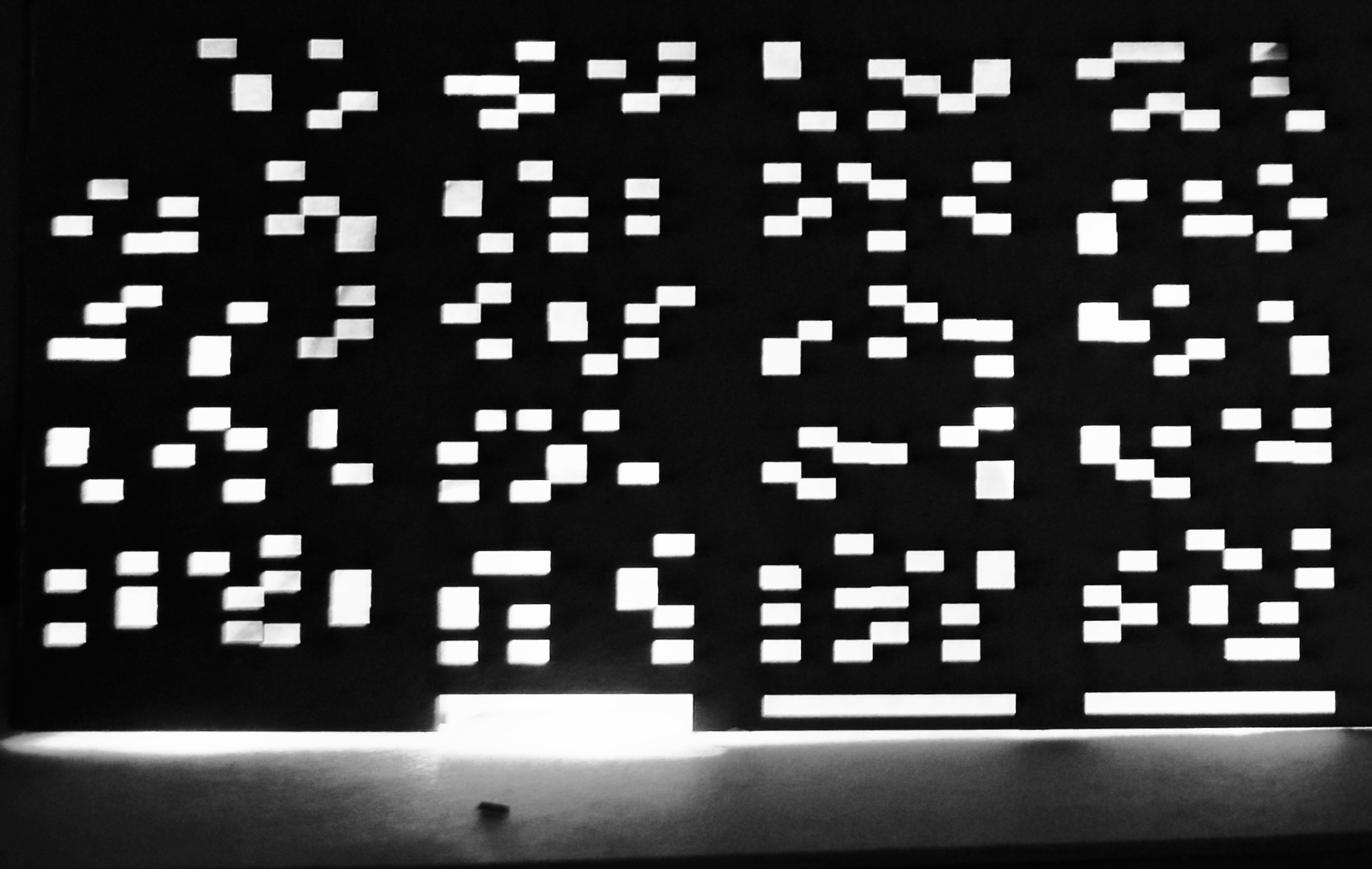




WORK SAMPLE
Marysol Rivas Brito

Waldorf Astoria New York

SOM | 2024 (Still under renovation / restoration)
New York City (USA) | 1,600,000 sf / 44 stories

CONTRIBUTIONS: Design studies for landmarked areas (Peacock Alley, East Gallery), coordination between landmark perimeter and renovated areas, and also between areas designed by other architects and ours. Design Development set production as architects of record for the spa area and residential amenities, and Construction Administration for the Storefront, Main Entrance, and Porte Cochere.

SOM lead comprehensive restorations of the exterior and the landmarked interior, as well as conversion of the former 1,400-room hotel into a 375-unit residential building and 375-key boutique hotel. Plans for the renovation were recently submitted for public review by the New York City Landmarks Preservation Commission. The plans, which were designed by Skidmore, Owings & Merrill and interior designer Pierre-Yves Rochon, outline the restoration of all of the recently landmarked interior spaces.

Pinnacle and residential amenities after renovation





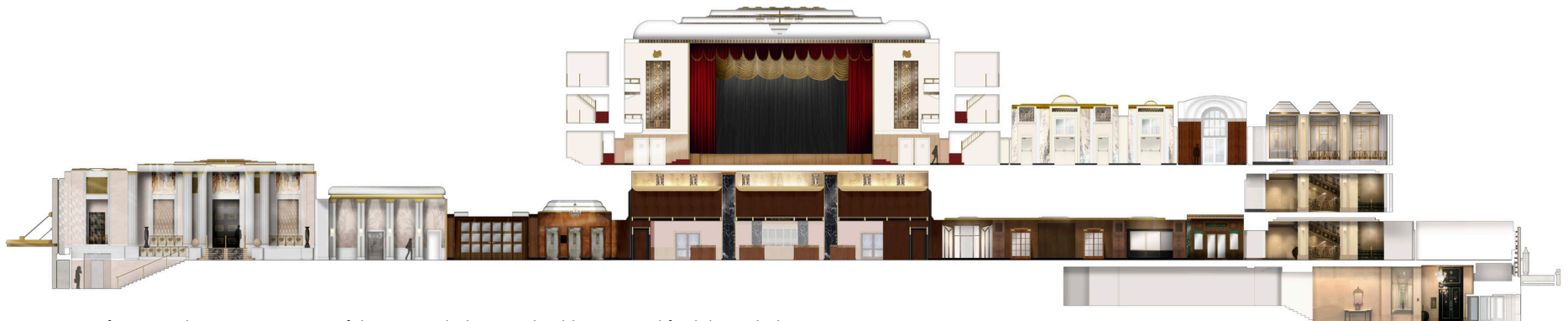
Storefront and Main Entrance - restoration associated to new architectural elements.



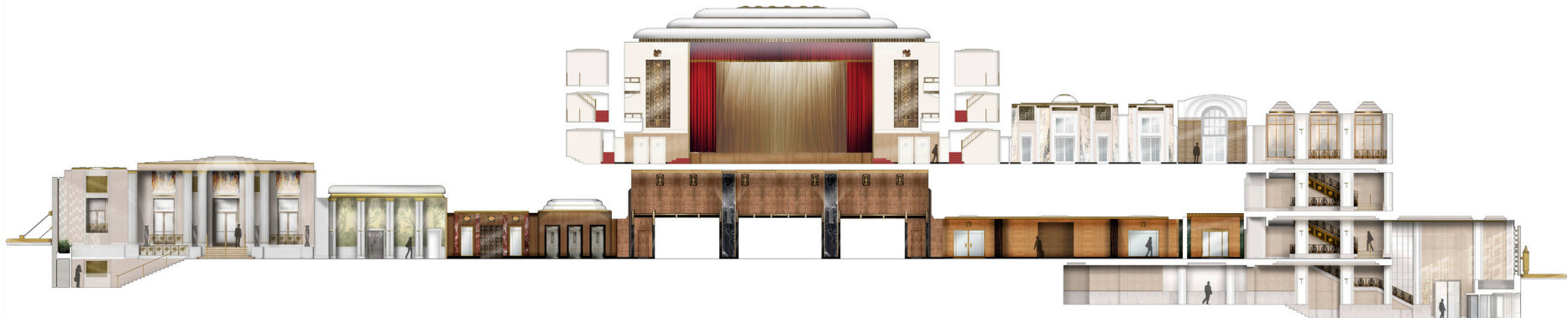
Residential amenities - one of the ballrooms was turned into a natural light swimming pool surrounded by terraces.



Peacock Alley proposed: addition of 40% of the area that had previously being turned into retail.



Cross-section of existing base areas: most of the original elements had being modified through the years.



Cross-section of the proposed base areas: renovation associated to restoration of landmarked areas to the original design.

LG Headquarters

SOM | 2023

Seoul (South Korea) | 160,000 m²

CONTRIBUTIONS: Responsible for the Design development of the Underground plaza and Oculus that protrudes from the floor at the VIP parking lot bringing natural light to the plaza below. Such coordination included modeling, rendering, diagram production, and presentations to the client and development of conceptual options and technical details for the DD set.

The LG headquarters were already Architecture, structural engineering, and interior design for the renovation for the SOM-designed LG office towers, including the interior design of the ground floor lobby, atrium, and B1 level.

New exterior enclosure of the Main lobby and Basement



THE WHAT



Lack of transparency



Disjointed layout below grade



Underutilized connectivity
to sunken gardens



Intricate barriers between
Atrium and Mezzanine

THE WHY



Outdated, cold, and dark



Obstructed daylight in
the concourse Level

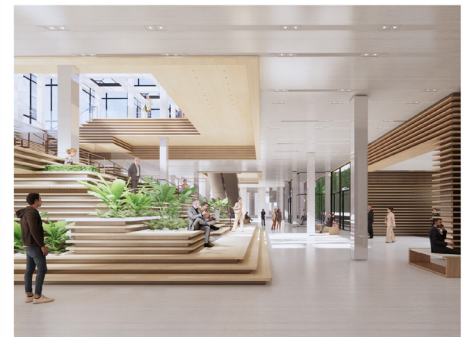
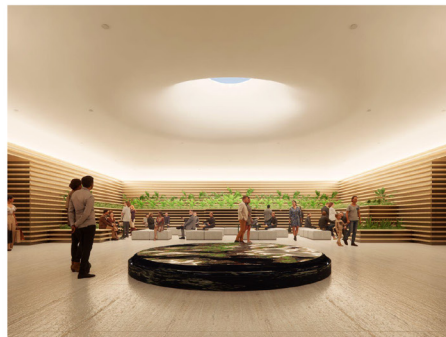


Weakened connectivity between spaces



Unintuitive circulation paths

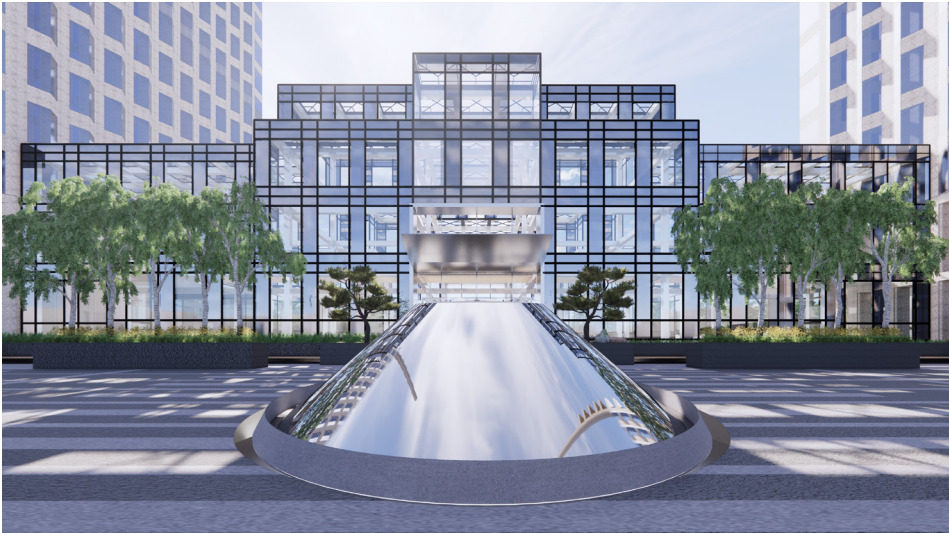
THE HOW



By dissolving barriers and activating the atrium as a multifunctional space, the chance encounters of its various settings will foster a sense of community - between employees, visitors, and the LG brand. The design gives the LG Twin Towers a new life, creating a welcoming space that encourages exchange balanced with areas of integrated botanic gardens.



