the landscape's topography. Local stone terraces are introduced for planting fruit trees, ensuring accessibility while preserving the traditional productive landscape. New species are incorporated for specific situations, enhancing the landscape's color and functionality to optimize the program.

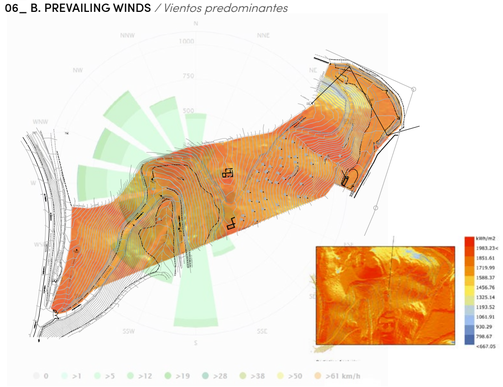
04. RAINWATER RUNOFF ANALYSIS / *Analisis escorrentia de lluvias*



05. CLINOMETRIC ANALYSIS / *Analisis Clinométrico*



06_ A. SOLAR RADIATION ANALYSIS / *Analisis Radiación Solar*
06_ B. PREVAILING WINDS / *Vientos predominantes*

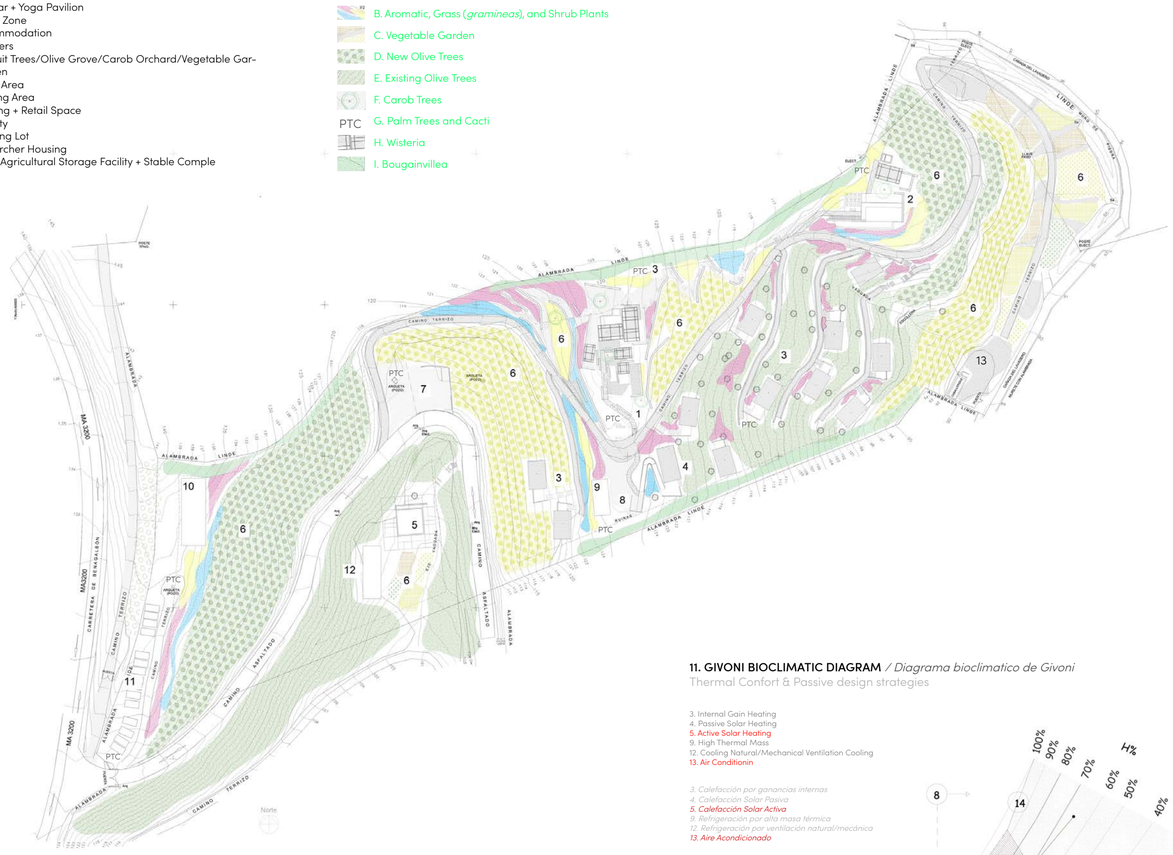


07. PROPOSED PROGRAM

1. Social Area
2. Natural Pool + Bar + Yoga Pavilion
3. Accommodation Zone
4. Accessible Accommodation
5. Employee Quarters
6. Orchard with Fruit Trees/Olive Grove/Carob Orchard/Vegetable Garden/Herb Garden
7. General Parking Area
8. Accessible Parking Area
9. Reception Building + Retail Space
10. Restaurant Facility
11. Restaurant Parking Lot
12. Volunteer/Researcher Housing
13. Service Access + Agricultural Storage Facility + Stable Comple

08. LANDSCAPE DESIGN: STABILIZED MAINTENANCE/ENHANCED BIODIVERSITY

- A. Fruit Trees
- B. Aromatic, Grass (*gramineas*), and Shrub Plants
- C. Vegetable Garden
- D. New Olive Trees
- E. Existing Olive Trees
- F. Carob Trees
- G. Palm Trees and Cacti
- H. Wisteria
- I. Bougainvillea



09.PRODUCTIVE LANDSCAPE DESIGN AND POLLINATION STABILIZED MAINTENANCE/ENHANCED BIODIVERSITY

Incorporating productive landscape design strategies and introducing pollinating species, such as honeybees, into an agrotourism complex establishes a symbiotic relationship between landscape design and pollinators. This synergy contributes to the creation of a resilient and self-sustaining ecosystem. Aligned with broader environmental objectives, these strategies champion ecological balance, address issues like food security, and promote habitat preservation.

The intentional inclusion of pollinating species, particularly honeybees, goes beyond enhancing agricultural productivity through effective pollination. It serves as a poignant demonstration of the indispensable role that pollinators play in sustainable farming practices.

The agrotourism complex becomes a dynamic showcase of sustainable land use, ecological equilibrium, and the intrinsic beauty arising from the interplay of productive landscapes, pollinators, and agrotourism. These landscapes not only bolster local food production but also enrich biodiversity, supporting the surrounding ecosystem and ensuring successful pollination for adjacent vegetation.

10.EMBRACING LOGIC: PASSIVE DESIGN STRATEGIES

The Givoni diagram empowers informed decision-making by aligning with specific climatic conditions, thereby facilitating the effective implementation of passive design principles to achieve thermal comfort for occupants, all while concurrently minimizing the overall energy consumption of the building

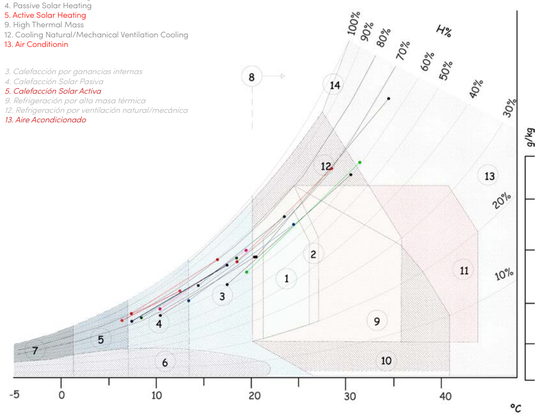
When applying these passive design strategies to Malaga, characterized by a Mediterranean climate featuring hot, dry summers and mild, wet winters, the primary focus is directed towards the optimization of natural cooling mechanisms, sun blocking during hot seasons to reduce the energy consumption.

This approach encourages adaptation to the varying hygrothermal conditions presented by different seasons and daily situations. Occupants are expected to adopt appropriate clothing choices, fostering a deeper comprehension of how architectural elements should be utilized. For example, the utilization of brise-soleils for blocking the sun during sunsets not only enhances comfort but also allows for effective cross-ventilation, contributing to a sustainable and comfortable living environment.

11. GIVONI BIOCLIMATIC DIAGRAM / *Diagrama bioclimatico de Givoni*
Thermal Confort & Passive design strategies

3. Internal Gain Heating
4. Passive Solar Heating
5. Active Solar Heating
9. High Thermal Mass
12. Cooling Natural/Mechanical Ventilation Cooling
13. Air Conditionin

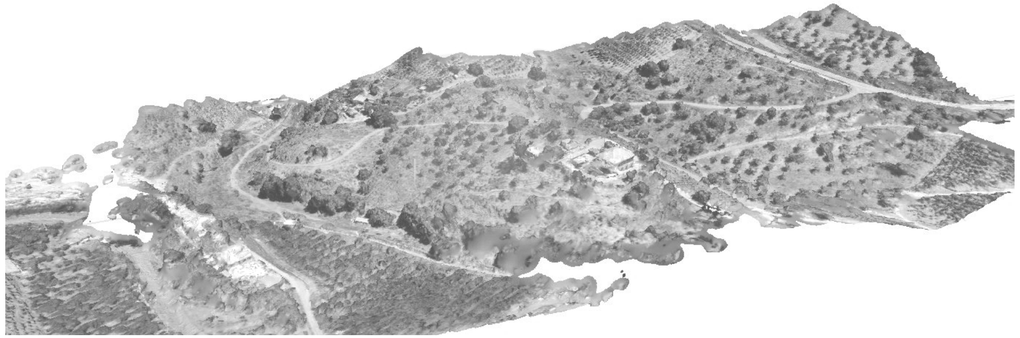
3. Calefacción por ganancias internas
4. Calefacción Solar Pasiva
5. Calefacción Solar Activa
9. Refrigeración por alta masa térmica
12. Refrigeración por ventilación natural/mecánica
13. Aire Acondicionado



ANALISIS DE ESTRATEGIAS BIOCLIMÁTICAS_ RINCON DE LA VICTORIA

	Enero	Feb	Mar	Abr	May	June	July	Ago	Sept	Oct	Nov	Dic
MT	16	17	18	20	24	30	31	34	28	23	19	16
mT	6	7	8	10	13	17	19	20	18	14	10	7
Tm	12,1	12,7	14,4	16,4	19,2	22,8	25,4	25,7	23,4	19,4	15,5	13,1
H %	77	72	71	66	66	62	63	64	70	73	72	78
Estrategy	5/4	4/3	4/3	4-3	4-3-8	3-8-9-12	3-8-9-12-13	8-9-12-13	3-8-9-12	3-8	4-3	3-4-5

12. EXISTING CONDITION - *PHOTOGRAMMETRIC 3D RECONSTRUCTION*



13. PROPOSED LANDSCAPE - *ENHANCING BIODIVERSITY*

14. AROMATIC PROMENADE - *RESILIENT ECOSYSTEM*

Rainfed Plants & Drought-Tolerant Plants

Enhancing insect/Fauna populations + Improving pollination + Honey production + Signifying specific uses by floral Color and Odor

15. SOCIAL AREA AND PRODUCTIVE LANDSCAPING

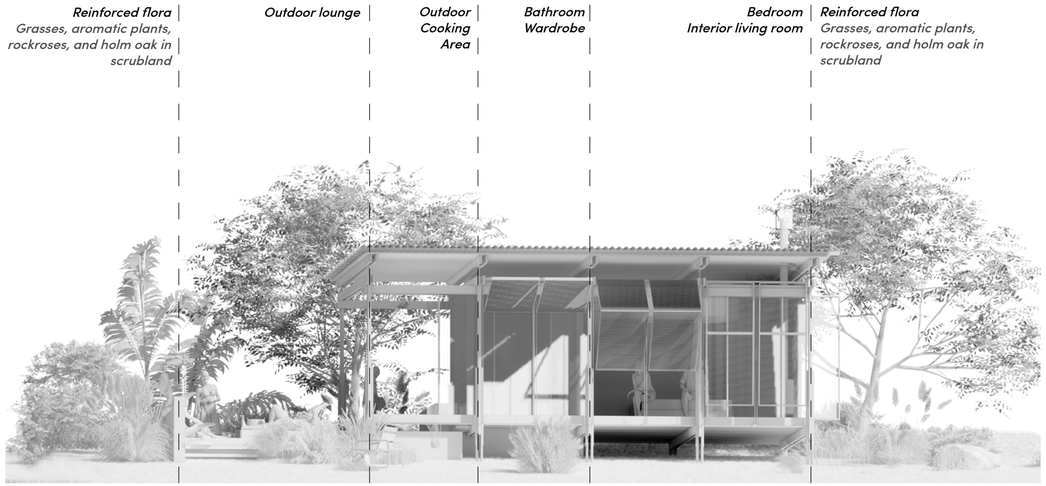
AXONOMETRIC VIEW

1. Contemplation Spaces - Meaningful Trees
2. Accommodation
3. Olive Grove
4. Path through Fruit trees (Social Area - Natural Pool)
5. Indoor Multipurpose Room
6. Bathrooms
7. Bar, Restaurant, and Agricultural Market
8. Shaded Terraces
9. Sunset Terrace
10. Aromatic Promenade
11. Main Path and Detour to Accommodation Areas
12. Cultivation of Fruit Trees and Olive Trees
13. Rock massif of phyllite type with dikes of meta-sandstones and siliceous conglomerates