Sculptural stairway, descending in multiple directions and opening a pathway for the daylight



The reflective oculus at the VIP entrance proposes a new way to interact with the building



While reinvigorating the building identity (layering, luminosity, readability) from SOM's original proposal in the 80's, the interior design completely redefines the basement and the common spaces provided to the employees. The staircase, basement plaza and dome reunify the previously segregated space, creating a central hub.

8 Shenton Way

SOM | 2022 (currently under construction)
Singapore | 10,000 m² built / 63 stories

CONTRIBUTIONS: Responsible for developing the podium and terraces design and construction solutions throughout Schematic Design and Design Development phases, which included coordination with consultants. Was also in charge of the development of all the geometry guidelines for all of the floors (that vary throughout the tower) and transition from Rhinoceros into Revit.

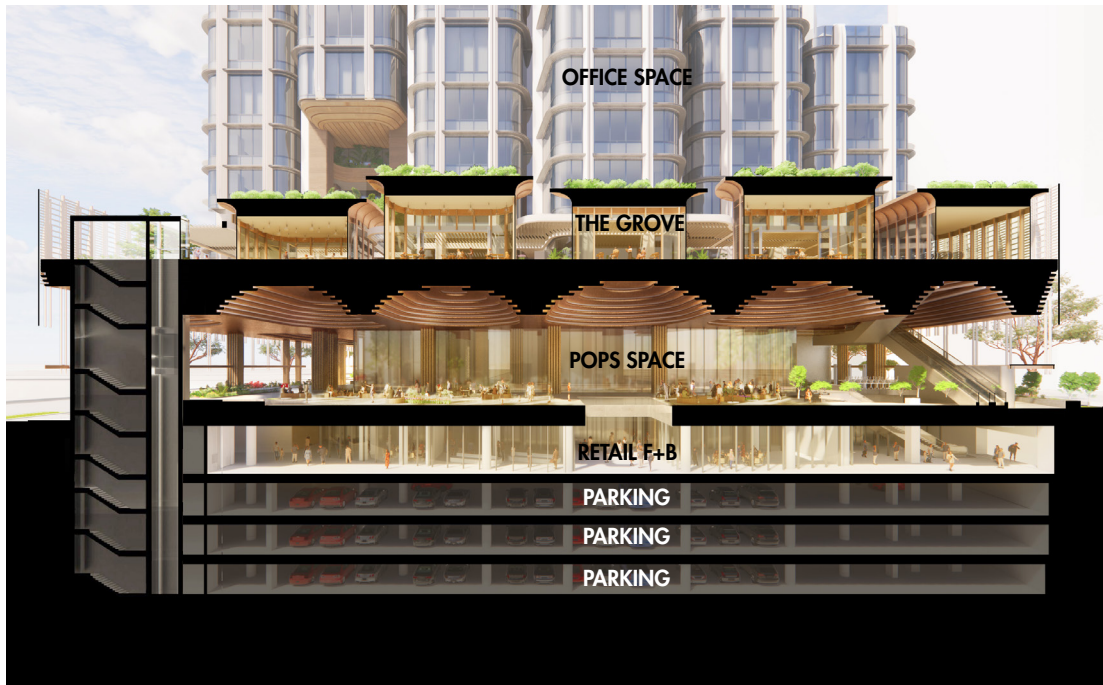
Envisioned to be one of Asia's most sustainable skyscrapers, the 305 meters tall mixed-use downtown development aims to create an indoor-outdoor vertical community with public spaces, offices, retail, a hotel, and luxury residences. Designed specifically with the tropical climate of Singapore in mind, the tower incorporates leading-edge post-pandemic design features, with health and wellness as its primary design drivers. 8 Shenton will be the tallest building of Singapore, with Green Mark Platinum certification (55% reduction from benchmark). It will be also the first project under the Urban Redevelopment Authority CBD Incentive Scheme.

Podium of the building providing a transition between scales and the private x public areas.





Ground floor protected by the podium screen that hangs from above and doubles down as parapet



A public plaza at the ground floor will be open to the street and integrated with the second floor, where restaurants will look out onto a green area.



sky terraces associated to amenities - "Live, work, and play"



Sky terraces and the dialog with enclosed areas



Southwest view of the tower at sunset, redefining Singapore's skyline

Plaksha University

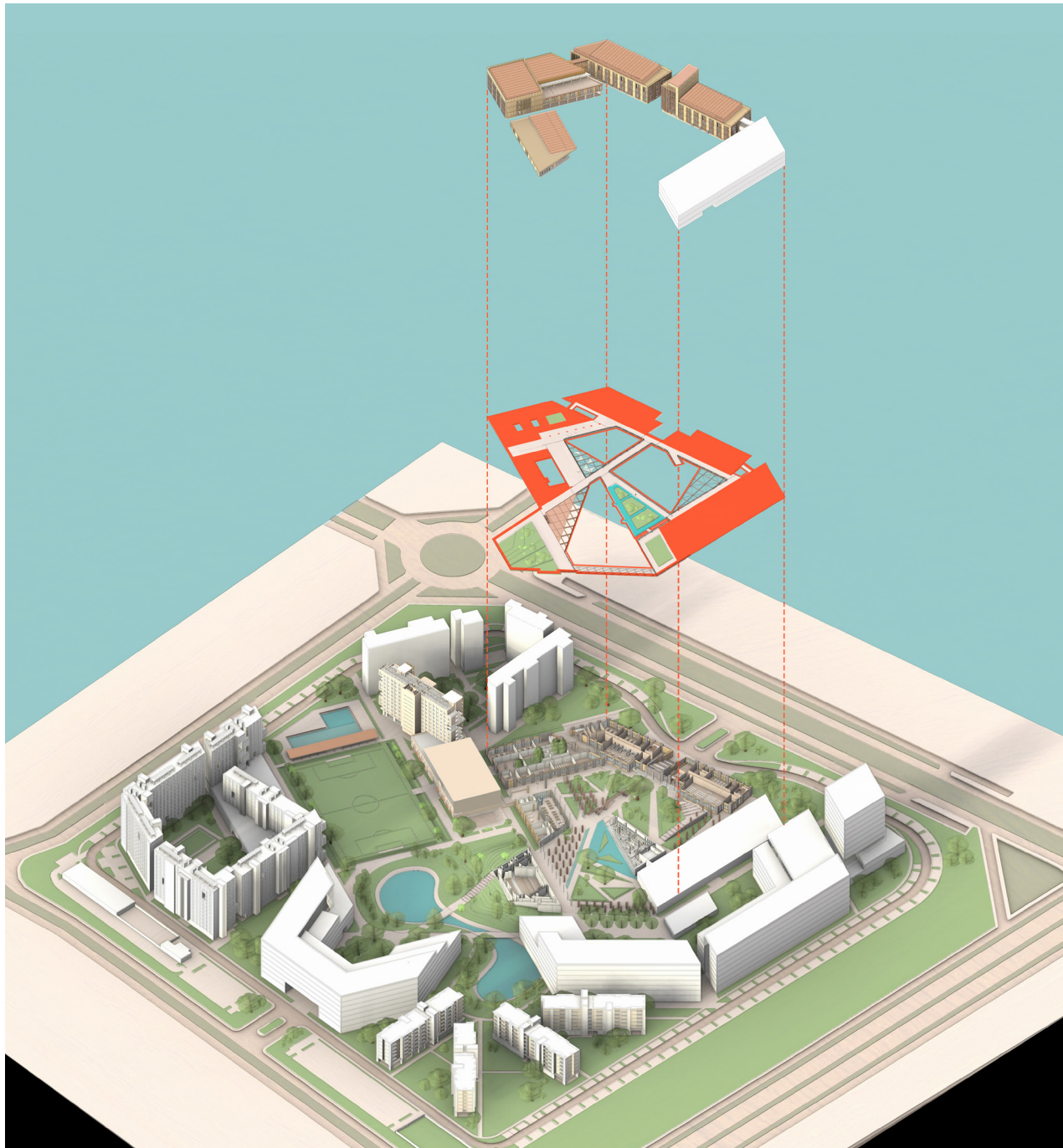
Plan A | 2019 (still under development)
Chandigarh (India) | 280,000 m² built / 50 acre plot

CONTRIBUTIONS: Responsible for the master plan design, massing determinations, and for the landscape general concept. Also contributed with the buildings design including net zero strategies, program distribution and rainscreens design.

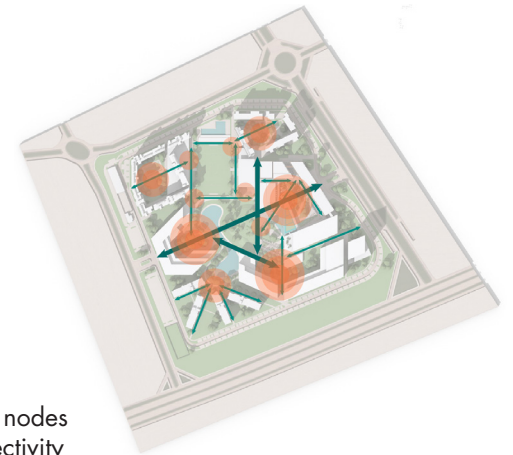
Founded by a team of over 40 business leaders, entrepreneurs and technology companies, Plaksha University seeks to remedy a quality gap in India's engineering education. The university, which is being designed to net zero standards, will be located in Mohali, India, a growing technology and engineering hub in the Chandigarh Tricity. The city of Chandigarh has a rich design history, having been designed by Le Corbusier, and serves as the capital of the Punjab and Haryana states. The university will serve 8,000 students, 6,000 of whom will live on campus, as well as several hundred faculty.

Academic forum at phase I.

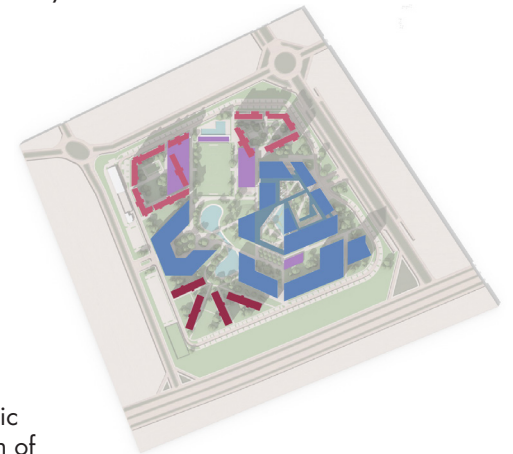




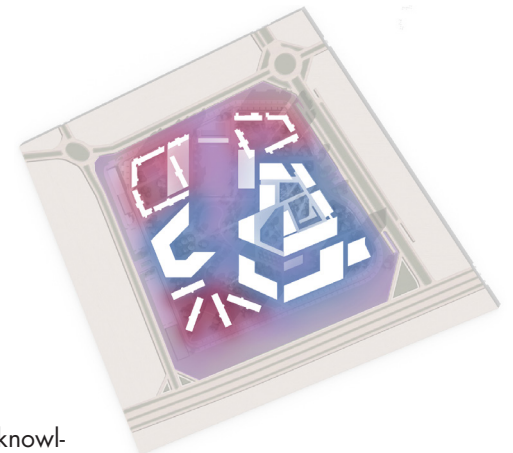
Exploded axonometric of the Masterplan, showcasing the multi-level character of the academic forum.