16. SITE

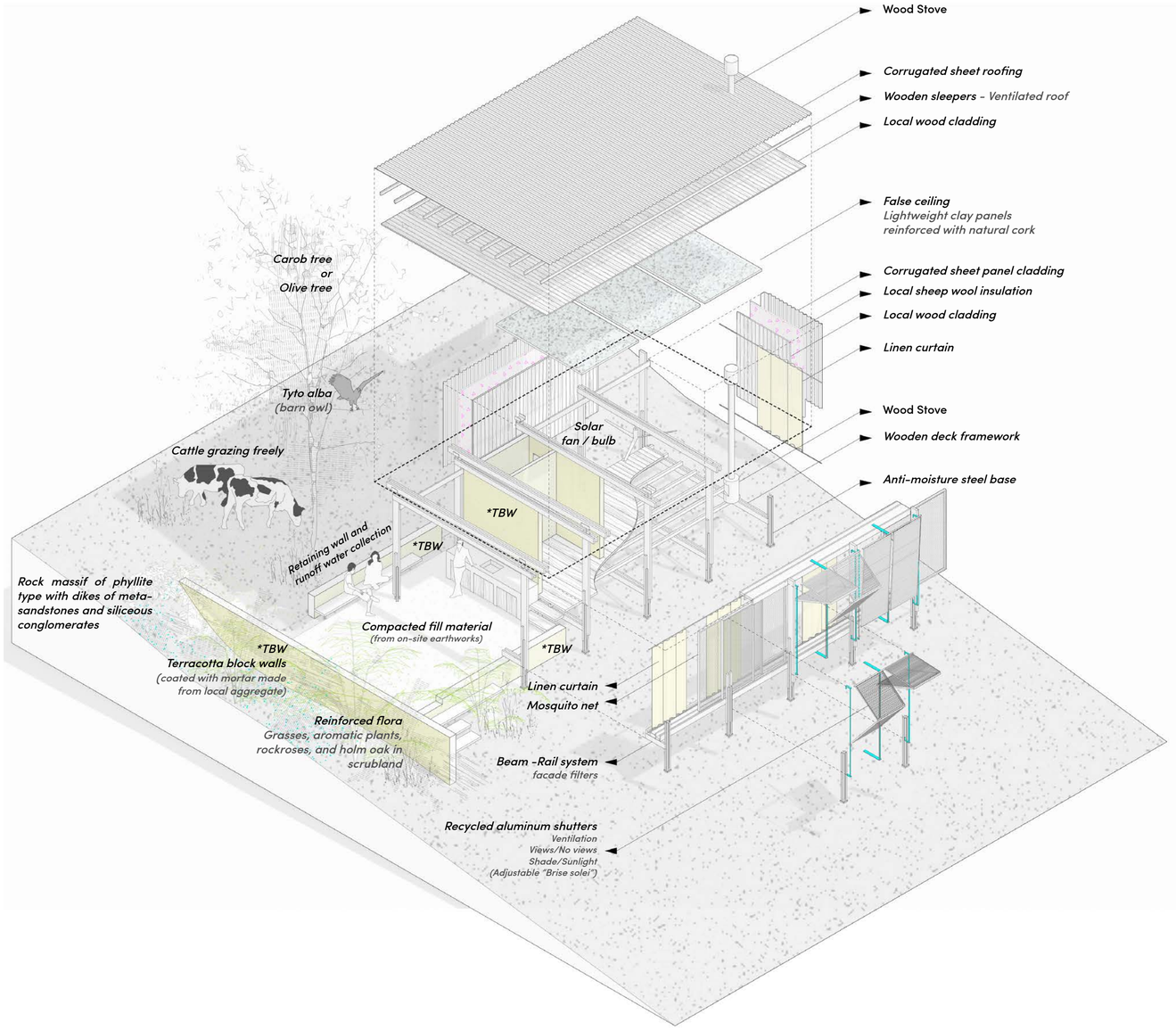
Social Area And Productive Lanscaping

20. ELEVATION VIEW – *CABIN AREA* – **Proposed uses**
South-east façade

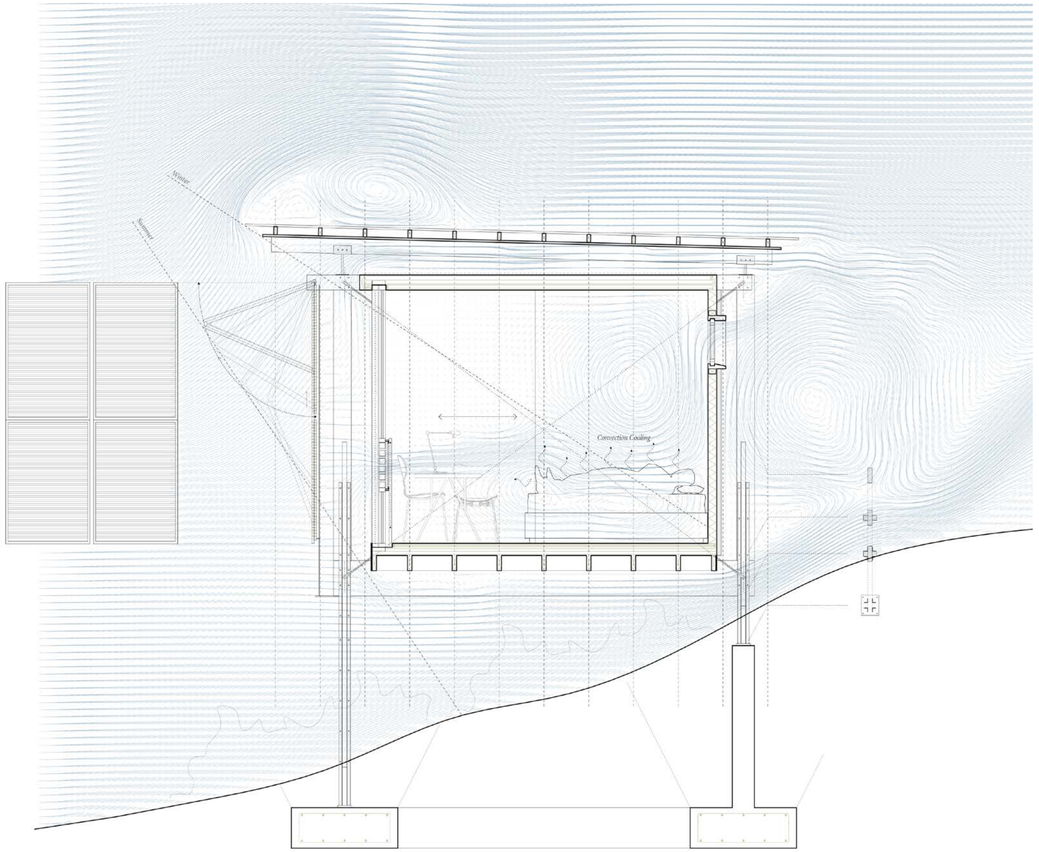


21. PERSPECTIVE VIEW –CABIN AREA –

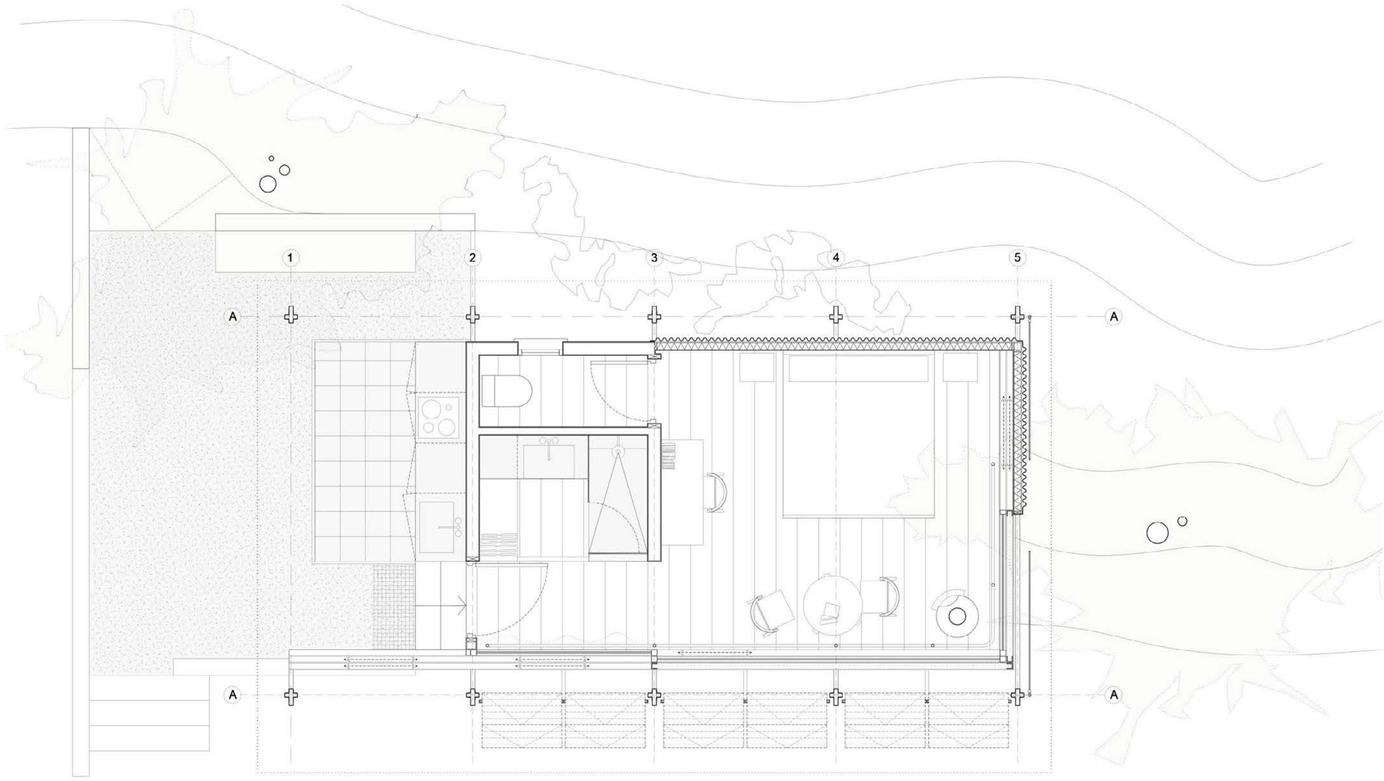
22. EXPLODED AXO – *CABIN* –
ECOSYSTEM
– Abiotics & Biotics Agents–



18. SECTION A-A´ - *CABIN AREA* -



16. ELEVATION VIEW - *CABIN AREA* - **Proposed uses**
South-east façade

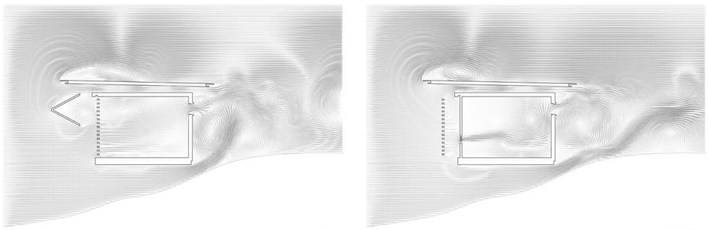


17. FLUID DYNAMICS

The project harnesses prevailing winds, thermodynamic flows, and the terrain's natural slope to enhance ventilation and thermal comfort.

Vegetation and built elements are arranged to channel breezes across the site, creating a well-ventilated microclimate.

The cabin's adaptable form, shaped by the topography and equipped with operable panels, responds to changing conditions throughout the day - delivering high comfort and low impact without relying on mechanical systems.



DAY

NIGHT

04

Makan

Libanese Restaurant

Saj Manoushe

October 2022

Complejo Caleido, Madrid (Spain)

Authors:

Rafael García-Monge Pozo

Juan Álvarez-Vijande Landecho

Collaboratos:

Gabriel Muñoz Moreno (Architect)

Photography:

Amores Pictures (Alberto Amores)

Situated in a bustling commercial square, Makan introduces a showcase of Lebanese architecture and gastronomy, shaped by its own traditions and historical scars, where the processes of locally sourced resources intertwine with the dynamism of contemporary life.

The choice of raw materials and the play of light upon them seeks to reflect the ruggedness and honesty of traditional Lebanese construction, with the use of mortar or intricately crafted family-produced tiles, in contrast to the simplicity brought by the treatment of pure geometries with glass, wood, metal, or polished concrete.

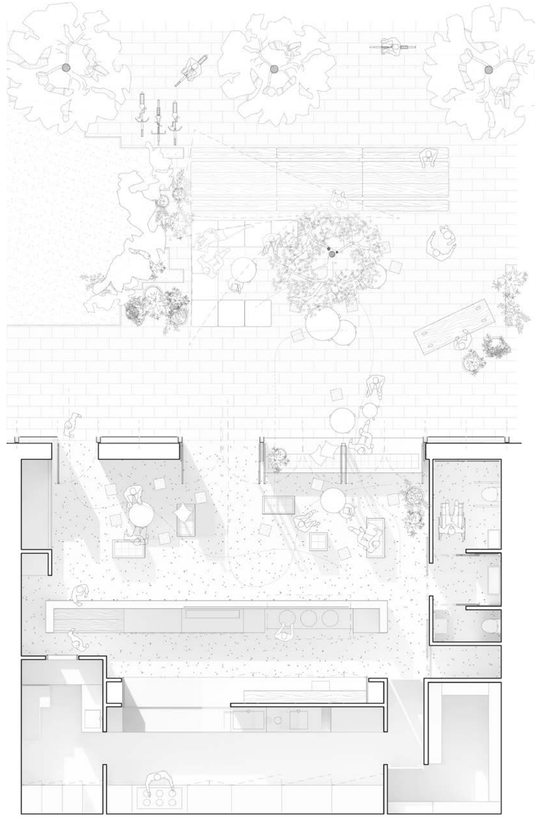
The facade is designed with large openings that introduce the outdoor atmosphere, blurring the boundaries and transporting us to lively Mediterranean markets.

Mediterranean cuisine is a social act. At Makan, food takes center stage, and diners orbit around it, creating sets of nodes. "Eating with hands" allows the furniture to transform, generating multiple situations.

Makan is the story of a Lebanese family, their food, their culture, and their way of life.

01. GROUND FLOOR

INTERIOR/EXTERIOR



02. TRADITIONAL LEBANESE TILES I MANUFACTURING PROCESS

Produced by BlattChaya (family business)

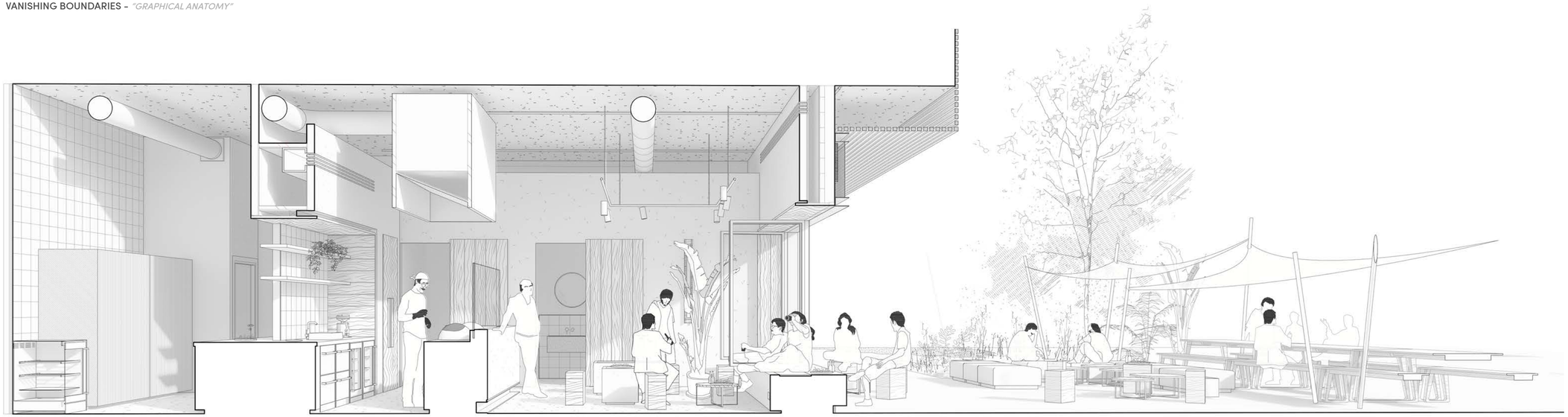
03. USERS' SPACE APPROPRIATION

In Makan, there are intentionally no table manners. Similarly, in Lebanon, Saj food is prepared and enjoyed on the streets. Placing the main cooking area in the center emphasizes this experience, further enhanced by dining on urban furniture. Social interaction is encouraged, so tables and stools are continuously shared among different diners, even with strangers if they wish.