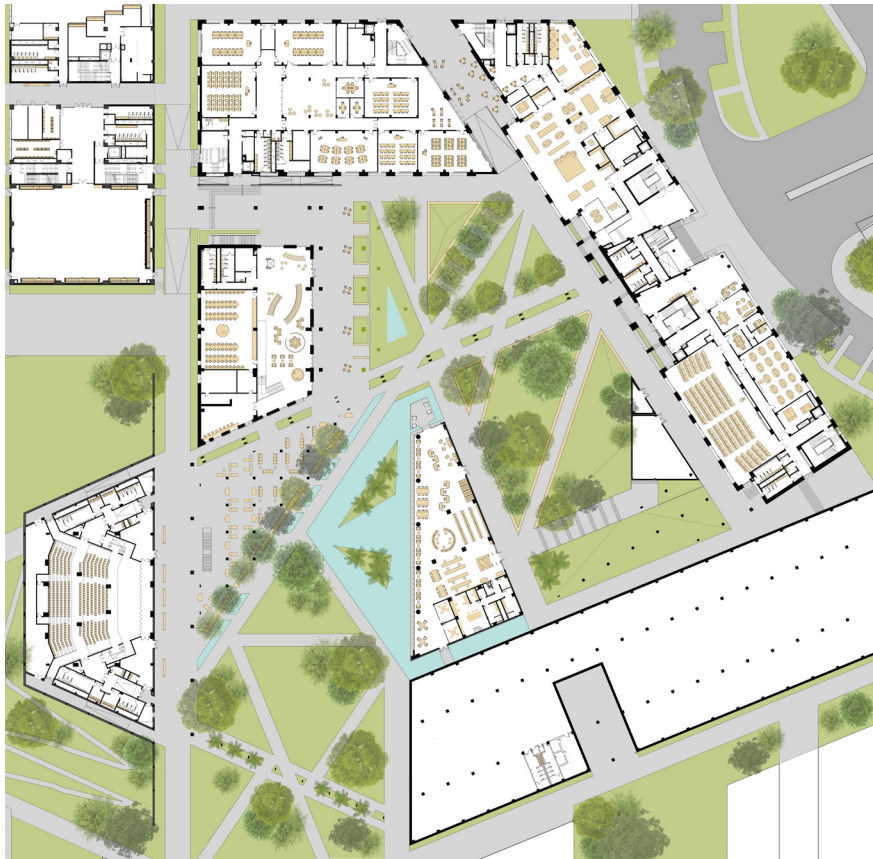
Activating nodes and connectivity axis



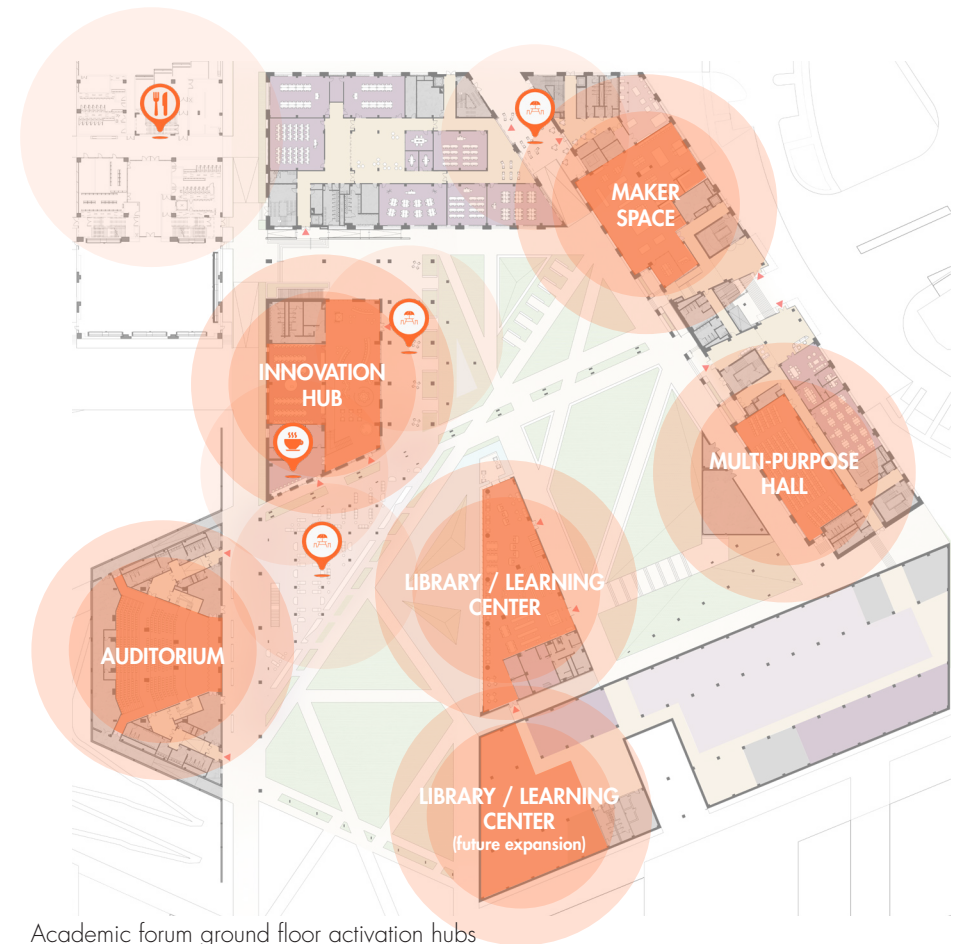
Programatic distribution of buildings



Live-learn knowledge community



Academic forum ground floor landscape integration conceptual plan



Academic forum ground floor activation hubs



View from the Auditorium terrace, looking at A7A's binary clock tower across the forum court.



View from the south bridge, looking at the Library with buildings A2A and A7A in the back.



Exploded section of the academic building A2C (Innovation hub).



View from the central bridge, looking at building A2B.



Exploded section of the academic building A2B (North of the the academic forum).

IANY

Plan A | 2019
New York (USA) | 20,580 m²

CONTRIBUTIONS: Project Management from concept design until approval at the DOH. Included meetings with clients and educators from the school, comparative analysis of utilization rate of existing spaces, and coordination with subcontractors.

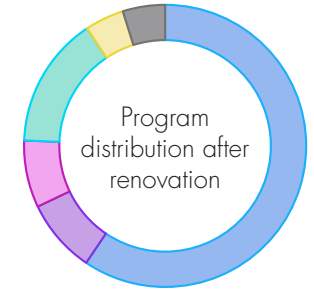
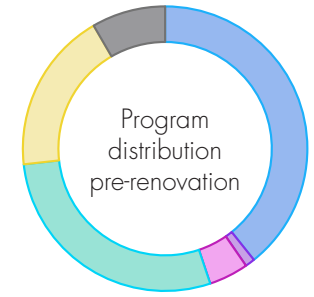
This renovation project takes place in a landmark designated building facing Central Park, part of the Church of the Heavenly Rest. The building, which in part was a residence and a morgue, has been occupied by several tenants over the past decades. Plan A was retained to strategically plan a phased renovation of the building while it is being used as a school and to propose alternatives for generating revenue meanwhile. The scope of the work includes designing a new cafeteria, science room and arts facility on the top floor, renovating each of the classroom floors (including upgrades to the toilet rooms), providing new music rooms, rehabilitating the gymnasium and a upgrading the lobby and office areas.

Main entrance of the landmark building.





Cafeteria and experimental kitchen, with science room and it's wall long ant farm in the background.



Classrooms Eatery Administrative
Lounges Circulation Storage

Optimization of spaces.

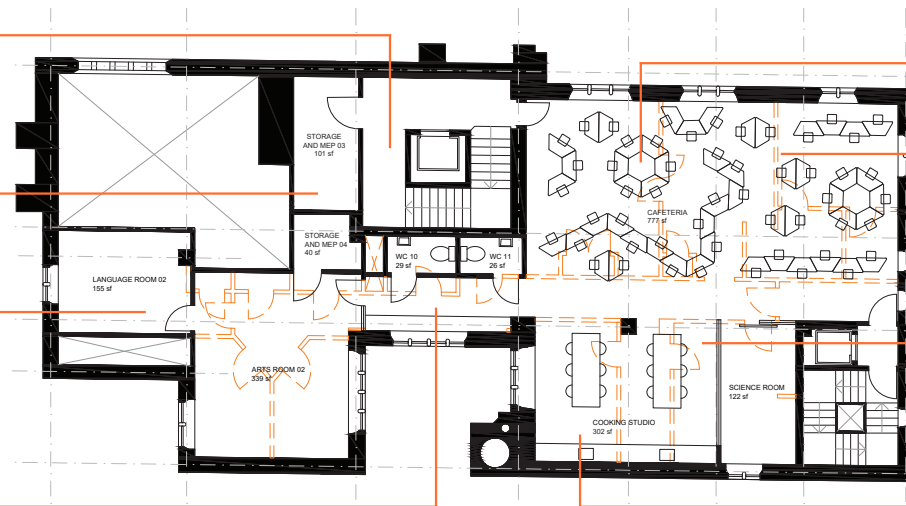
Renovation of the staircase and elevator.

Construction of a partition wall between AC equipments and empty section of the room, creating a Storage for the Cooking Studio.

Renovation of classroom spaces.

Reduction of the space occupied by bath-room and shafts. Also, creation of a small waiting area which could be used for educational purposes.

Renovation strategies for the sixth floor



Creation of a wide flexible space to be used as cafeteria and/or events space in general.

Demolition of excessive partitions.

Creation of a dedicated science room / space to display experiments.

Creation of a Cooking Studio, which can also be used as support space for science classes, meals, and all sorts of events appening at the cafeteria.



Overall phasing of the project, across two years and a half (5 semesters and 2 vacation periods).

Salvador's Public Transportation Network Expansion

JBMC Arquitetos | 2015
Salvador (Brazil) - 36 836 m²

CONTRIBUTIONS: Administrated schematic design, design development and construction documents, approval at city council, and compatibility with subcontractors.

The project consists in the remodeling of three bus stations to receive the trains of the metro (Acesso Norte, Iguatemi and Detran), the construction of other twelve new metro stations (Typical Stations), a linear park and three bus terminals. Most of the stations are located near the floodplain and connected to existing footbridges from the Architect João Filgueiras Lima "Lelé". The challenge is not only to deal with the site's hidrography, but also with the existing heritage and transpositions of the areas.

Interior of one of the Typical Stations.