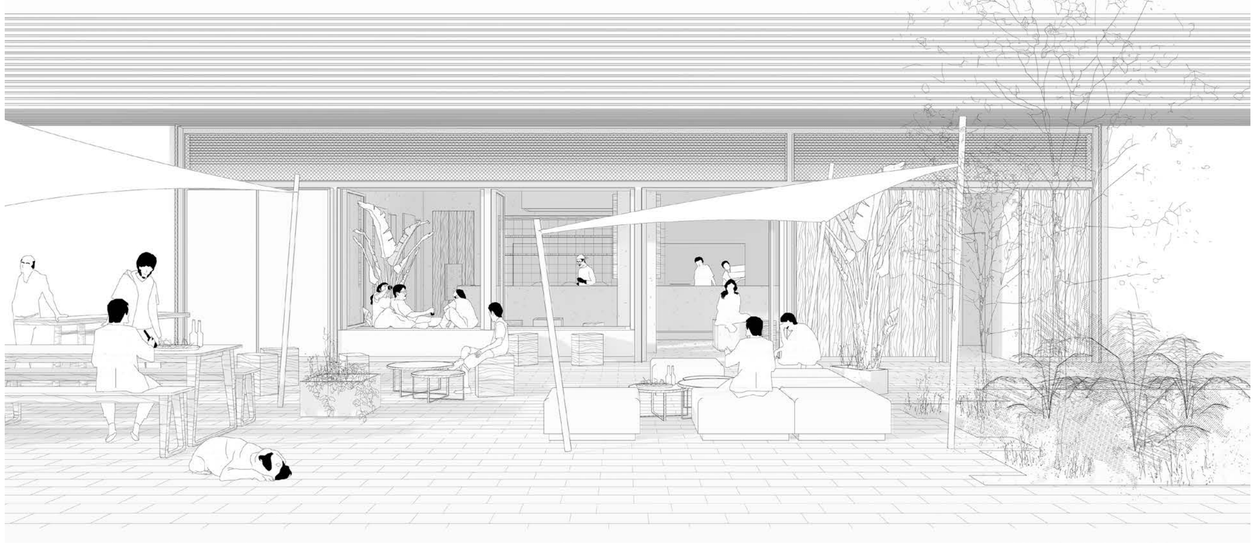
This proposal incorporates finishes inspired by traditional outdoor materials in Lebanon while also evoking the rawness of areas debased after war conflicts. Nevertheless, it is accompanied by joyful music and Mediterranean food that calls for a renaissance.

Makan hosts discussions about Lebanon, the Mediterranean, and culture. It serves as a venue for contemporary and traditional musical performances, much like a living room. People are respectful but daring in Makan.

04. SECTION PLAN
VANISHING BOUNDARIES - *"GRAPHICAL ANATOMY"*



05. PERSPECTIVE VIEW - *TERRACE AREA*



06. INTERIOR IMAGES - *RAW MATERIALS* - EXTERIOR I INTERIOR

05

Thesis Project

Aarhus Hub Campus
Academic Work

May 2018

E.P.S. San Pablo CEU I Madrid I Spain

Instructor: Izaskun Chinchilla
Location: Aarhus I Denmark
Team: Individual Work

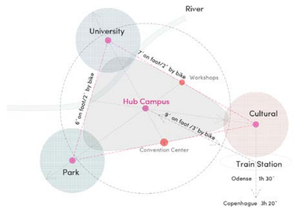
01. BACKGROUND:

In the past, the site consisted of a railway complex for freight trains, with complementary elements around the tracks such as warehouses, retail outlets, and industrial production areas, among others. Essentially, it served as the city's productive gateway, a large public square, where opportunities for future commercial and social relationships arose.

Today, this spirit of openness to new opportunities on the site materializes through an association (Institut for (X), located along the existing spontaneous buildings. This association's mission is **to facilitate and enhance cultural activities, combining artistic creativity with businesses, public debates, and public education.** It encompasses a dynamic set of alternative business and cultural projects.

Unlike the Aarhus Master Plan in the Godsbanen district, which proposes locating the New Aarhus School of Architecture on this site, this proposal emerges as a resilient alternative with the aim of fostering a hybrid space. Here, a **public-private management** model is suggested, all in pursuit of preserving the enriching existing cooperative communities.

02. MASTER PLAN PROPOSAL DIAGRAM



03. DESIGN GOAL:

The intervention aims **to consolidate and promote the entrepreneurial and cooperative spirit** on this site temporarily granted by the municipality. As the master plan designates this area for the development of an architecture university, leading to the extinction of this fortunate socio-territorial reality.

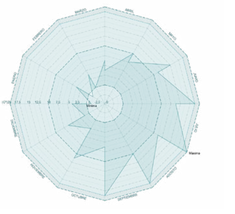
The proposal advocates for a permeable production process, involving active participants and mediators facilitating connections. It introduces a 21st-century forum, a Hub Campus, encouraging multidisciplinary professional relationships among stakeholders. **An urban stitching network of green spaces connects the university, production center (workshops), and cultural area.** Integration of students, young entrepreneurs, and the creative sector **fosters multidisciplinary learning**. Complementary programs include coworking spaces, workshops, storage, accommodation, Cantina, meeting areas, restrooms, and urban furniture across the Hub Campus.

04. SOLAR RADIATION I %/Month

05. RAINS I mm/Month

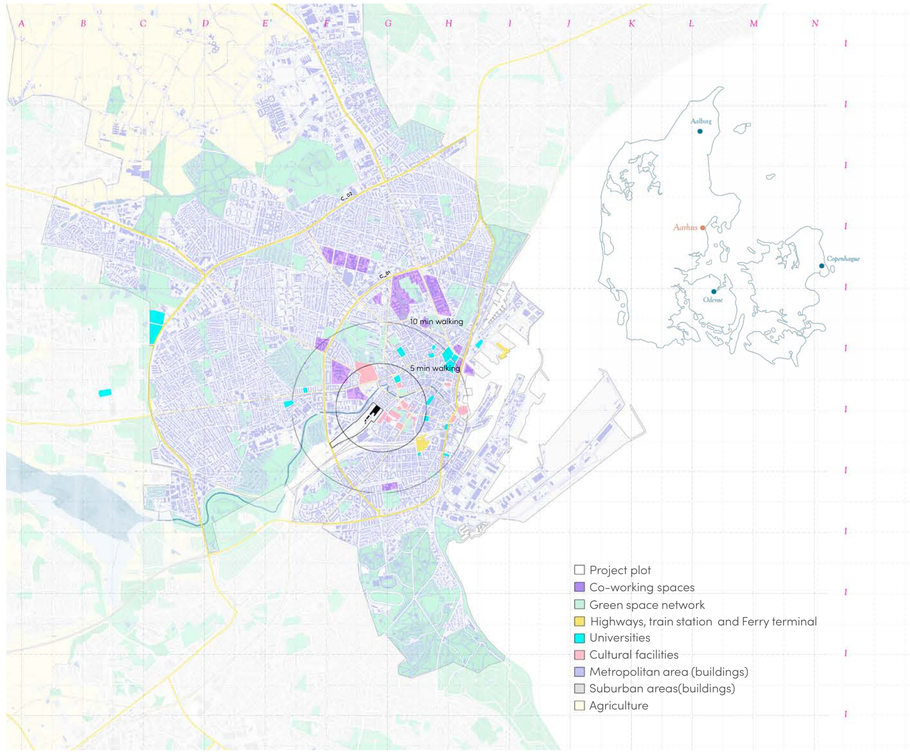
06. RAINING DAYS I Days/Month

07. Min/Max TEMPERATURES I °C /Month

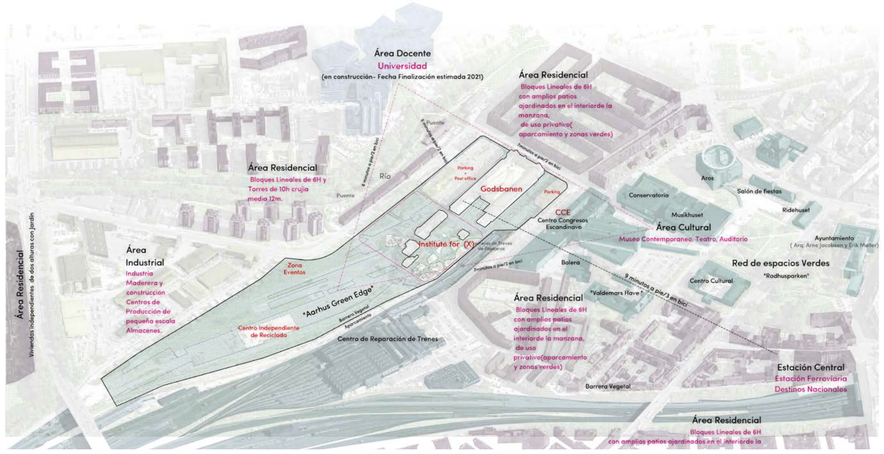


08. HUMIDITY I %/Month

09. CURRENT LAND USES I WALKABLE/CYCLABLE DISTANCES

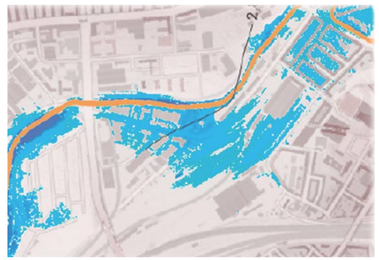


10. SITE I EXISTING USES I URBAN STITCHING PROPOSAL

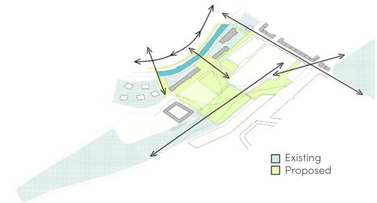


11. AARHUS CITY COUNCIL'S MASTER PLAN

12. ÁREAS THREATENED BY FLOODING

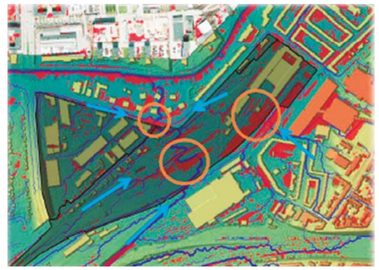


13. GREEN SPACE NETWORK - *EXISTING/PROPOSED*



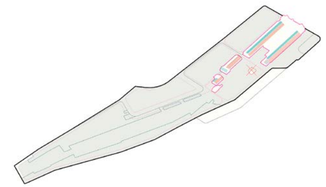
The **prioritization of green and public spaces** over the comprehensive layout is developed under a robust philosophy. Here, disconnected existing programs and productive local communities, as well as the potential loss of natural space, can **mutually benefit** through the public realm.

14. DIVERSION OF WATER *(During Thundestorm)*



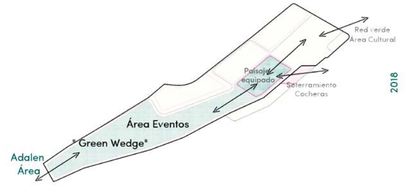
15. PROJECT PHASES

PHASE 01
- Conditioning of pre-existing structures-



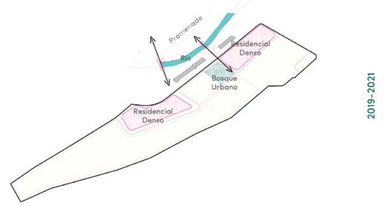
Existing structures suffer from energy inefficiency. To address this issue, an integration of climatic greenhouses on the northern sides of the existing roofs will be installed. Simultaneously, the southern facades will undergo transformation with the introduction of active facades equipped with photothermal glass and ceramic tubes, fostering a cohesive and harmonious approach within the whole

PHASE 02
- Connecting green spaces while supporting the current program -



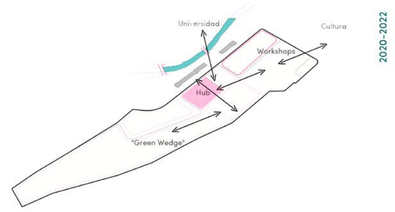
Reusing the existing structures to create a landscape that connects the Adlaen area with the city's network of green spaces, incorporating slight topographical modifications to address the site's flooding situation. The earthworks will accommodate functions that serve as programmatic support for the existing uses.

PHASE 03
- High residential density + Creative District -
Densification: Residential + small-scale retail (80 dwellings/ha).



After residential buildings have been completed, the longitudinal block will be splited into two volumes in order to create a new conennctng pathway to the other side of the river bank. Thus, the new uses will be linked to the university by incorporating an urban forest that will sew the existing network of green spaces.

PHASE 04
- High residential density + Creative District -



Expansion of the pre-existence support facilities through the construction of a collaborative work space and business incubators linked to production and teaching. It will be a meeting point for students and professionals, linking the production workshops, the cultural area of Aarhus and the university.

18. STARTING POINT - EXISTING FACILITIES -

The area around the plot is known as the creative district of Godsbanen.

It is a versatile space that hosts programs related to the innovation of arts, design, and new employment models.

Godsbanen hosts a wide range of musical events, commercial activities, and citizen engagement programs related to the production and the generation of urban identities.

On the proposed plot for the project, a temporary professional community of freelancers linked to innovation has been established, called the " ***Institut for (X)*** ".

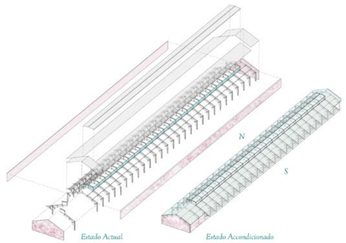
It consists of an urban neighborhood and a dynamic cultural platform that is constantly evolving, pushing the boundaries of what's possible, and serving as a source of inspiration for alternative urban development.

It aims to facilitate and enhance cultural activities by blending artistic creativity with business, public discourse, and public education.

Here, partners come together to work, sharing various specialties, promoting innovation through interdisciplinarity.

Quoting their own motto: **"We dream of vibrant and green neighborhoods that inspire experimentation and collaboration, challenging conventional city development and redefining public space."**

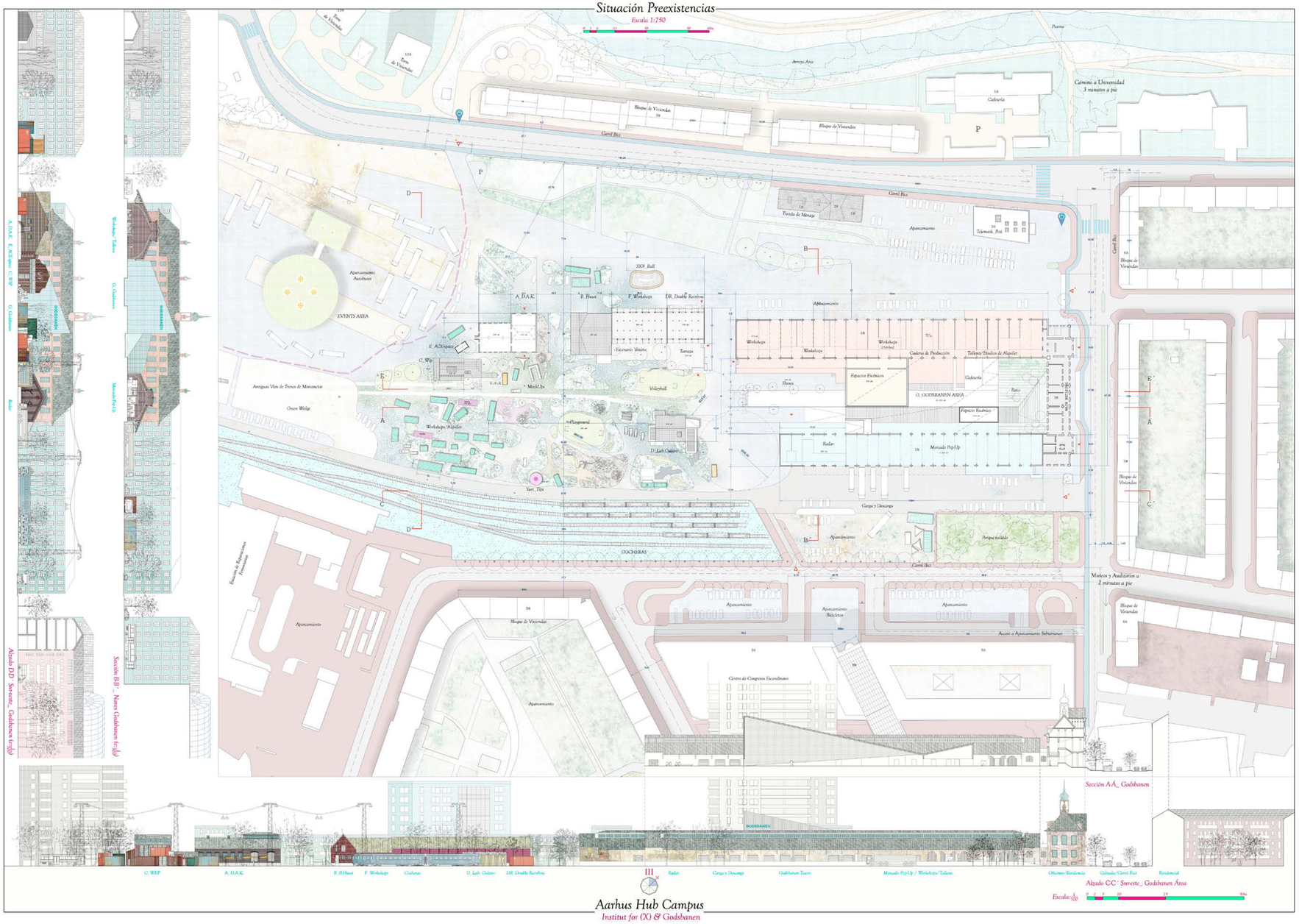
PHASE 1 - Conditioning of pre-existing structures-



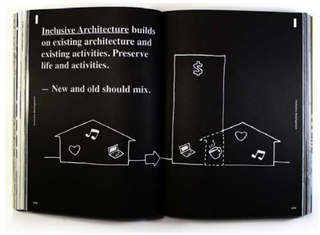
Aerial view -Godsbanen Creative District

19. SITE PLAN - EXISTING - GODSBANEN CREATIVE DISTRICT

BUILDINGS OPEN TO THE PLUBLIC & PUBLIC REALM



Fostering Circularity / Identity through Identity / Circularity



16. FOSTERING Engagement, Identity, & Circularity.

The area around the plot is known as the creative district of Godsbanen.

It is a versatile space that hosts programs related to the innovation of arts, design, and new employment models.

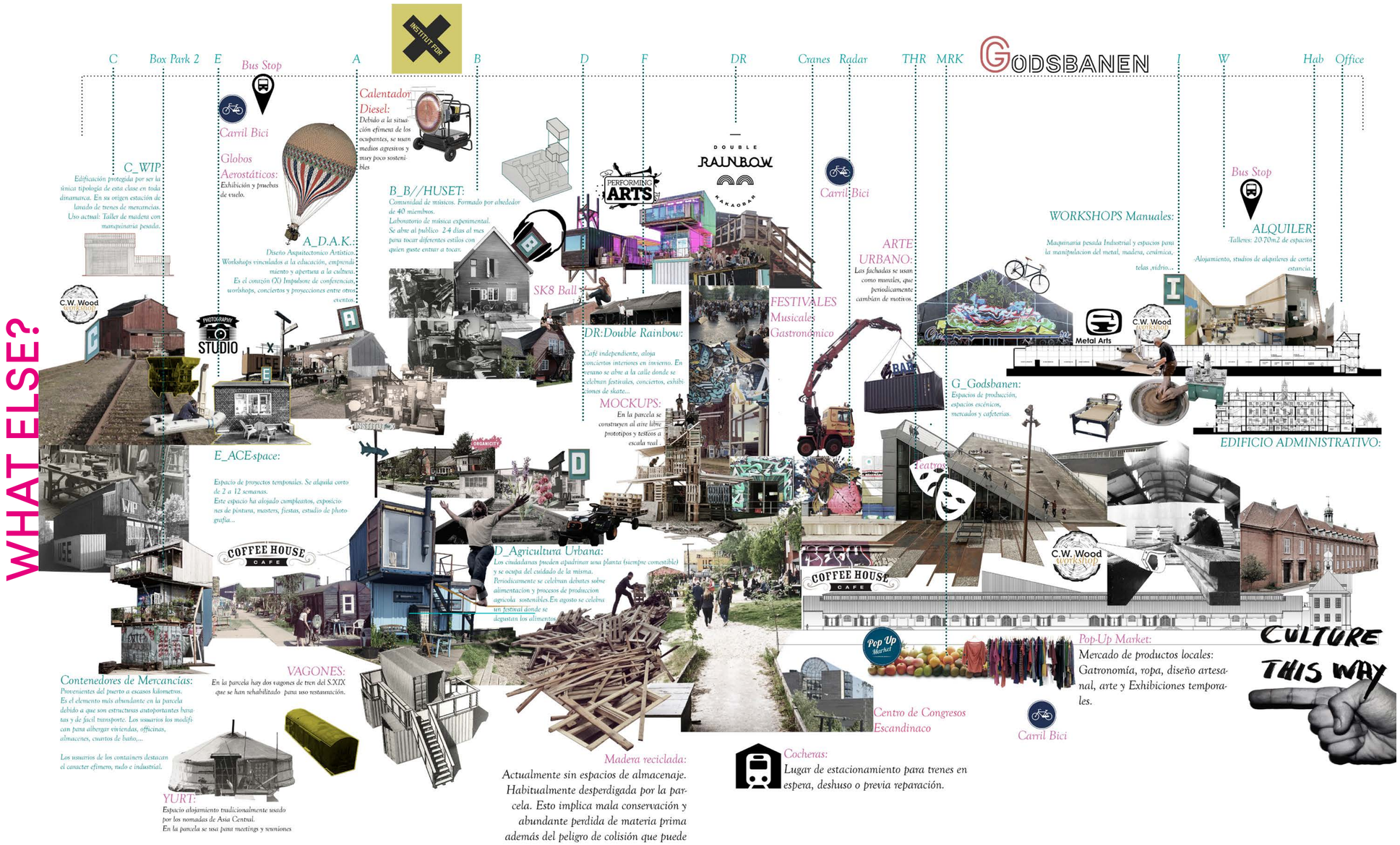
Godsbanen hosts a wide range of musical events, commercial activities, and citizen engagement programs related to the production and the generation of urban identities.

On the proposed plot for the project, a temporary professional community of freelancers linked to innovation has been established, called the ***Institut for (X).***

It consists of an urban neighborhood and a dynamic cultural platform that is constantly evolving, pushing the boundaries of what's possible, and serving as a source of inspiration for alternative urban development.

It aims to facilitate and enhance cultural activities by blending artistic creativity with business, public discourse, and public education.

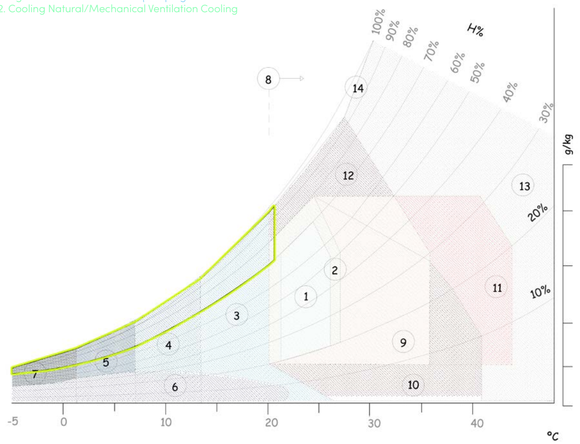
Top view - "sites"



20. GIVONI BIOCLIMATIC DIAGRAM

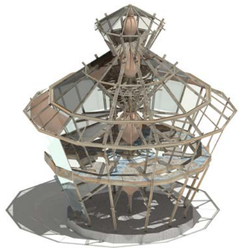
Thermal Confort & Passive design strategies

3. Internal Gain Heating
4. Passive Solar Heating
5. Active Solar Heating
7.External Energy Input: conventional Heating
9. High Thermal Mass + Water pumping
12. Cooling Natural/Mechanical Ventilation Cooling



	Enero	Feb	Mar	Abr	May	June	July	Ago	Sept	Oct	Nov	Dic
°C	-0.7	-0.6	2	6.2	11	14.6	16.4	15.8	12.8	8.7	4.3	2.5
°Cmin	-4.2	-4.4	-1.6	2.9	7.3	10.9	12.8	12	9.5	5.9	1.4	0.6
°C Max	2.8	3.2	5.6	9.5	14.6	18.3	20.1	19.7	16.2	11.6	7.3	4.4

22. DESIGN COOCEPT



The space layout is radial, with a warm central area heated by water-conducting photo-thermal facades.

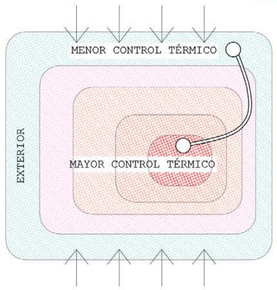
The envelope consists of layered materials based on orientation, lighting and privacy conditions. Vertical communication is addressed through the use of mobile industrial staircases, fostering interaction among diverse user groups and ensuring adaptability of the space for various purposes.

23. CLIMATIC STRATEGY

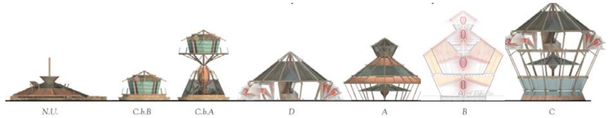
THERMAL ONION

HEATING THE MINUM SPACE:

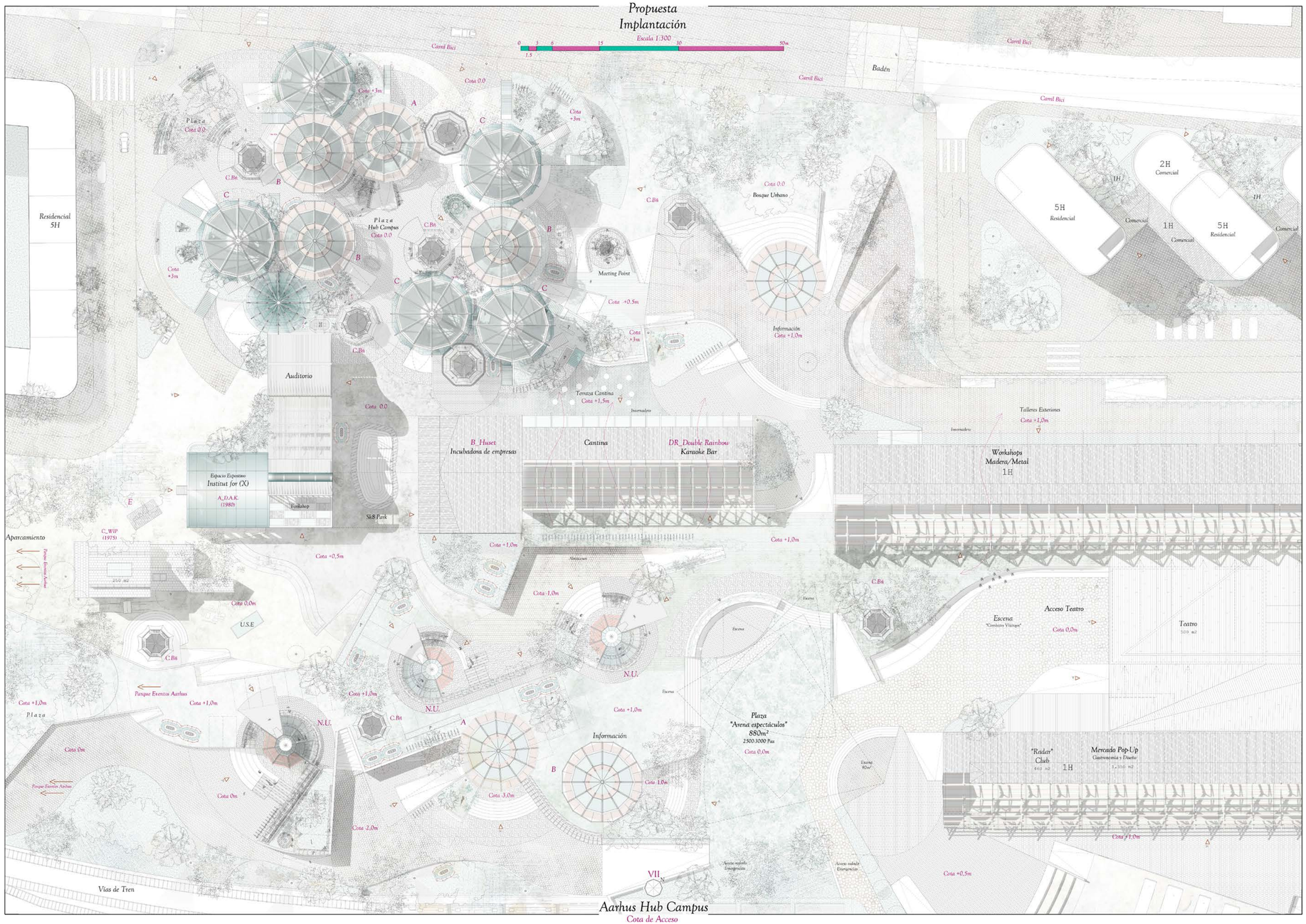
- Handcrafted Photothermal Panels
- Thermal Inertia
- Greenhouses
- Solar Chimney
- Photovoltaic panels
- Free Cooling