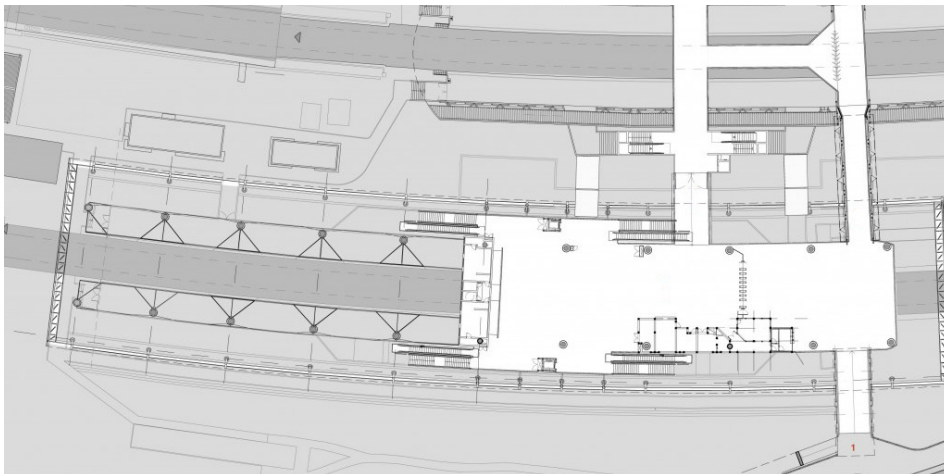




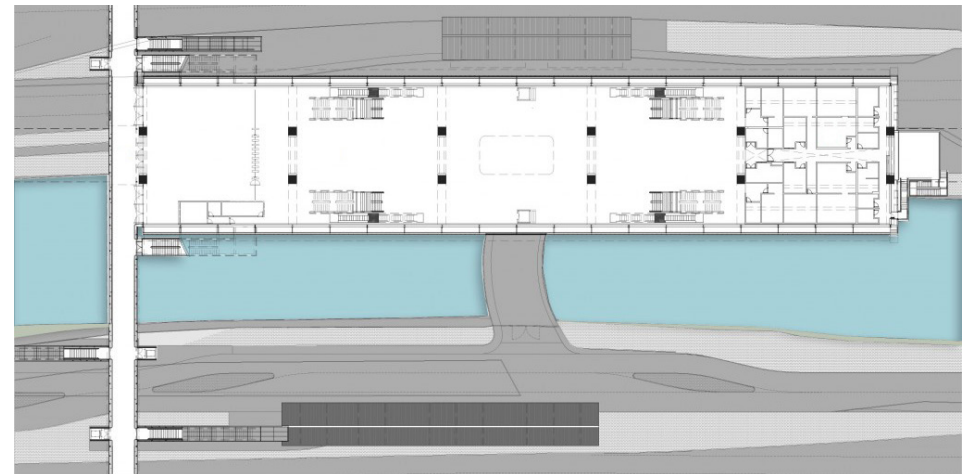
Acesso Norte Station - External view.



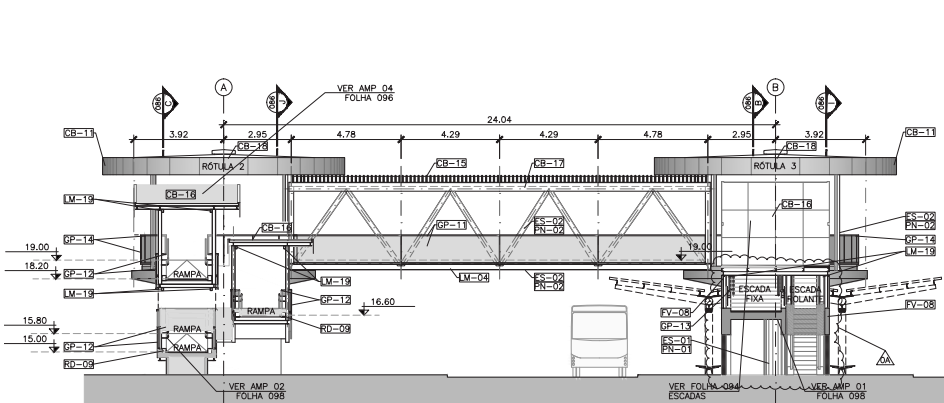
Detran Station - External view.



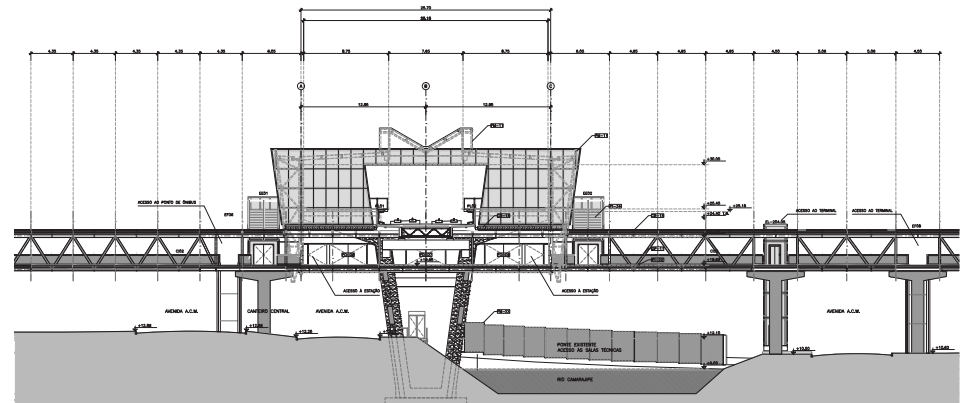
Acesso Norte Station - Main atrium plan.



Detran Station - Main atrium plan.



Acesso Norte Station - Construction drawing for the footbridges.



Detran Station - Construction drawing for the footbridges.

João Moura Building

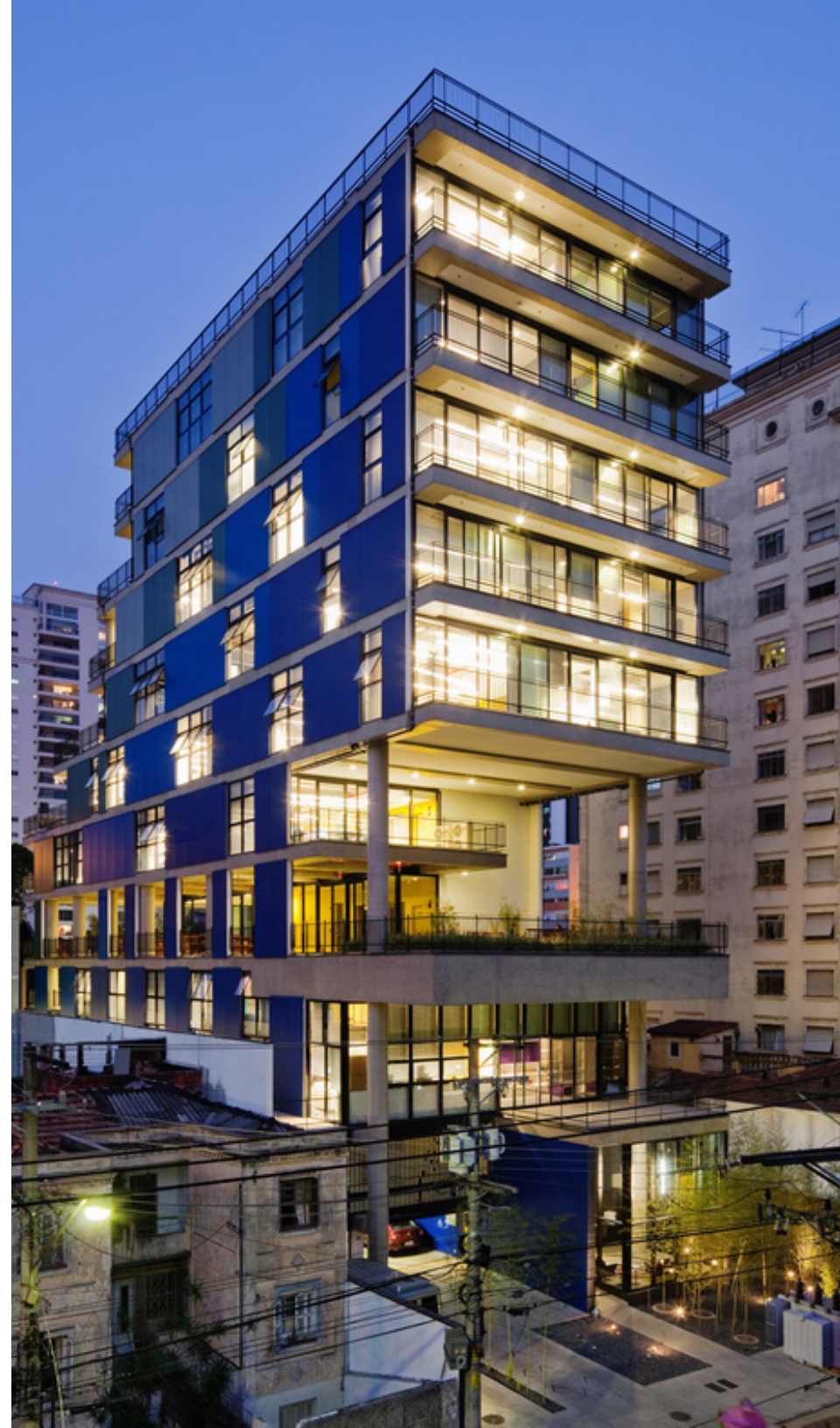
NITSCHÉ ARQUITETOS ASSOCIADOS | 2011
São Paulo (Brazil) | 6 554 m²

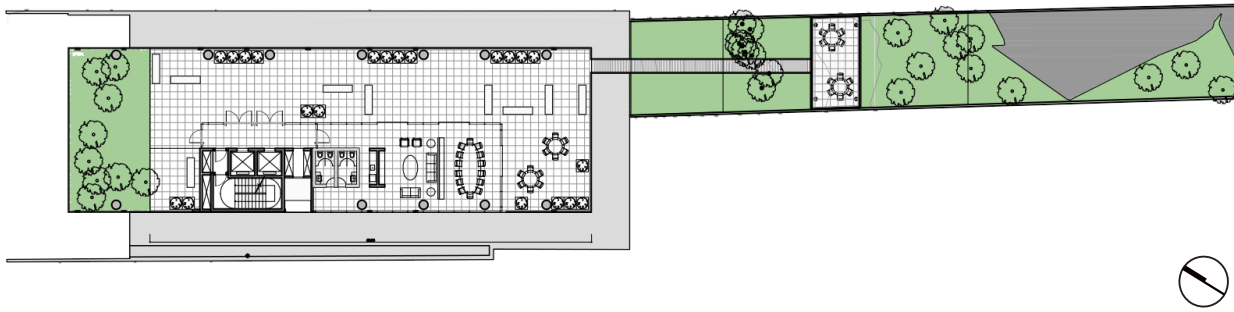
AWARDS: Highlight at the category "Buildings" (2012) of the annual prize organized by the Institute of the Architects of Brazil (IAB)

CONTRIBUTIONS: Participation of the process of compatibility with complementary projects and development of construction documents for private developer.

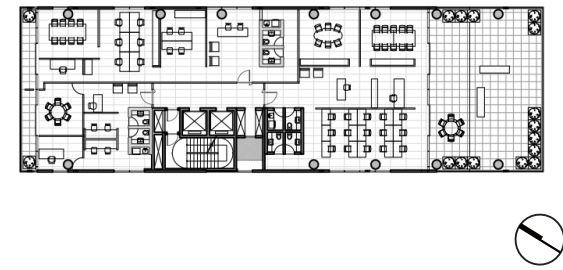
Commercial building developed for a private developer. The design takes advantage of the strategic topographic position the site takes place at the city, and rethinks its corporative workspace. In addition to the unusual variations on height there were strict regulations on having a 25m zone surrounding the building, which ensured a 'green belt' within the urban setting. The volumetric and the different floor dimensions were thought to improve the sustainable performance of the building, qualify the sets, and bring new ideas for the space for corporative work.

Main entrance of the building.