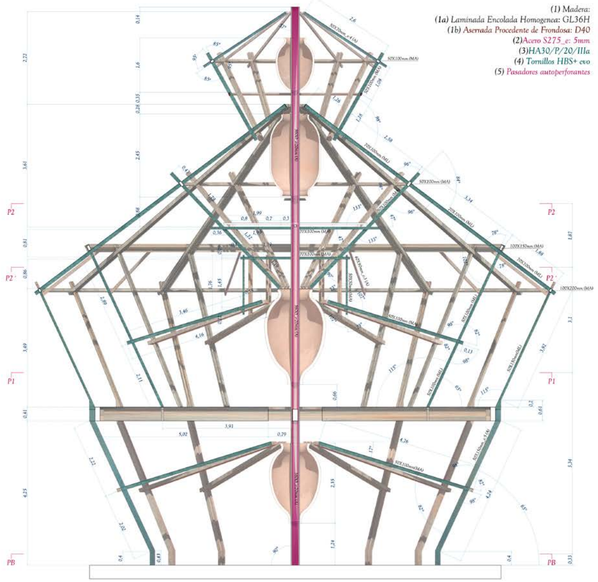
24. PROPOSED PAVILIONS

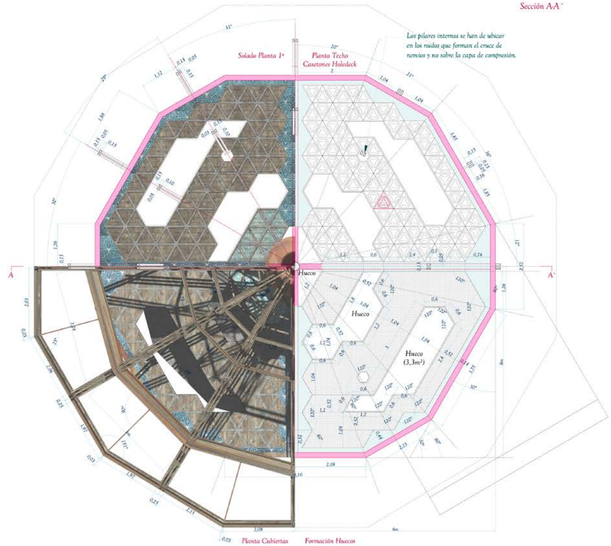


21. PROPOSED MASTER PLAN - AARHUS HUB CAMPUS - CREATIVE DISTRICT



MATERIALS FOR STRUCTURAL ELEMENTS
Recycled wood from the plot

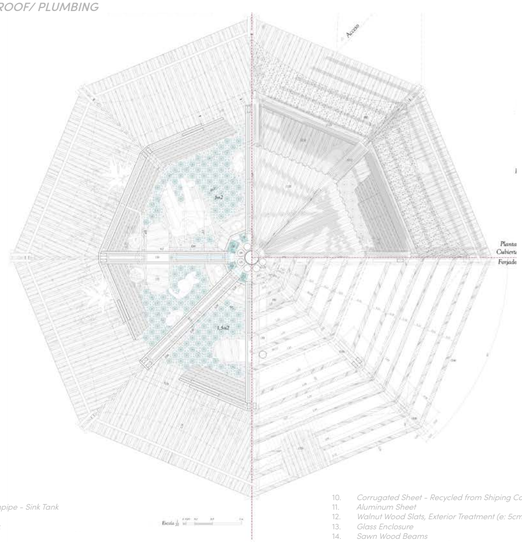




26. FLOOR PLAN - PROPOSAL *– PHASE 4 - COWORKING-WORKSHOPS -COLIVING*

27. PUBLIC RESTROOMS´ FLOOR PLAN

STRUCTURE / ROOF/ PLUMBING

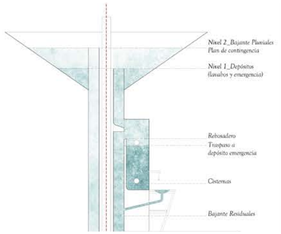


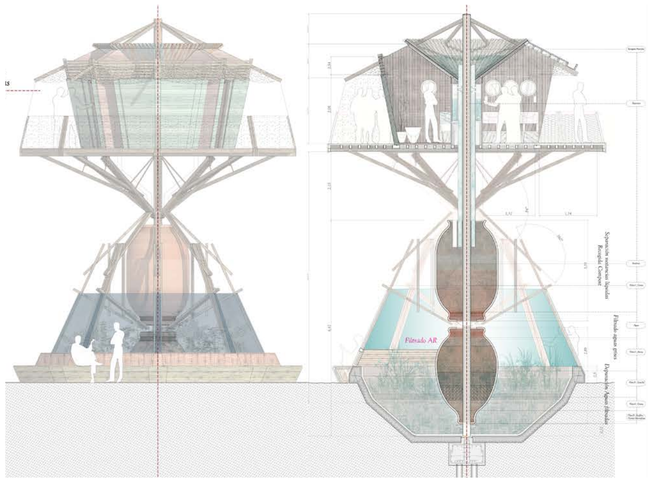
1. *Sink Tank*
2. *Rainwater Downpipe - Sink Tank*
3. *Cistern - Toilet*
4. *Emergency Tank*
5. *Toilet Downpipe*
6. *Filtering Tank*
7. *Separative Toilet*
8. *Rainwater Downpipe - Emergency Tank*
9. *Translucent Fabric Covering*
10. *Corrugated Sheet - Recycled from Shiping Containers*
11. *Aluminum Sheet*
12. *Walnut Wood Slats, Exterior Treatment (e: 5cm)*
13. *Glass Enclosure*
14. *Sawn Wood Beams*
15. *Recycled Railroad Cross Ties*
16. *Double Slant Beam (10x15cm)*
17. *Welded Metal Piece - Beam junction*
18. *Triple Horizontal Beam (10x25cm)*

28. RAINWATER HARVESTING SYSTEM

When it begins to rain, the tanks of the toilets are the first to be filled. Once these tanks are full, the sink tanks start to fill sequentially. When these are filled, they move on to fill the emergency tanks to supply during drier days. Finally, once the emergency tanks are full, the water is directed to the wastewater downspout through an overflow.

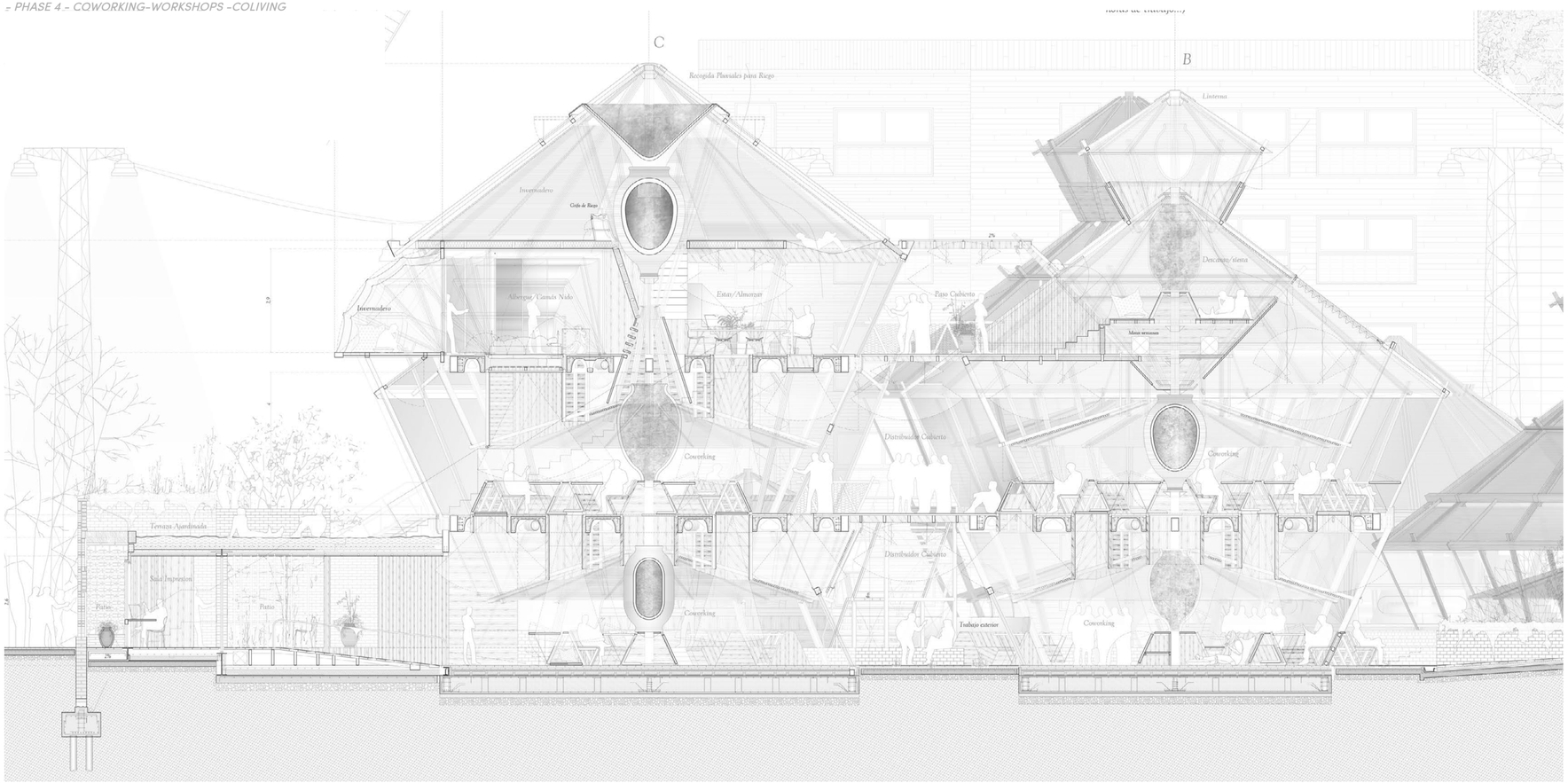
Contingency Plan: In the event of a flow that is too large to release the excess water, the water would rise through the mouth of the downspout to the collecting vessel. Once the water starts to rise and reaches level 2, it would be evacuated through an emergency wastewater downspout.





29. SECTION PLAN - PROPOSAL

- PHASE 4 - COWORKING-WORKSHOPS -COLIVING



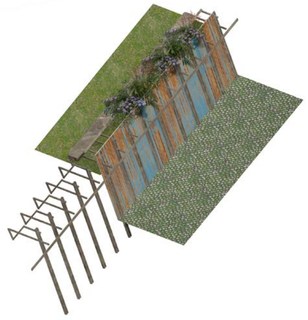
30. URBAN NODES- EQUIPPED GARDENS ELEVATION

48. MODULE "N.U." (URBAN NODES) STORAGE AREAS ELEVATION
– EQUIPPED GARDENS

49. COLLECTION AND STORAGE OF RAINWATER

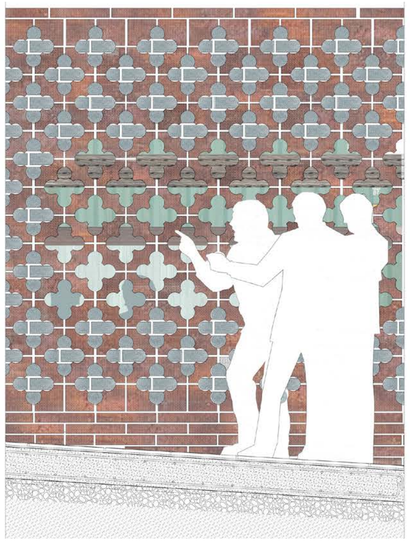
At the intersection of three different settings (public workshops, outdoor seating, and public pavilions in the park), the collection of rainwater is addressed to supply non-potable water to the workshops. Large ceramic jars are repurposed as water tanks, connected to the general water supply network for use when the collected one is depleted

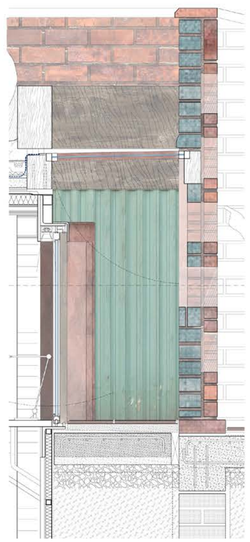
50. RECYCLED EARTH RETENTION PANELS
– PLANTERS + SITTING AREAS –



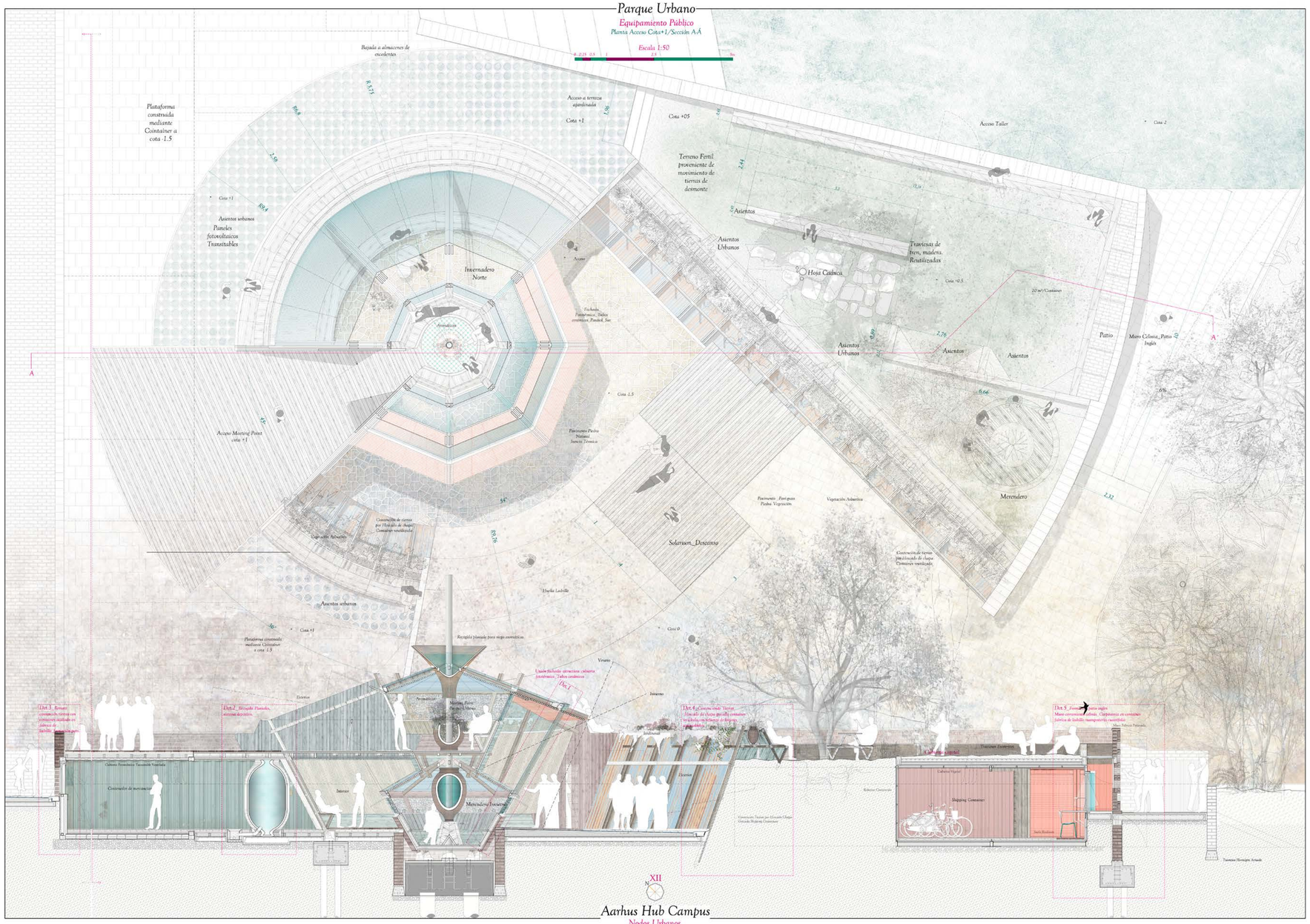
The existing shipping containers on the site are disassembled, and the corrugated sheets are reused to contain the soil. Along with reused wooden slats, they are assembled to create planters and outdoor seating spaces, highlighting the previous identity of this area as a train station linked to the coastline, as well as the existing wood workshops.

51. LATTICEWORK FACADE DETAIL

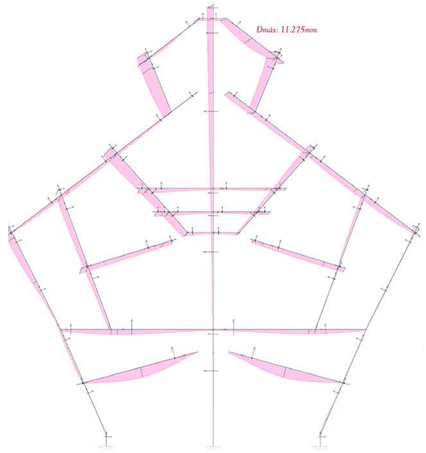


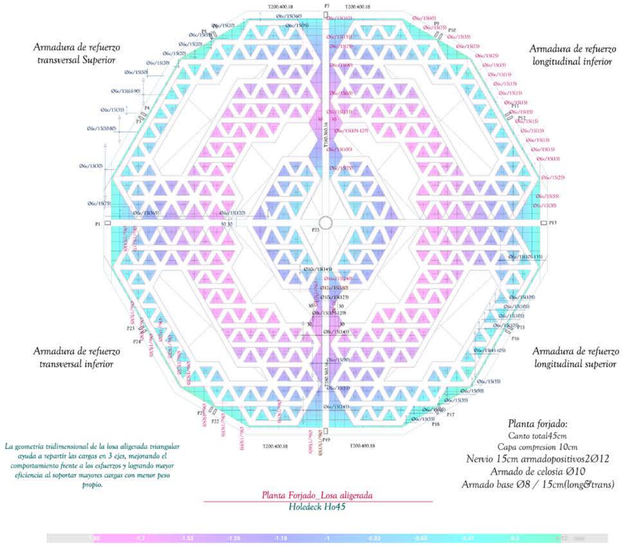


52. MODULE "N.U." (URBAN NODE) SECTION
– EQUIPPED GARDENS I GREEN WEDGE –



42. STRUCTURAL ANALYSIS
– COMPONENTS' DIMENSIONS + "HOLEDECK" SYSTEM





La geometría tridimensional de la losa aligerada triangular ayuda a repartir las cargas en 3 ejes, mejorando el comportamiento frente a los esfuerzos y logrando mayor eficiencia al soportar mayores cargas con menor peso propio.

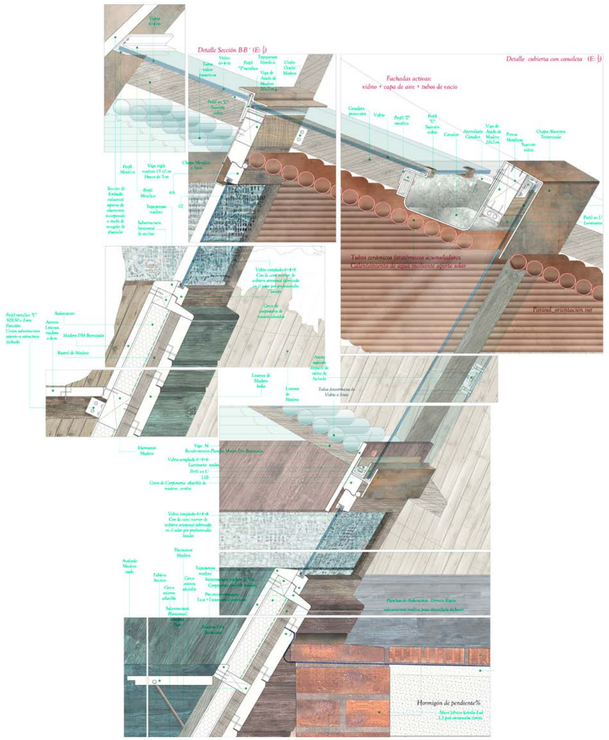
Planta forjado: Canto total45cm Capa compresion 10cm Nervio 15cm armadopositivos2Ø12 Armado de celosía Ø10 Armado base Ø8 / 15cm(long&trans)

Planta Forjado_Losa aligerada
Holedeck Ho45

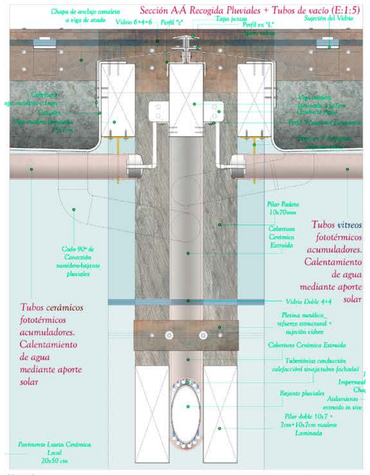
HYPOTHESES FOR STRUCTURAL CALCULATION:

The structure has been calculated as a standalone unit from the perspective of structural safety, although the structure will always be connected to a container at elevation +4.25m. This would imply a reduction in deformation since the displacements of horizontal forces are constrained.

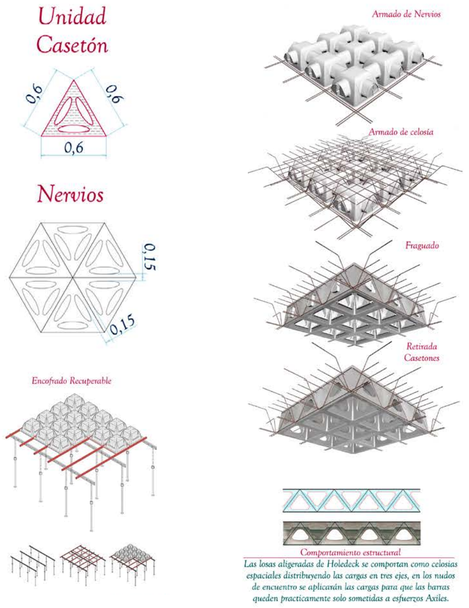
40. MODULE B – CONSTRUCTION DETAILS – PASSIVE CLIMATE STRATEGIES –



41. MODULE B – SECTION – CONSTRUCTION DETAILS – PASSIVE CLIMATE STRATEGIES –



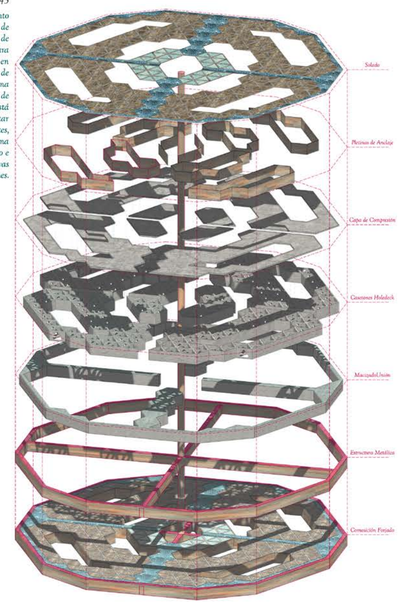
45. HOLEDECK" SYSTEM– ASSEMBLY



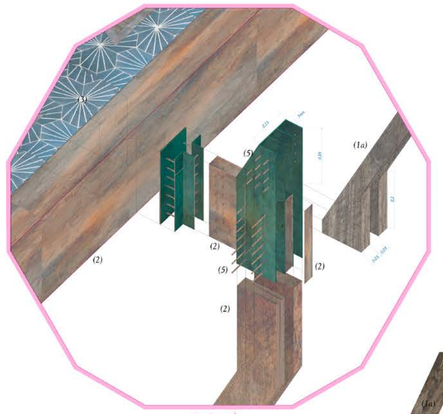
Las losas aligeradas de Holedeck se comportan como celosías espaciales distribuyendo las cargas en tres ejes, en los nudos de encuentro se aplicarán las cargas para que las barras queden practicamente solo sometidas a esfuerzos Axiles.

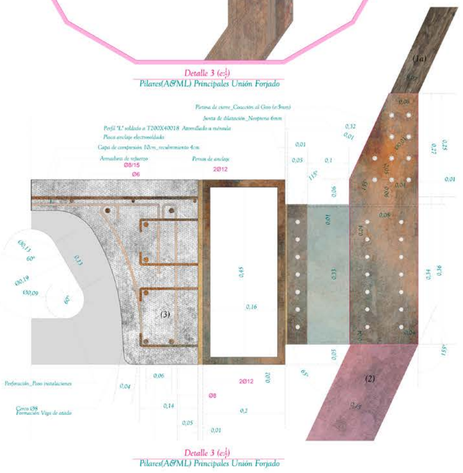
Composición Forjado
Modelo Holedeck 45

El comportamiento istructural es similar al de un forjado bidireccional de ustetones recuperables para randes luces. Teniendo en cuenta el diagrama de nelas y tirantes, el sistema elimina la masa de hormigón que no está trabajando para soportar esfuerzos cortantes, pudiendo de esta forma reducir el peso propio e incorporar nuevas prestaciones.

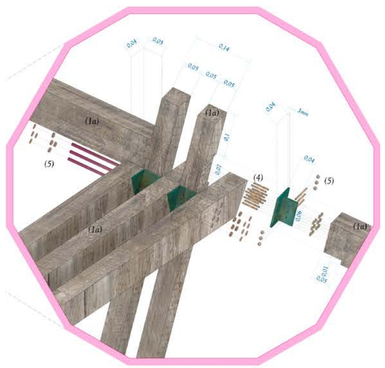


46. JOINERY
– COLUMNS – MAIN FLOOR CONNECTIONS–





47. JOINTS IN RECYCLED WOOD
– CONCEALED CONNECTION OF MAIN BEAMS AND COLUMNS –



06

AT A GLANCE

RegeneSyst

Selected Built Works
December 2018- December 2023

Team:
Juan Álvarez-Vijande Landecho
JR + Arquitectos y Asociados
More (Link)

Photography:
Amores Pictures (Alberto Amores)

RegeneSyst is an **architecture studio and design consulting think tank** operating under a **transdisciplinary and collaborative** structure.

www.regenesyst.com

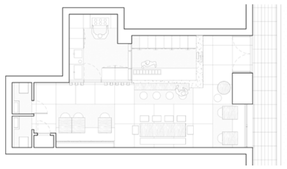
We work across multiple scales, integrating architecture, ecology, and thermodynamics to develop innovative, regenerative design strategies. Our approach seeks to create transformative systems that address critical socio-environmental challenges, bridging research and practice.

By fostering stakeholder collaboration, we design projects that restore ecosystems, strengthen communities, and enhance the built environment, promoting long-term resilience and vitality.

At RegeneSyst, we bridge the gap between research and action, offering cutting-edge design consulting that drives regenerative development, sustainable design, climate resilience, and urban adaptation. Operating as a think tank, we integrate transdisciplinary expertise to craft innovative solutions for cities, landscapes, and communities facing environmental and social challenges.

Through a collaborative approach, we engage with stakeholders, ventures, and policymakers to co-create strategies that foster long-term resilience and positive ecological impact. Our work spans urban adaptation, nature-based solutions, circular economies, and systemic transformations, ensuring that every project aligns with a regenerative and future-proof vision.

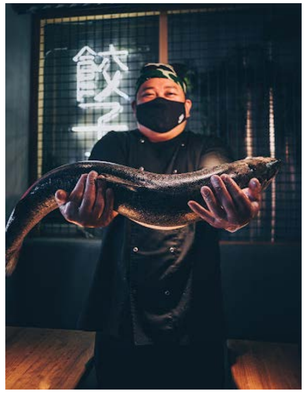
Saint Kuro
Japanese Restaurant I Madrid (E.S.)



Situated in the heart of Madrid, Kuro, meaning dark, stands as a distinguished sushi restaurant. Aesthetically, it embodies a harmonious fusion of urban sophistication with Japanese tradition.

The design of Kuro draws inspiration from the familiar lines found in metropolitan settings, incorporating elements like cement finishes, concrete bricks, and metal mesh.

These industrial touches are thoughtfully juxtaposed with the natural elegance of materials rooted in Japanese heritage, including bamboo, wood, and natural fibers. This intentional contrast creates a dynamic visual narrative, where the raw, modern edges seamlessly coalesce with the organic warmth of traditional Japanese aesthetics.



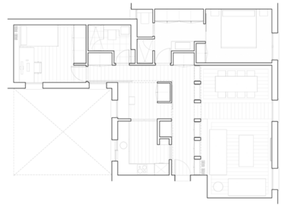
Conde de Peñalver
Residential I Madrid (E.S.)

In this residence, the absence of spaces exclusively designated for communication is apparent. The result is a vast open area where, through the control of sightlines and the variation of free height levels, distinct uses are delineated.

The entrance area serves as a dual-purpose library and office, as the occupant's needs necessitate the flexibility to work remotely.

A lofted space where the emphasis lies on the entrance and the infusion of natural light, channeling it into the interior rooms through lacquered iron and glass latticework filters. These filters not only acoustically differentiate the spaces but also enhance the 4.5m height at its highest point.

General Oraá
Residential I Madrid (E.S.)



The most resource-sustainable architecture is one that endures and can adapt over time. Sliding panels will enable a flexible distribution of spaces, providing different privacy filters to compartmentalize or merge the space. Transitional spaces blur to incorporate possible and probable uses.

To address the needs of young homeowners throughout different life stages, adaptive spaces will be created to maximize functionality, making the most of every corner.

Permeability will be encouraged to allow for air circulation and natural light entry, considering solar incidence and its various tones that will softly filter through materials, enhancing their texture and continuity.

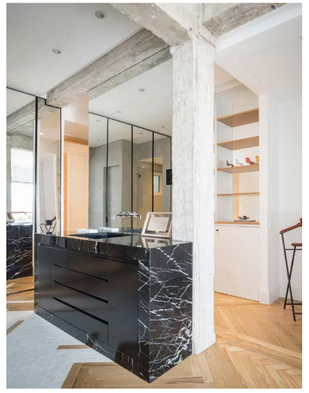
Viriato
Residential I Madrid (E.S.)

In this project, the amalgamation of spaces takes center stage, as the bathroom, dressing room, hallway, and bedroom are conceived as a unified and versatile "ambulatory" room.

The design allows for a seamless transition between these spaces, adapting and sectioning uses based on the user's needs throughout the day and night.

The result is characterized by its adaptability and the creation of a dynamic living area that evolves harmoniously with the rhythms of daily life.

This intentional blurring of boundaries not only maximizes functionality but also fosters a sense of fluidity and openness.