Ground floor plan



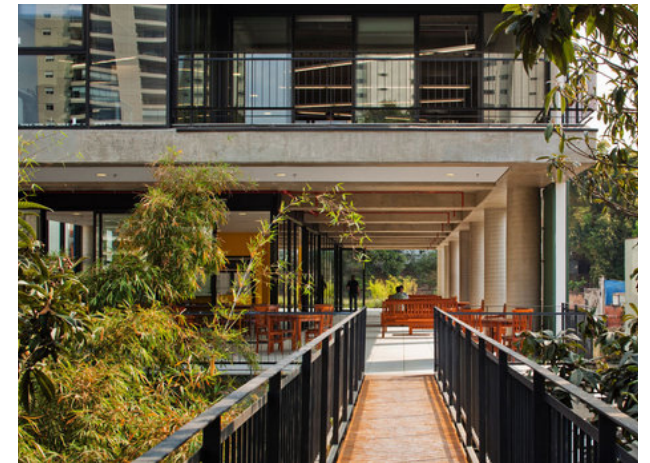
Third floor plan



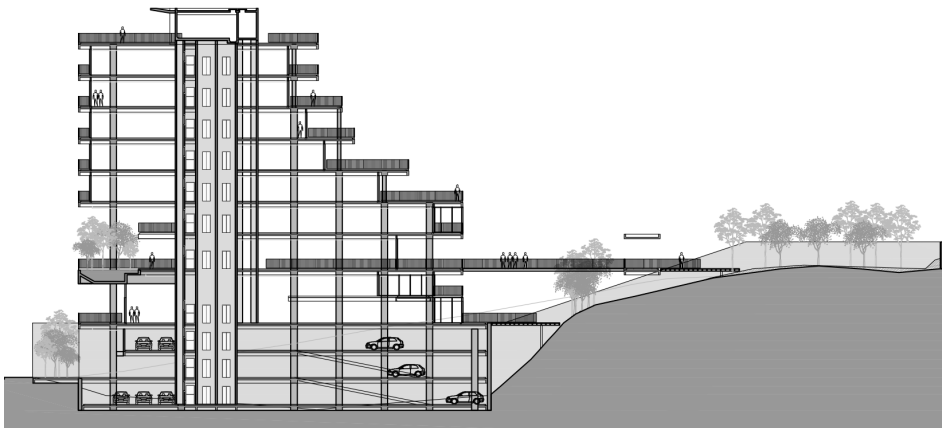
Integration at the urban landscape



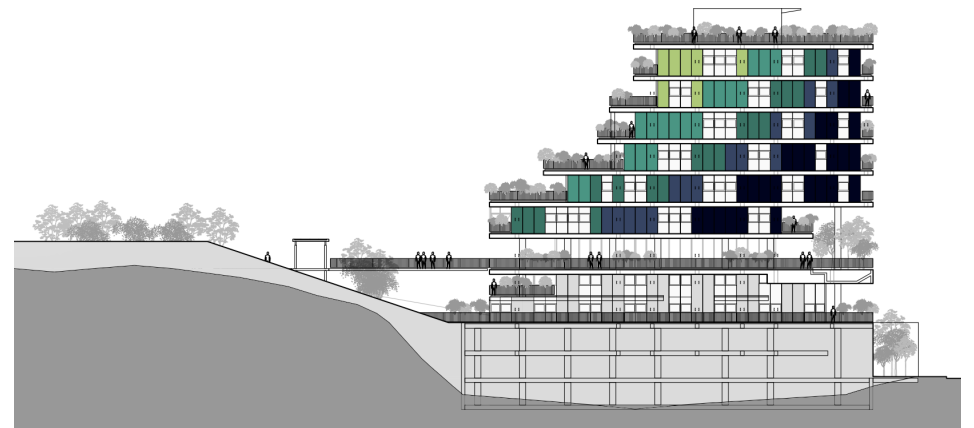
One of the balconies



View from across the bridge



Longitudinal Section



Northwest Elevation

Piracaia House

NITSCHKE ARQUITETOS ASSOCIADOS | 2012
Piracaia (Brazil) | 1025.0 m²

AWARDS: abcem award 2016 - the best steelworks - small works category.

CONTRIBUTIONS: Participation on the stages of Conceptual Design, Schematic Design and Design Development.

The lot where the house was implanted is on the edge of the dam and gently slopes towards it, which facilitated the use of half levels in the house. In this way, access can be made either by the garage - on the lower floor -, or directly by the house - on the ground floor. A large covered porch connects the intimate social area allowing the landscape to cross the house. There is the intimate area of the dormitories and the social area, and all the rooms are visually linking it to the mountains of the Serra da Mantiqueira the dam, where the terrain ends.

Main social area overseeing the dam.





Swimming pool, social and intimate areas.



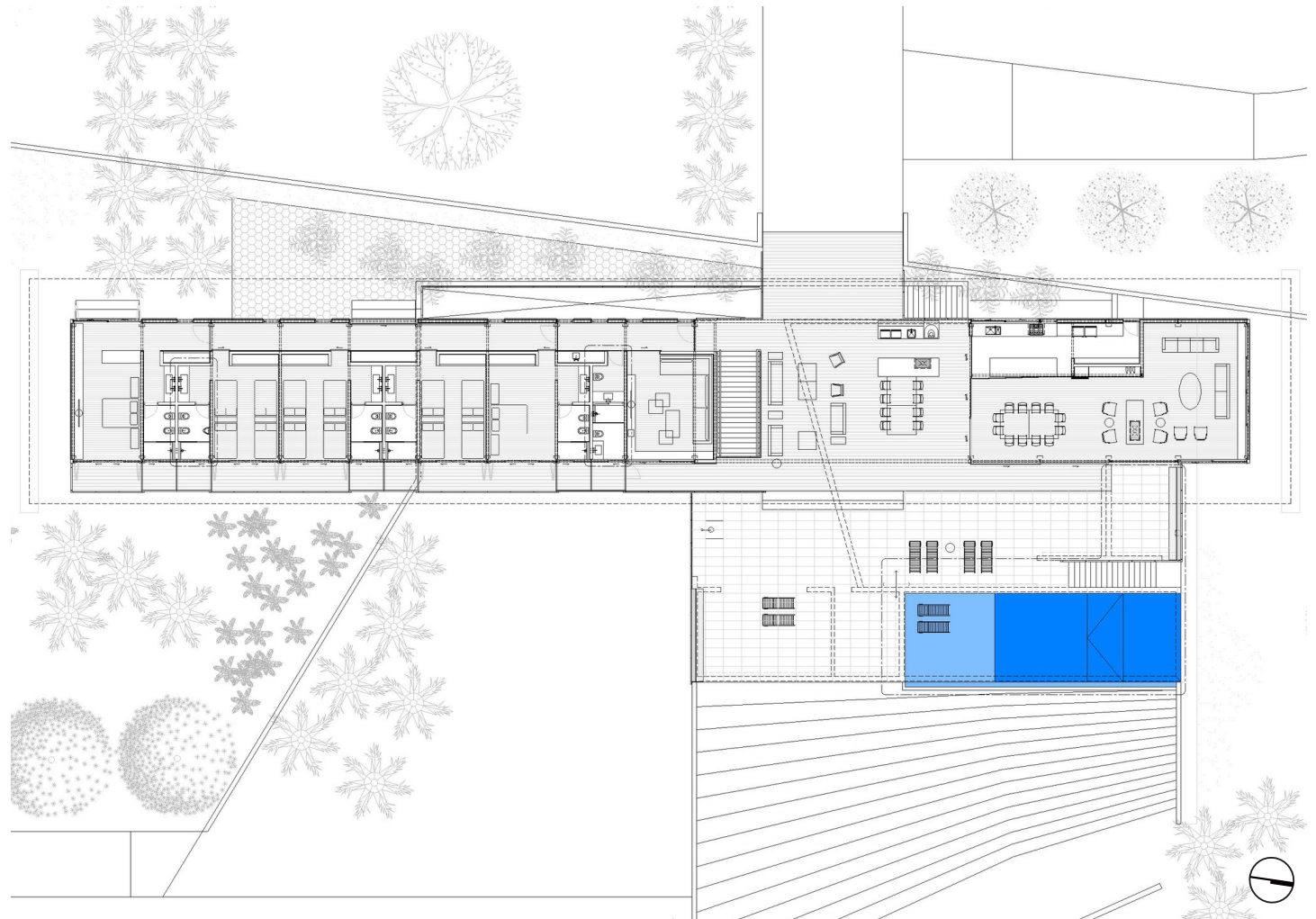
Main entrance of the house.



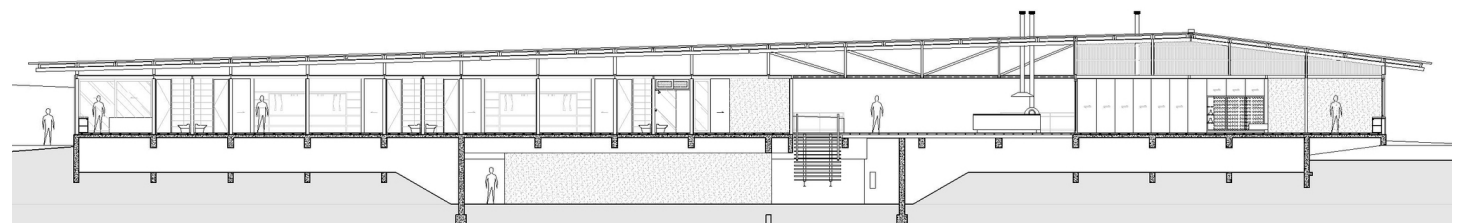
Social area.



Integration between landscape and building.



Ground Floor Plan



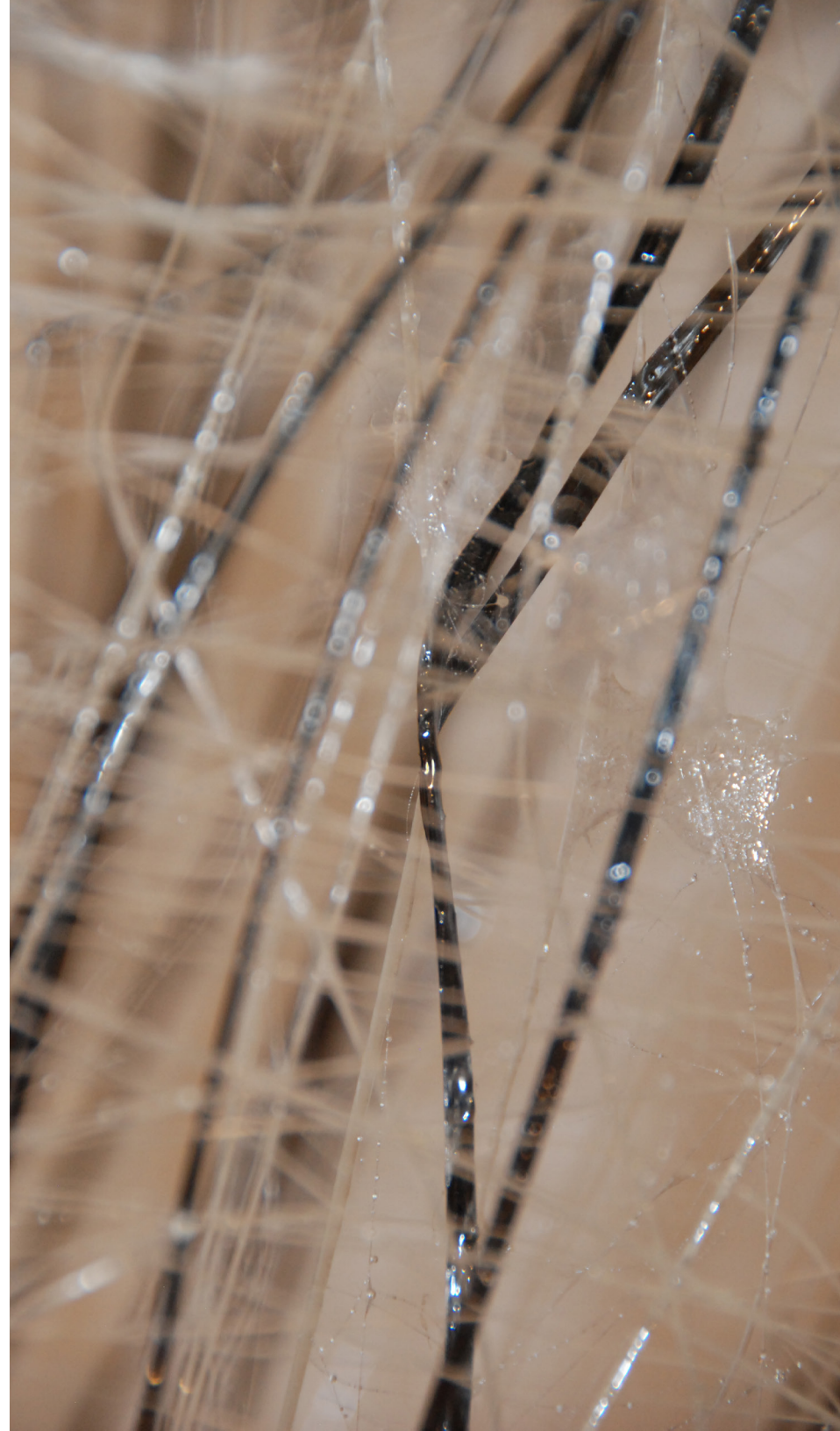
Longitudinal Section

Soft Design: Behavioral form

ACHIM MENGUES STUDIO (Fibrous Tectonics) at HARVARD GSD - 2015
Marysol Rivas Brito and Gavin Ruedisueli

This project explored fiber behaviors in the deployment of fibrous composite spaces made out of carbon and glass fiber and epoxy resin. Together, these materials form what is known as a “composite system”, which contains embodied within it both tension and compression forces, and achieves structural performance without the need for deep and heavy structural elements. This project aimed to break down barriers between designer and builder as well as between design and execution, taking advantage of the natural behavior of the fibers in order to achieve smart composites to be explored in architecture. The process intended to bring the design process into the construction phase and create structures through repeatable processes that can occur at many scales of deployment, and with minimal armatures. Furthermore, the project explored the inherent spatial qualities that result from the chosen construction technique.

Detail of fiber interaction at one of the experiments.



BEHAVIOUR AND BIOMIMETICS

The explorations first investigated methods of form-active structures creation and shells. Later, we focused on tensile structures with removable scaffold, in order to allow the form to be slightly morphed during construction, setting up a dialogue between the designer and the construction process. Inspired by the hunting method of the spiders, we developed an algorithmic interface between human and robotic arm, also modifiable during the process.

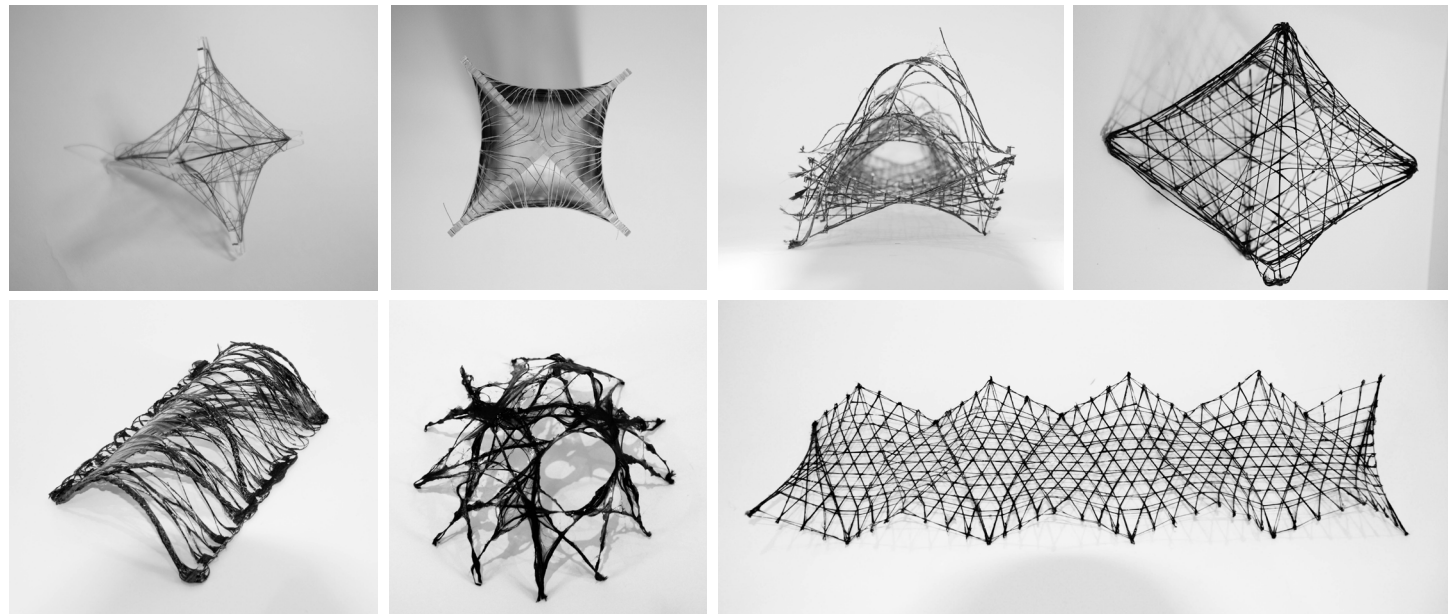
GRAVITATIONAL LOADING

Gravity loading was used to create funicular structures, using frayed fibre to maximize surface area for resin application. Then, we investigated how hierarchy could improve the load bearing capacity, border definition and robustness of specific areas. We also investigated how tight and loose systems could be associated when generated by the same algorithm.

CENTRIPETAL LOADING

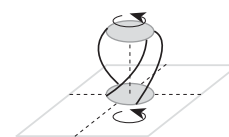
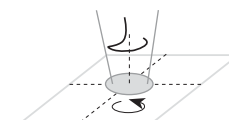
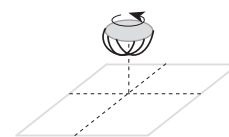
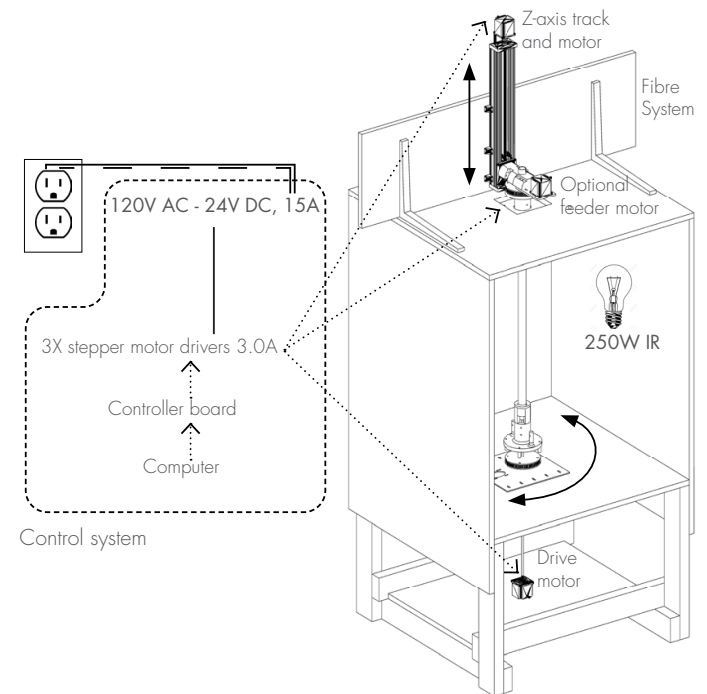
Through the action of two forces (centripetal and gravitational) pre-stressing the system during the fibre assemblage process, complex shapes emerge, embedded with lateral and vertical resistance, along with strong fibre interaction.

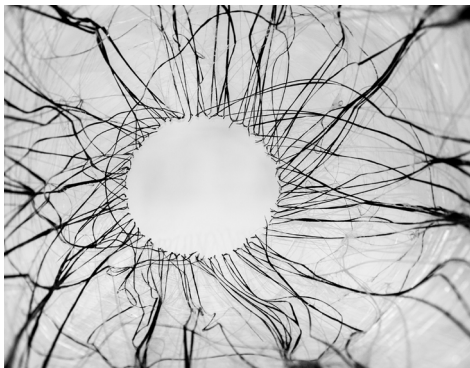
A matrix was defined to systematize the variables. The list was narrowed down in terms of importance and viability, and experiments were made accordingly. The geometries produced by this process are unlike anything that can be achieved by conventional construction practices. Since the form is derivative of the forces imposed by the spinning system, each line forming a surface is a curve generated in response to the acting forces.



CENTRIPETAL EXPERIMENTS	Internal Armature+Defined Points	External Armature+Undefined Points (Internal Feeding)	External Armature+Defined Points
VARIABLES			
Fiber Feeding			
rotating spool	NA	pulling off issue	NA
stationary spool	NA	not efficient	NA
hand-feeding	very difficult	very difficult	NA
attached	only way	very difficult	only way it works
Fiber Feed Rate			
small	very difficult	more control	NA
medium	very difficult	tendency to collapse	NA
high	NA	volumetric surface	NA
Armature Position			
static	NA	no centripetal forces	NA
rotation	centrifugal pre-stress	centrifugal pre-stress	only way it works
Armature Characteristics			
rigid	NA	more predetermined	NA
adaptive	more behavioural	more behavioural	only way it works
Size of Product			
small	?	?	less fragile
medium	fragile	strong	fragile
large	less speed needed	different media required	?
Fiber Assembly			
heterogeneity	distinct properties	distinct properties	distinct properties
hierarchy	better fiber interaction	good surface coherence	more resistant
anisotropy	more stable	more stable	structurally safer
indirection	structurally safer	structurally safer	structurally safer
Point Weights			
light	good form manipulation / reinforcement of the structure	NA	substantial deformation
medium	?	NA	no three dimensionality
Quantity of Weights			
none	only curves	NA	only curves
low	asymmetry	NA	asymmetry
many	clustering tendency	NA	two-dimensional tendency
Weight Location			
bottom	less z axis movement / more amplitude	NA	?
middle	big z axis movement	NA	low tridimensionality
top	less amplitude	NA	?
RPM			
60	less z movement	no adherence	more of a catenary dome
100	small z movement	low adherence	asymmetric dome
200	big z movement	medium adherence	tendency to open
faster than 200	high adherence	high adherence	?
acceleration / deceleration	good adhesive results	deployment control	?
2-Stage Feeding			
variable	NA	more of coverage	NA
Curing Duration			
slow (12h)	more adaptation	more adaptation	more adaptation
medium (6h)	?	?	?
fast (3h)	more viscosity	more viscosity	?
Type of Fiber			
carbon	very structural	very structural	very structural
Manipulation of Fiber			
regular	regular adherence	regular adherence	regular adherence
smaller fiber loops	regular adherence	less adaptation	regular adherence
frayed	great adherence	very difficult	better adherence
braided	low adhr. / strong structure	NA	low adhr. / strong structure
Resin Application			
pre-mixing	good fiber interaction	complicated	good fiber interaction
heat sensitive prepping	more stable / no loading	heavier / better adherence	?
resin at feed point	NA	technical complications	?
Feeding			
single	simple surface	simple surface	one interaction layer
combined	stability issues / good surface	stability issues / good surface	?
Relative Size of the Fiber			
equal	less stability	NA	?
different	dovetail assembly potential	NA	?
Point Distribution			
circle	reconductive results	NA	?
square	reconductive results	NA	?

Set of experiments, variables and results

Internal Armature
+Defined Points
Self-Forming ArmatureExternal Armature
+Undefined Points
Self-Assembly of
FibresExternal Armature
+Defined Points
Self-Forming Armature



Experiments with primary structure and external reinforcements.



INFLUENCING THE SYSTEM

At last, we applied some of the successful parameters in order to manipulate the final outcome. Also, we utilized 3 kinds of fibres: thin glass fibres, 3k carbon fibres and 12k pre-impregnated carbon ones. Two kinds of crossing patterns were applied, and we asymmetrically distributed point weights through the most internal layer of the model to help enhance the pressure between them, influencing the thickness of the system. The rotation pattern was altered by programming the motor. The carbon fibre "sandwich" maintain its position in a better way than the dry fibres, and also help control the position of the glass ones. The system half the way cured was able to be manipulated, and a good amplitude was developed even after the insertion of a compression belt.