RegeneSyst I Madrid - Cambridge (MA)

Academic Work

07

CYCLES & LOOPS
Thermodynamic Fluxes
Fostering Potential

Fall Semester 2024
Harvard Graduate School of Design
Master in Design Studies I Ecologies

Instructors:
Alex Wall
Location: Madrid I Spain
Team: Individual Work

00. SITE I *CAÑADA REAL SECTOR 6*

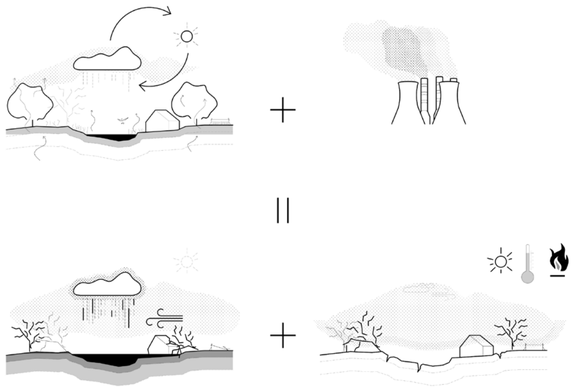
01.INTRODUCTION

Rethinking Territory through Thermodynamic Flows

The contemporary city is not a static entity but a dynamic system shaped by thermodynamic fluxes, cycles, and loops. These invisible processes—driven by the interactions between heat, moisture, air movement, and material surfaces—are fundamental to the way urban environments respond to climate stressors. In the context of climate change, extreme weather events such as heatwaves, droughts, and floods are no longer exceptional disruptions; they have become structural conditions that demand a new approach to urbanism and territorial planning.

The urban heat island effect (UHI) amplifies temperature disparities, creating pockets of extreme heat that disproportionately affect vulnerable communities and disrupt ecological balance. At the same time, the increasing frequency of droughts and floods exposes the fragility of urban hydrological systems. These phenomena are not isolated but deeply interconnected, forming a climatic continuum where heat accumulation, vegetation loss, water scarcity, and surface impermeability reinforce each other.

02. ENTANGLED SYSTEMS I CLIMATE EMERGENCY

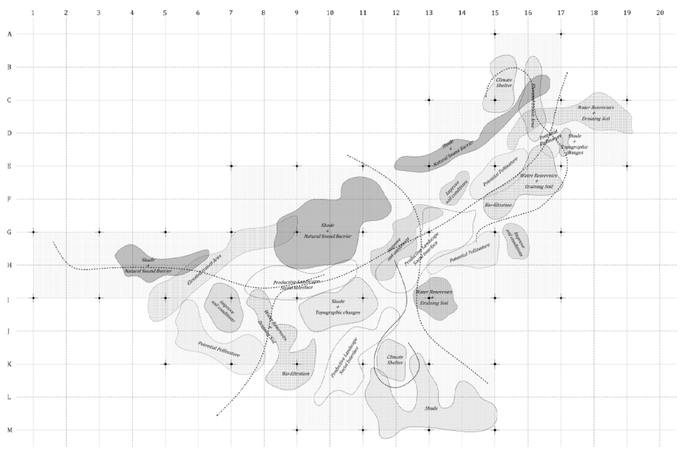


To respond to these challenges, we must move beyond traditional urban planning paradigms and adopt a performative approach to design, where territories are understood as metabolic landscapes in constant exchange with the atmosphere. The study of thermodynamic flows—wind, heat transfer, evapotranspiration, and radiation—offers a framework to reimagine urban resilience, moving away from rigid infrastructures toward adaptive systems that mediate climate through natural and artificial processes.

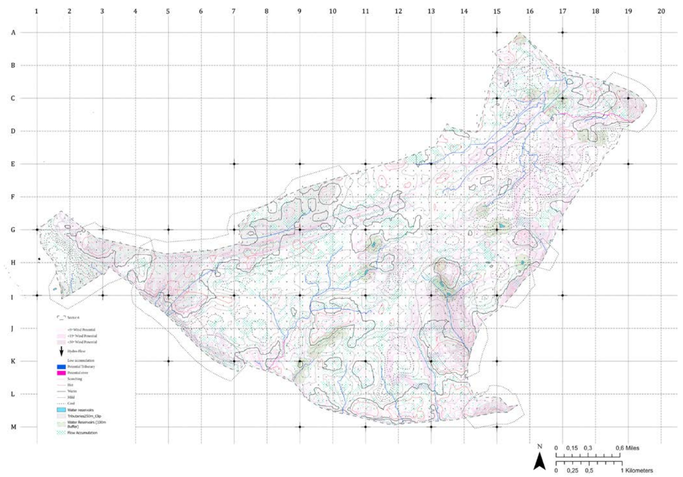
This perspective emphasize climate-driven spatial strategies that work with, rather than against, environmental forces. Instead of designing isolated interventions, we must synchronize architecture, landscape, and infrastructure with the cycles of energy and matter that govern our cities.

The following maps explore key thermodynamic interactions that shape urban and natural environments. By mapping the relationship between hydrology and wind potential, temperature gradients, evapotranspiration capacity, and solar radiation fluxes, these visualizations reveal the latent forces that influence thermal comfort, biodiversity, and water resilience. The goal is not just to mitigate climate risks but to foster urban regeneration by leveraging natural processes for cooling, moisture retention, and ecosystem vitality. In this way, design becomes an instrument of territorial reconfiguration, enabling a new dialogue between cities and their shifting climates.

03. RECONCEPTUALIZING THE SITE - THERMODYNIMIC FLUXES > FOSTERING POTENTIAL



04. HYDROLOGY AND WIND POTENTIAL BASED ON SLOPE



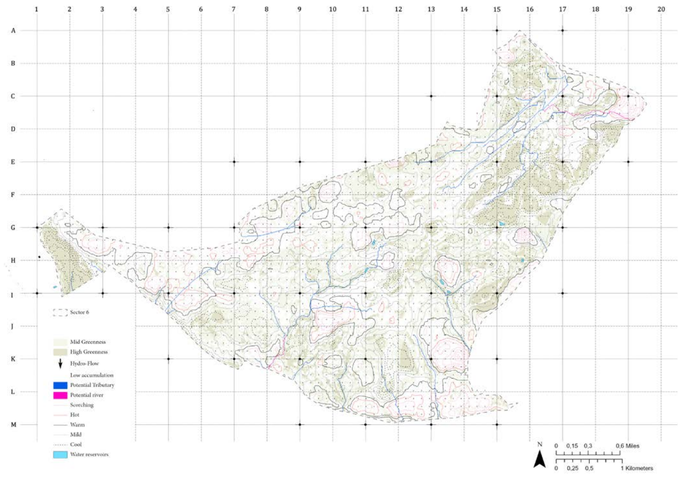
04. Hydrology and Wind Potential Based on Slope

Water and wind dynamics are inherently linked through topography, influencing microclimatic conditions at multiple scales. This map overlays water flow patterns with wind potential, revealing how slopes guide both elements. In sloped terrains, wind accelerates moisture distribution, enhancing orographic precipitation and influencing vegetation growth. Conversely, in flatter areas, stagnation zones emerge, where moisture accumulation can lead to heat retention or flood risks. Understanding these interactions is key to designing wind-assisted cooling strategies and hydrological interventions, such as reforestation corridors or permeable infrastructures that leverage wind-driven moisture transport for urban climate regulation.

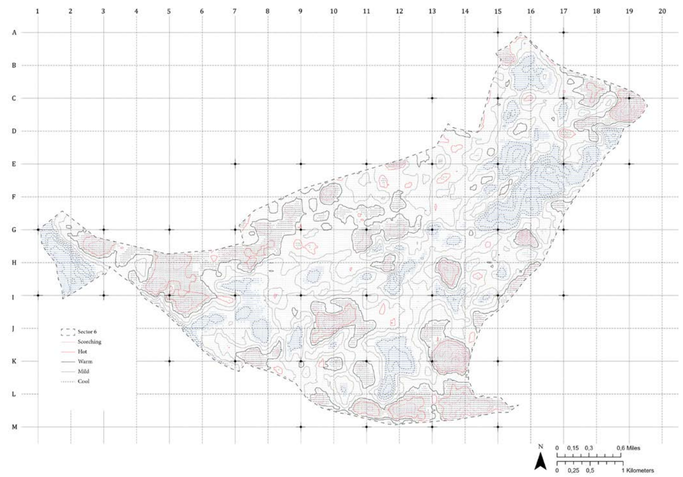
06. LST, NDVI, and Water Flow Interactions

The interplay between land surface temperature (LST), vegetation index (NDVI), and hydrology determines evapotranspiration potential, a critical factor for local climate comfort and biodiversity support. This map visualizes areas where these three factors converge, revealing where moisture retention and vegetative cooling are most effective. High NDVI in water-rich areas correlates with lower LST, demonstrating how water availability enhances passive cooling through transpiration. Conversely, zones with high LST and low NDVI indicate heat-stressed environments, where targeted water strategies, such as blue-green infrastructure, can restore evaporative cooling cycles and mitigate urban overheating.

06. LST, NDVI, AND WATER FLOW INTERACTIONS



05.CLUSTERING LAND SURFACE TEMPERATURE WITH ISOBARS



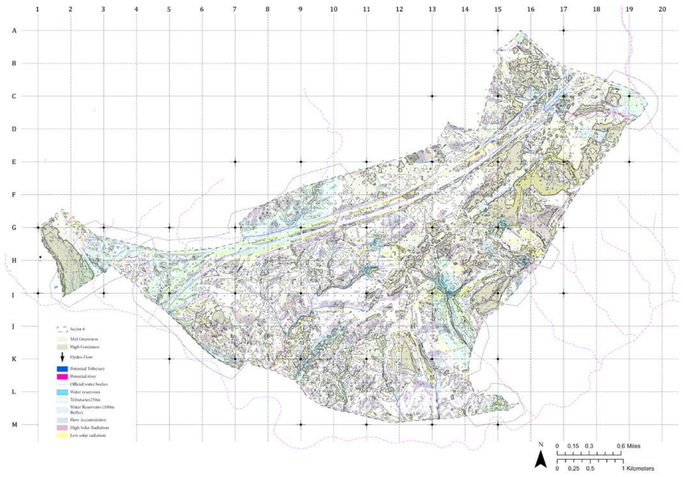
05. Clustering Land Surface Temperature

Temperature in urban and natural landscapes is not evenly distributed but forms clusters of extreme heat and cold influenced by materiality, topography, and microclimatic conditions. This map classifies hot-hot, cold-cold, and transitional (cold-hot) zones, highlighting spatial disparities in heat distribution. The isobaric representation helps identify heat sinks and thermal bridges, guiding the placement of shading, water retention zones, and cooling corridors. By mapping LST clustering, we can inform regenerative strategies that counteract heat islands, promoting temperature modulation through vegetation networks, water-integrated design, and surface albedo modifications to rebalance urban microclimates.

07. NDVI, Water Flow, and Solar Radiation

Vegetation, water, and solar exposure shape microclimatic conditions, influencing habitat quality, thermal comfort, and water availability. This map overlays NDVI and hydrology with solar radiation levels, identifying photosynthetically active zones and potential areas for climate-responsive landscape design. High radiation exposure combined with low NDVI suggests heat-stressed, water-deficient landscapes, while areas with abundant vegetation and water flow indicate natural cooling zones. This analysis informs urban afforestation, shading strategies, and water-sensitive design, enhancing resilience by maximizing natural shading, optimizing moisture retention, and mitigating solar-induced heat stress through vegetation placement.

07. NDVI, WATER FLOW, AND SOLAR RADIATION



08

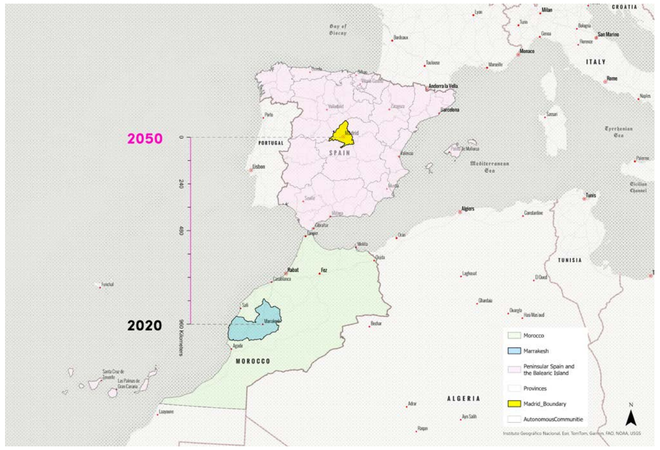
Academic Work

Urban Heat Island
Socio-Climatic Vulnerability
Analysis

Fall Semester 2024
Harvard Graduate School of Design
Master in Design Studies | Ecologies

Instructors:
Connie (Kanglin) Chen
Location: Madrid | Spain
Team: Individual Work

02. MADRID - MARRAKECH | By 2050



A Call for Holistic Vulnerability Assessments

This situation underscores the need to rethink vulnerability assessments by integrating seasonal, social, and ecological factors. Policymaking should aim to bridge the gap between official records and on-the-ground realities, ensuring that all communities, especially the most vulnerable, are included in resilience strategies. By embracing a more regenerative and inclusive framework, we can foster a healthier relationship between urban systems and their inhabitants, promoting both ecological and social regeneration while advancing equity.

- **Coverage gaps:** Official data often exclude informal settlements like "La Cañada Real", leaving critical areas of vulnerability unaddressed.
- **Averaged results:** Official metrics, such as household income or population density, can mask inequalities by presenting generalized averages, which overlook isolated or extreme cases of vulnerability.
- **Dynamic variables:** Informal data may include seasonal atmospheric indicators (e.g., NDVI changes, humidity levels) that reveal hidden risks not captured in static official dataset
- **Granularity:** Informal mapping can provide finer details at the neighborhood or sub-neighborhood level, uncovering microclimates and specific risks within smaller communities.

Socio-Climatic Urban Heat Island Analysis

In light of unprecedented human-driven atmospheric changes , it is essential to recognize that human systems, and the built environment, participate in a larger interconnected ecosystem. The recently published paper "Spain: Towards a Drier and Warmer Climate" (September 2024) , presented by professors Josep Roca Cladera, Blanca Arellano, and doctoral candidate Zheng Qianhuique from the Polytechnic University of Catalonia (UPC), delivers alarming findings about Spain's climate evolution. Based on temperature and precipitation records from 1971 to 2022, the authors predict that, unless greenhouse gas emissions are halted by 2030, Spain's Mediterranean climate could shift to a steppe climate by 2050.

Evidence suggests that rising temperatures and decreasing rainfall will create a scenario where drought becomes "environmental," transitioning from a sporadic to a structural phenomenon. According to Professor Roca, this would mean a 14-20% reduction in precipitation, coupled with an increase in the average annual temperature from the current 15.8°C to 18°C. This climatic shift would severely impact water availability, ecosystems, agriculture, and daily life in Spain.

Amidst global warming, by 2050, Madrid's climate is expected to resemble that of Marrakech in 2020 (Figure 1). This shift is part of a broader trend: even with ambitious yet insufficient efforts toward the Net Zero imperative , as modeled in scenarios like RCP 4.5, 77% of cities are projected to experience a climate more similar to other cities than to their current conditions. As these events unfold, Madrid will need to adapt its policies and planning to mitigate the effects of a drier climate on urban outdoor spaces.

This study builds on the results of the official map of "Madrid's Urban Heat Island" (2022) , published by Madrid's geoportal website, by contrasting how outcomes differ when climatic vulnerability analysis incorporates social and informal data.

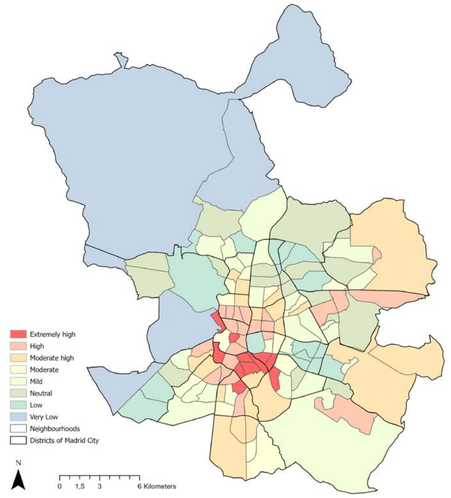
The ultimate goal is to identify areas requiring adaptation measures to ensure the safety and comfort of residents during extreme heat events.

This assessment will allow the identification of communities most at risk, considering both thermal exposure and limited social resilience.

1850 **2024**

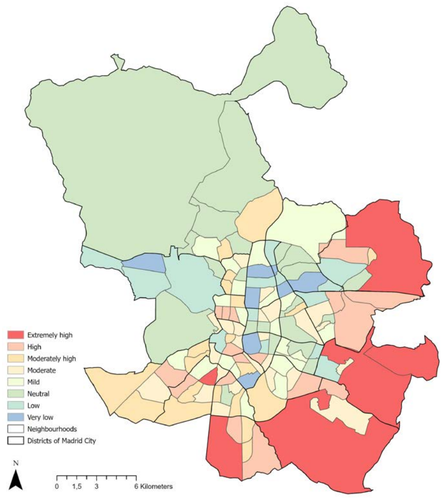
MADRID'S MOST VULNERABLE NEIGHBORHOOD | OFICIAL VS. INFORMAL MAPPING

Madrid's Climatic Vulnerability
Oficial Map Published in 2022



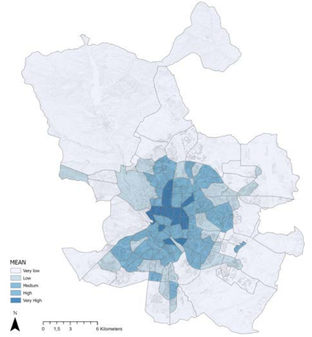
VS.

Madrid's Socio - Climatic Vulnerability
Current Proposal

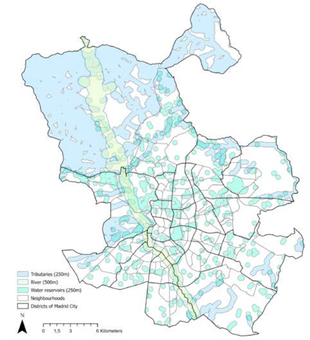


MULTI-CRITERIA EVALUATION | IMPACT FACTOR (IF)

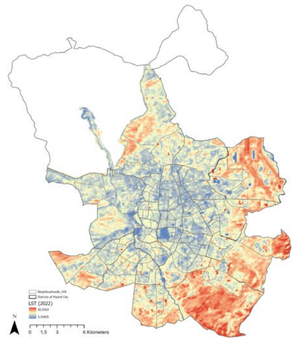
Neighbourhoods | Unit of Analysis



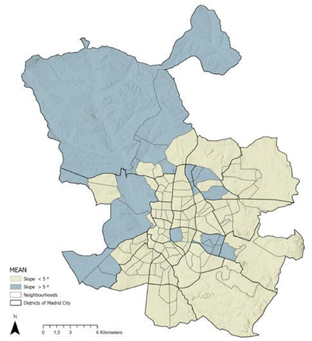
Shade | Impact Factor (1-4)



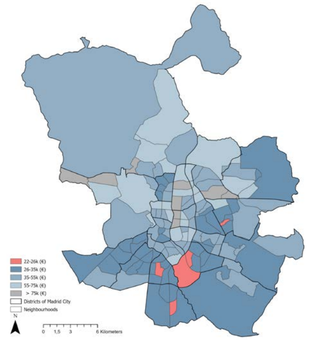
Water Bodies | Impact Factor (1-4)



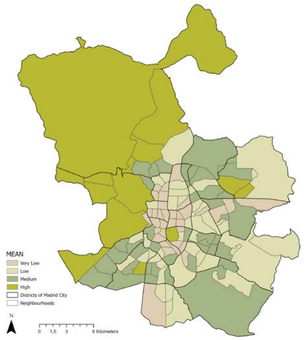
Land Surface Temperature | Impact Factor (1-6)



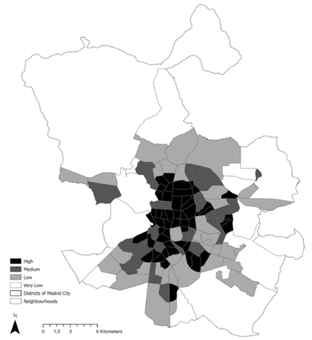
Slopes /Wind Potential | Impact Factor (1-2)



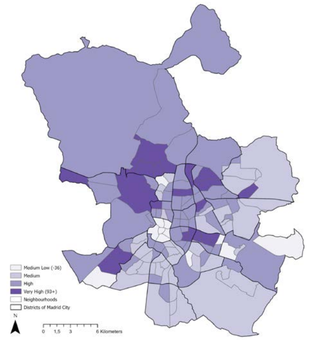
Household Income | Impact Factor (1-4)



Normalized Difference Vegetation Index
| Impact Factor (1-4)



Urban Compactness | Impact Factor (1-4)



Dependency Ratios | Impact Factor (1-4)
(Pop, 0-15 + Pop, 65+ / Pop, 16-64)

Socio-Climatic Vulnerability | (Madrid (Spain)

Academic Work

09

Hygrothermal Affinities

Atmospheric Encounters

Visualizing the Invisible

Fall Semester 2024
Harvard Graduate School of Design
Master in Design Studies I Ecologies

Instructors:
Craig Douglas
Location: Cambridge I USA
Team: Individual Work

This project focuses on the role of the **Sentinel, a performative artifact (actuator) equipped with sensors that monitor hygrothermal conditions to reveal and analyze the critical atmospheric conditions influencing bee behavior.** By examining these conditions, this proposal seeks to expand human conceptualizations of thermal comfort toward a more-than-human energy flux, emphasizing the essential role of pollination within the broader ecosystem.

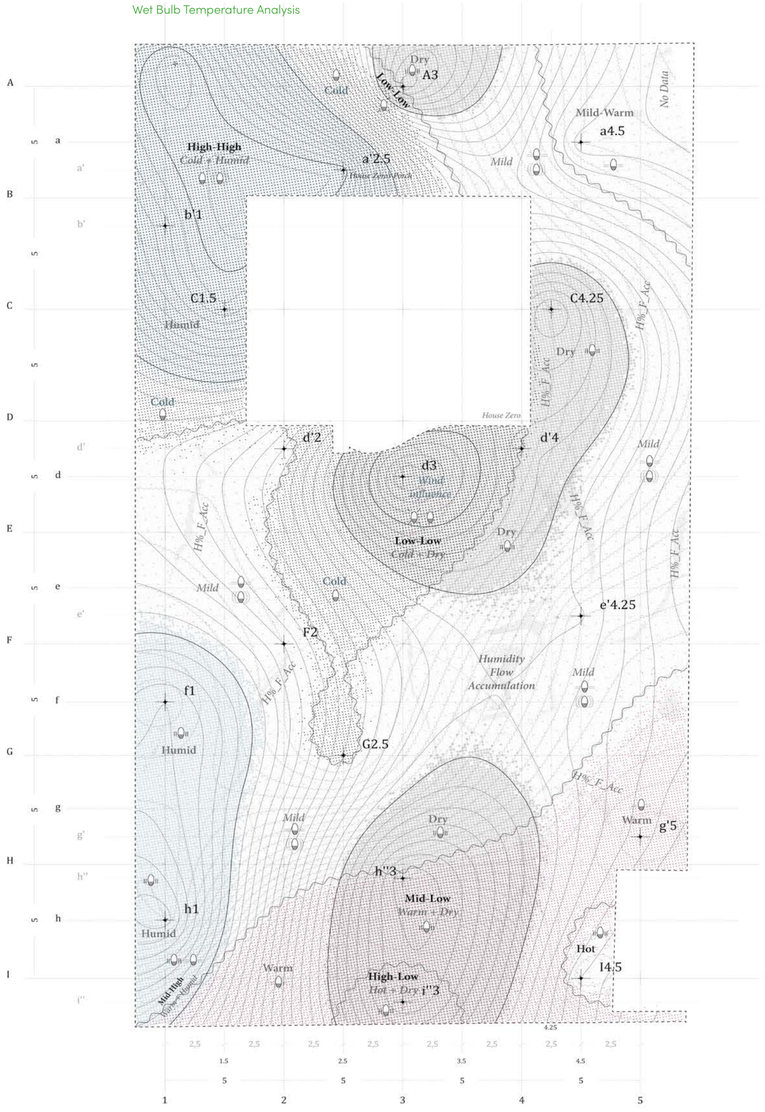
Building on Philip Rahm's assertion that *"meteorological architecture can serve as a harmonizer of culture and nature,"* this study explores the hygrothermal conditions shaping bee survival and behavior, identifying four critical phases that impact their development:

- **Thermal Comfort:** The conditions necessary for bees to thrive.
- **Warming Process:** A phase in which bees generate heat through friction when exposed to cold temperatures, provided sufficient humidity exists.
- **Reduced Humidity:** A state that induces fatigue in bees, signaling a dangerous threshold that compromises their functional effectiveness.
- **Extreme Cold:** Conditions leading to paralysis, hindering bee mobility and pollination, thereby threatening both their survival and the ecosystem at large.

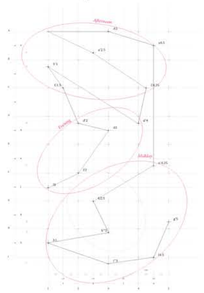
Insights gained from the Sentinel call for a shift in perspective toward regenerative development, where the urgency of coevolution and multispecies kinship becomes evident, underscoring the need for design strategies that prioritize the health and balance of interconnected systems within the context of climate preparedness and adaptation.

Juan Álvarez-Vijande Landecho

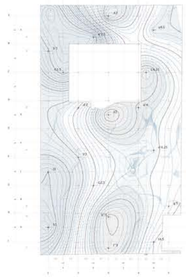
Bee Hygrothermal Performance
House Zero
Wet Bulb Temperature Analysis



Measurement Sequence



Humidity Gradient



Temperature Gradient

Bee Hygrothermal Performance

- ***Life in Danger*** Low humidity and cold
- ***Pollinate*** Favorable conditions
- ***Flight limited*** by low/high humidity levels
- ***Paralysis state*** Risk of death under extreme conditions
- **Heating** by friction inside the hive

Academic Work

10

About Balconies
Pending Structures

Spring Semester Programme 2015
Architectural Association I London I U.K.

Instructor: Valentine Bontjes van Beek
Location: London AA Terrace I U.K.
Team:
Eyal Amsili Giovannetti
Juan Álvarez-Vijande

01. BACKGROUND:

The proposed installation is part of the "Pending Structures" course at the Architectural Association.

The student is tasked with analyzing the built environment and proposing an installation that encourages reflection on its diverse realities.

The installation will focus on a specific event involving an outdated fire regulation and a heritage protection regulation. These regulations once required the implementation of a fire evacuation staircase, which later became obsolete and fell under the historical protection of the building.

An asymmetry is also discernible in the window planters which may have been removed as a result of this regulation.

The combination of these regulations from different eras and contexts creates an incoherent scenario.

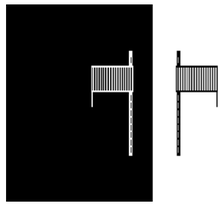
M.D.F. Lasser cut model
- Joinery & Components -

02. DESIGN GOAL:

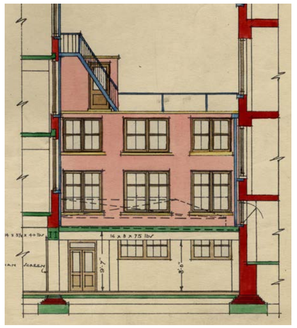
This proposal initiates a discourse on the concept of temporality in construction, the flexibility of spaces over time and the imperative of integrating public participation into the decision-making process.

Harnessing axial symmetry, the selection of construction materials and their ramifications are accentuated through deliberate contrast.

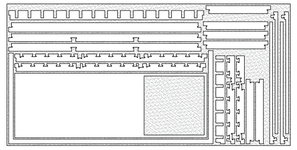
The decision to juxtapose recycled plywood with the pre-existing iron balcony, not only underscores a preference for sustainable materials but also illustrates their impact on construction detailing.



Existing metallic welding joint.



"Before the T' balcony"
A.A.Archive_ 1926 Elevation to Morwell



C.N.C Cutting file
Board Cutting & Material loss

The project begins by displaying controversial images from the collective imagination to oppose not only the indiscriminate imposition of regulatory ordinances, but also to reclaim the balcony as a platform for the people, as a place for expressing ideas and fostering debates.

By reestablishing the balcony as a hub for civic engagement, it not only reclaims the physical space but also reinvigorates the sense of democratic participation, reinforcing the idea that balconies are not just architectural features but essential stages for the exchange of ideas and the celebration of free expression.

03. DESIGN STRATEGIES:

The design strategy involves highlighting an element through the contrast of materials and symmetry.

The idea is to replicate a historically wrought-iron element using a material that accentuates its ephemeral nature. Wood construction with Japanese joinery, known as "wood welding," is selected, meticulously studying its structural behaviors to faithfully recreate the slim profiles of iron.

As it is a temporay installation, the use of Japanese joinery ensures its eassy assembly and disassembly. Even more so when it had to be built in Hooke Park, an experimental wood factory located one hour away from the AA.

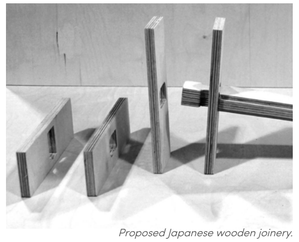
This approach seeks to establish a visual dialogue between the past and present, emphasizing fragility and transience in the contemporary reinterpretation of the historical element.

Materiality mock-up.

Symmetry in the design reinforces harmony and connection to the historical context, while also underscoring the transformation and reinterpretation of the original structure.

By opting for recicled wood over iron, a strong material and durability contrast emerges, underscoring the notion of ephemeral strength and adaptability.

Wood, in combination with Japanese joinery techniques, not only mimics the visual appearance of wrought iron but also adds a tactile and organic aspect to the installation, inviting users to interact and intimately experience its materiality.



Proposed Japanese wooden joinery.

A.A. Terrace I Testing the structural capacity I May 2015

04. ELEVATION VIEW- PROPOSAL -

A.A. Terrace I June 2015

05. FLOOR PLAN - PROPOSAL