ARCHITECTURAL APPLICABILITY

The interface between designer and machine was a fascinating component of this project. More than a final project, this studio resulted in a research document regarding different ways to deploy fibres as architectural systems. We foresee great spatial qualities in working with this method and materials (carbon and glass fibres) and strong potential in terms of light interface, therm-acoustic dynamics, structural resilience and simplification of construction processes. Although the limitations of our level of our initial expertise and feasibility issues faced during the process, we see a great potential in the interplay between the gravitational-centripetal pre-stressing method and the possibilities for design interventions during the construction process.

Emanant City

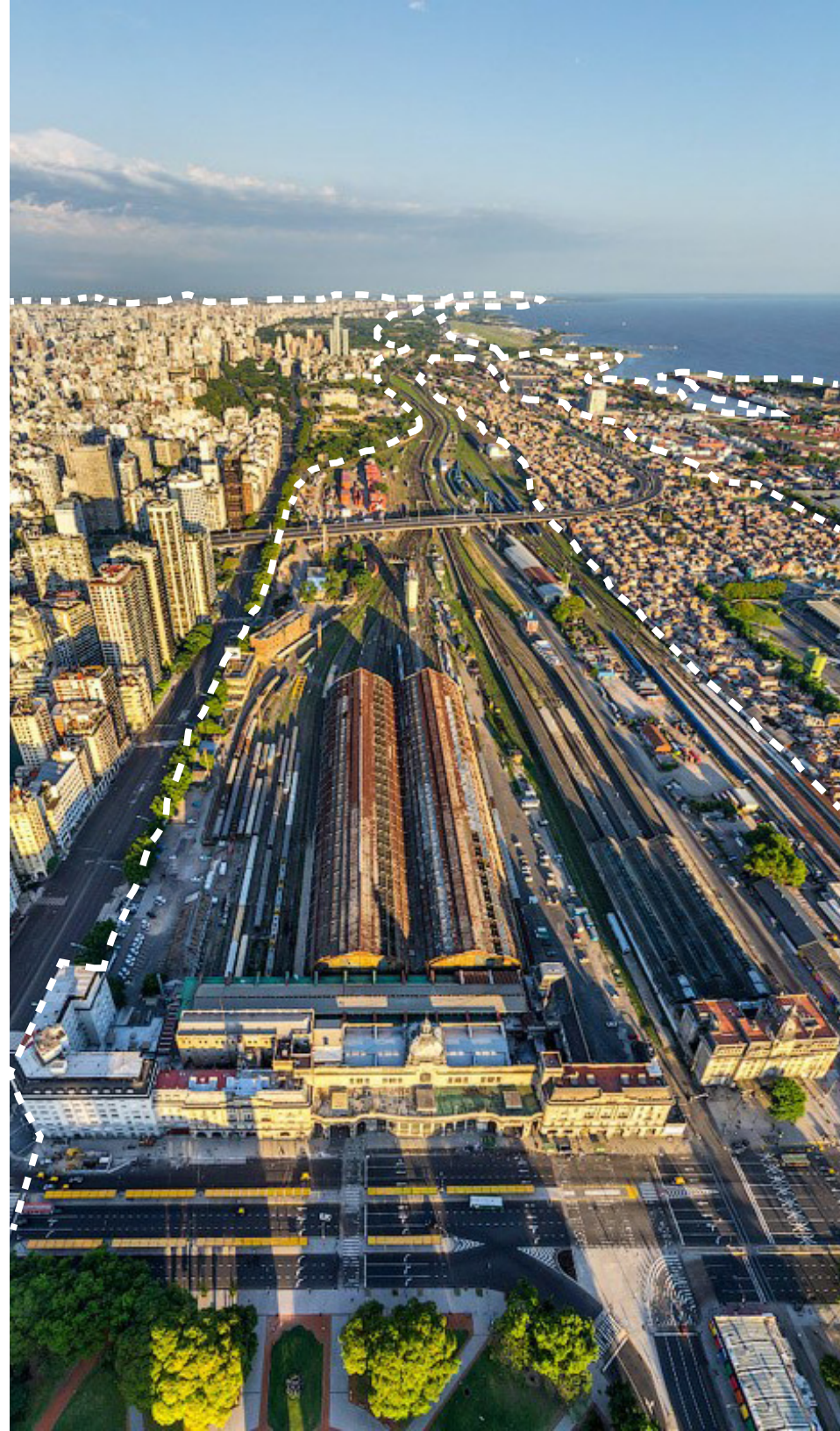
BECKER / JANCHES STUDIO (Urban Strategies for the Retiro Area)
at HARVARD GSD - 2016

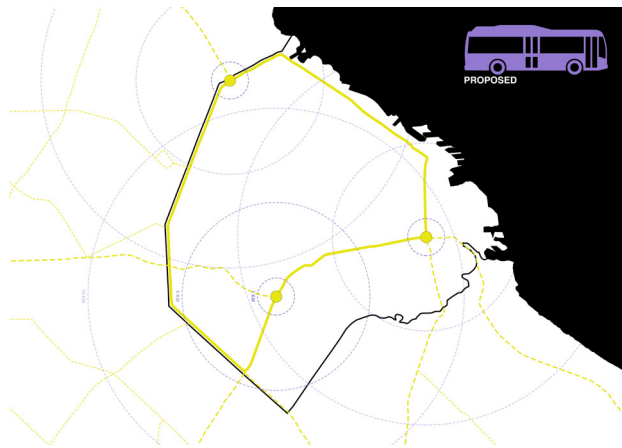
Buenos Aires (Argentina)

Marysol Rivas Brito, Christopher Havercampf, Liana Nourfashan and Juan S. Maria

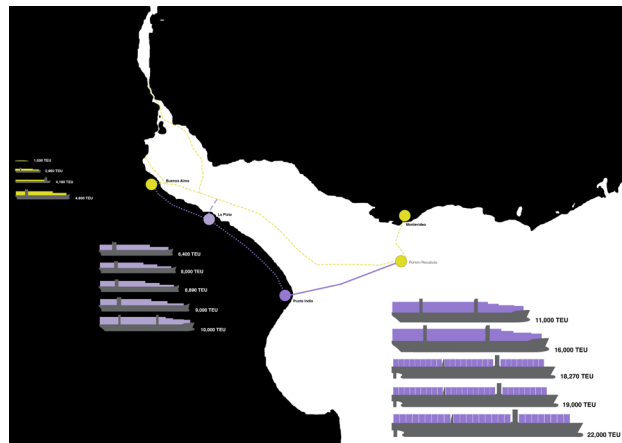
This project intended to create strategies to overcome the existing barriers and promoting social and territorial integration. The main goal is to avoid the reproduction of the current spatial fragmentation and socio-cultural segregation. Furthermore, to promote Spatial Diversity, Integration, Social Plurality, Polycentrism and Sustainability. The main strategy consists in organizing the imminent urban development, the system of public spaces and the mobility interface: to build an appropriate threshold between the formal city and informal fabric, avoiding segregation and gentrification. The option for the phased process reflects the belief that most efficient and positive results can be achieved through a holistic strategy. Pragmatically thinking, each stage of the process addresses a different key barrier identified on site: the socio-cultural boundary, the port, the train lines.

Site photo, where it is possible to see the distinct tissues that constitute the urban barrier.





Redistribution of the bus terminals in the city.



Eventual obsolescence of the port.



Redistribution of the transportation through the neighborhood.

PHASE 1 | Transforming the barrier

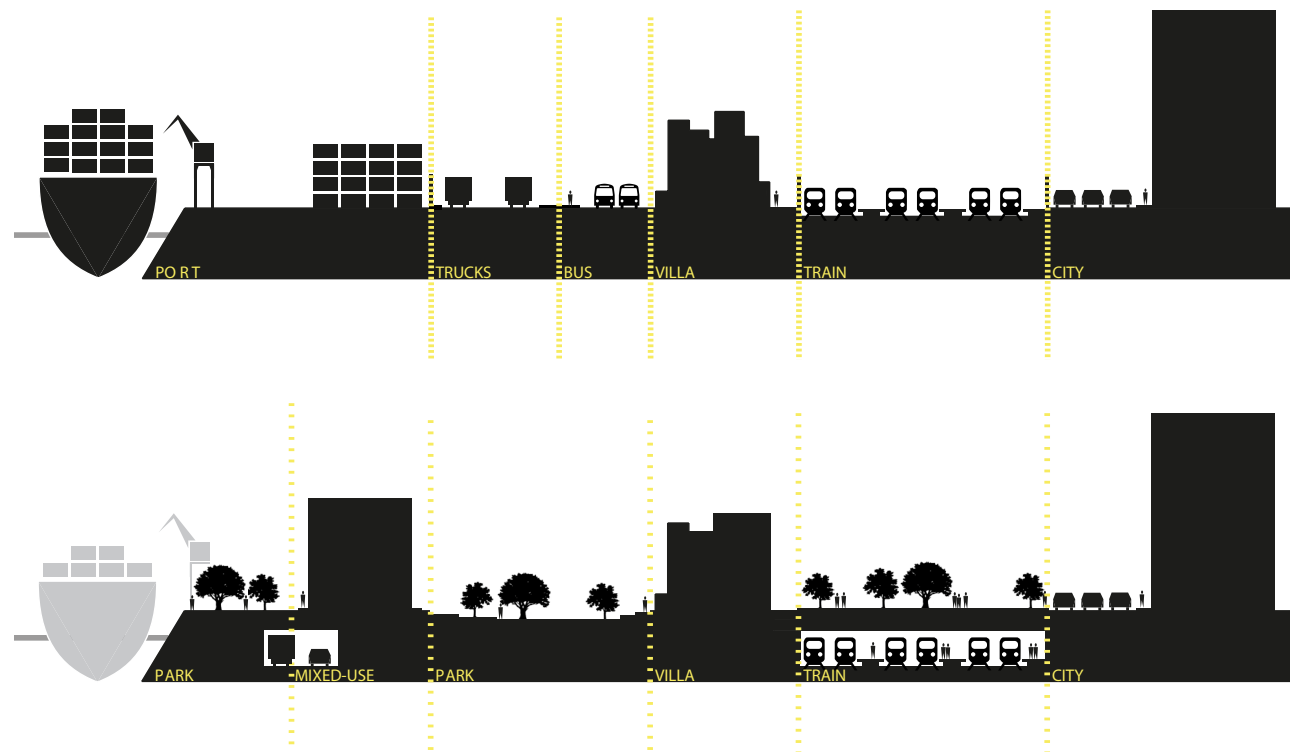
The intervention considers the implementation of the existing slum (villa 31) renovation project, adding to the proposal a retail area of mixed and commercial use. The expansion of the existing green corridors from surrounding neighborhoods connects the area with the city. The integration is complemented by the proposed displacement of the bus terminal, creation of subway stations, and implementation of an institutional area of governmental functions and public domain in the neighborhood. Options for land regularization were also proposed, so that local identity is preserved.

PHASE 2 | Rebound on the sidelines

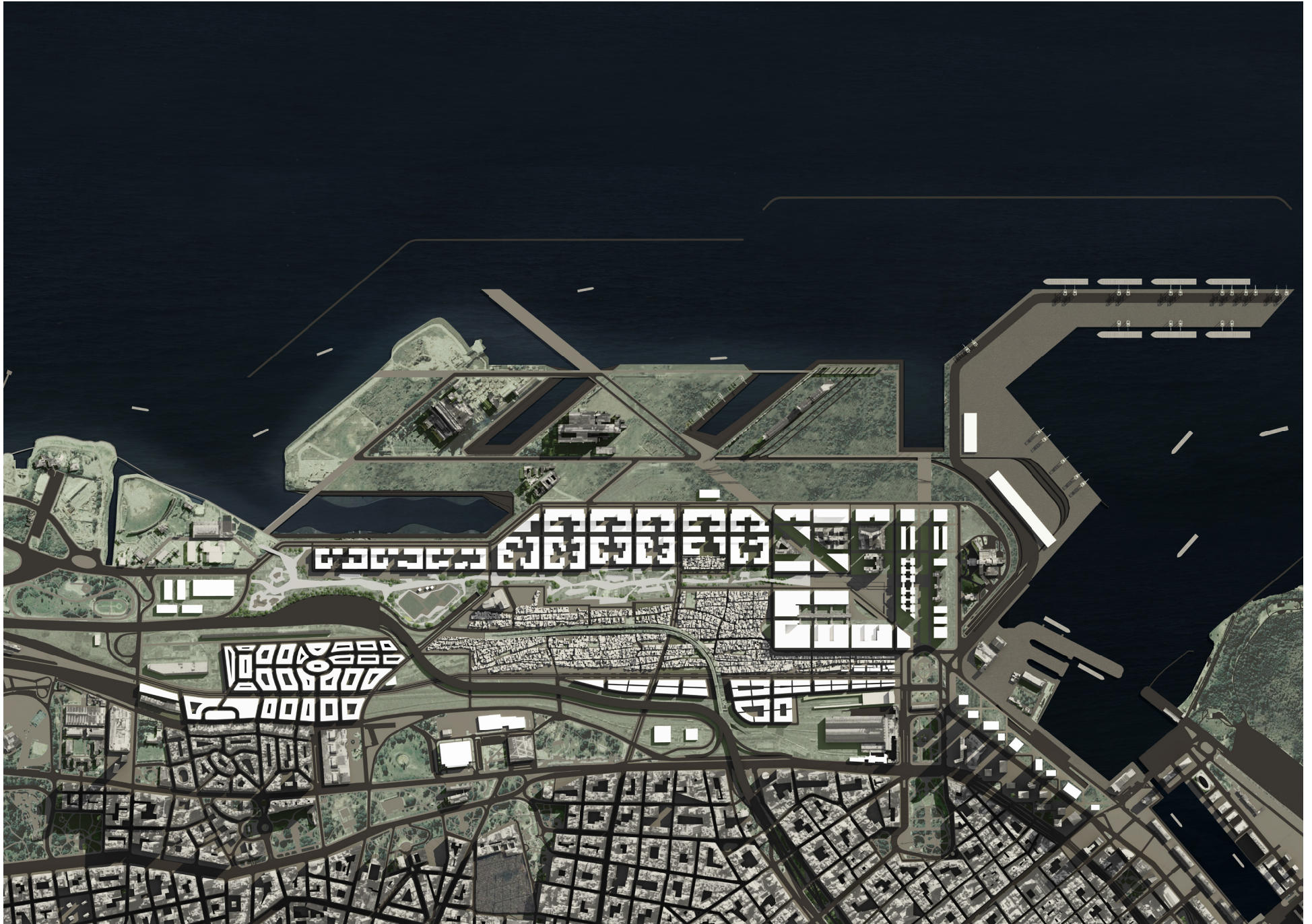
Currently, the port infrastructure acts as an automated urban barrier, located in the historic and symbolic heart of the city but suffocating it. With the imminent obsolescence of the port located in the Retiro and the transference of commercial activities to Punta Indio, the most reasonable approach is to operate those changes gradually. Thus, the land belonging to the Port Authority constitutes one of the most promising areas to rescue the multidimensional and multicultural space that the port has been in the past, maintaining its character as a gateway to the city.

PHASE 3 | Territorial integration

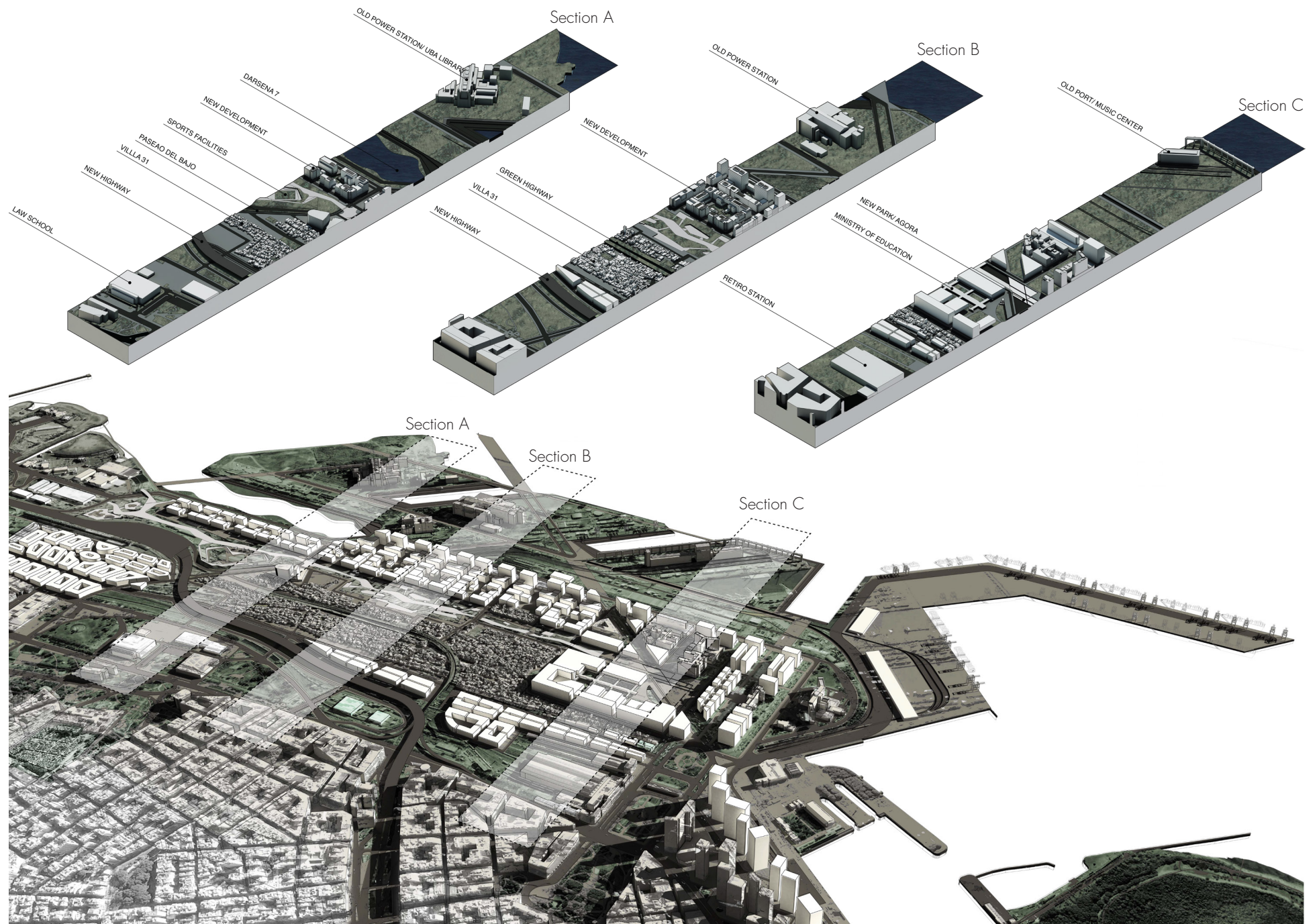
Based on the current advances in technology, the trend is for trains to be completely powered by electricity. The eventual transition of systems will allow the lines to be buried at Retiro, releasing a large amount of land between the one of the richest areas of the city and the renovated slum. Therefore, this phase organizes urban development, integrating the system of public spaces with the new transport systems, promoting the socio-cultural integration and creating connections with the existing city.



Change of occupation paradigm proposed: existing situation (top) and intended transformation (bottom).



Final Outcome expected - Phase 3 consolidated



Phase 3 - Section showing the strategies applied

Yucatán Initiative

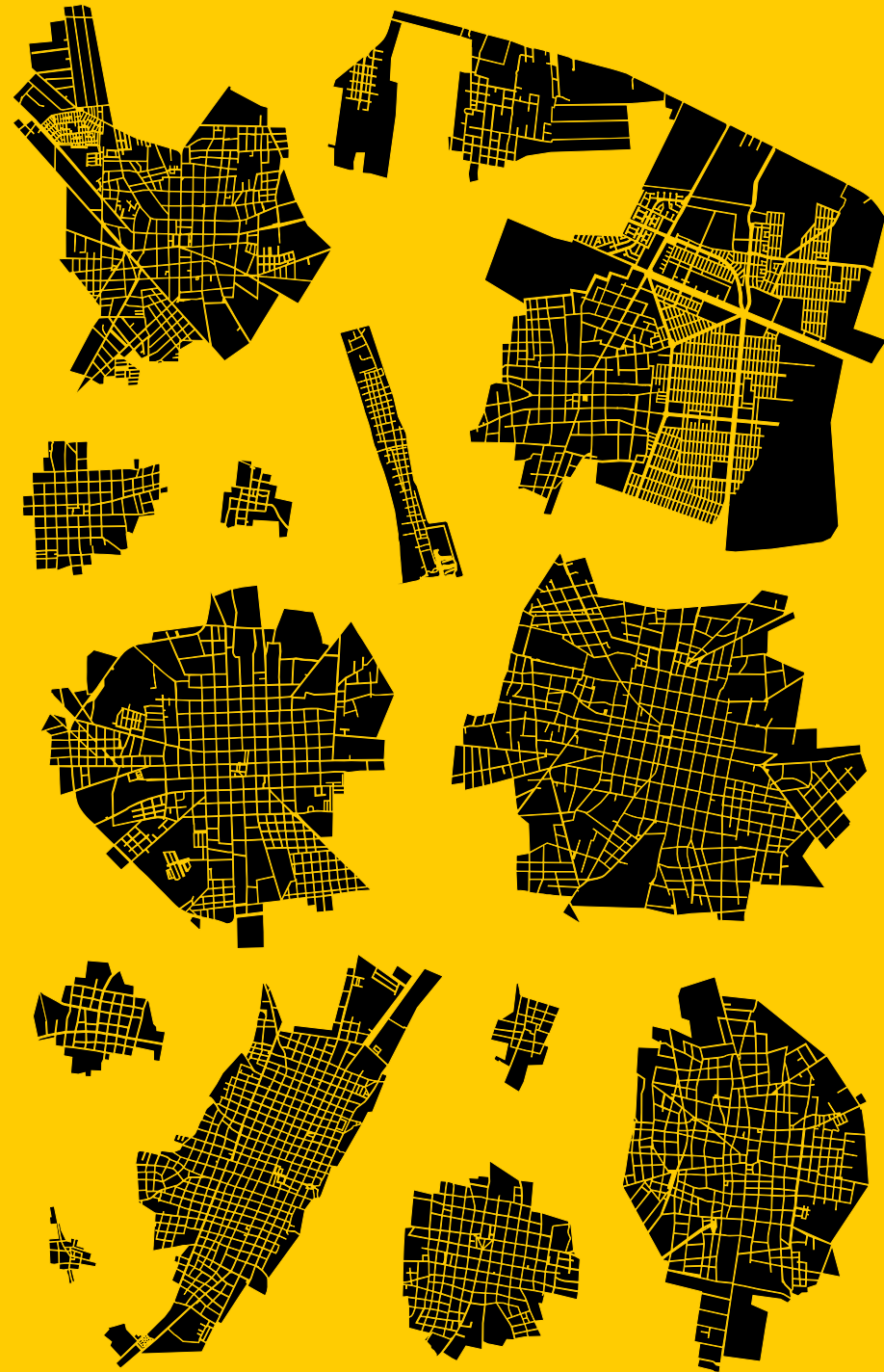
RESEARCH FELLOWSHIP "Mexican Cities Initiative" - 2016-17

Coordinated by Prof. Diane Davis and Prof José Castillo

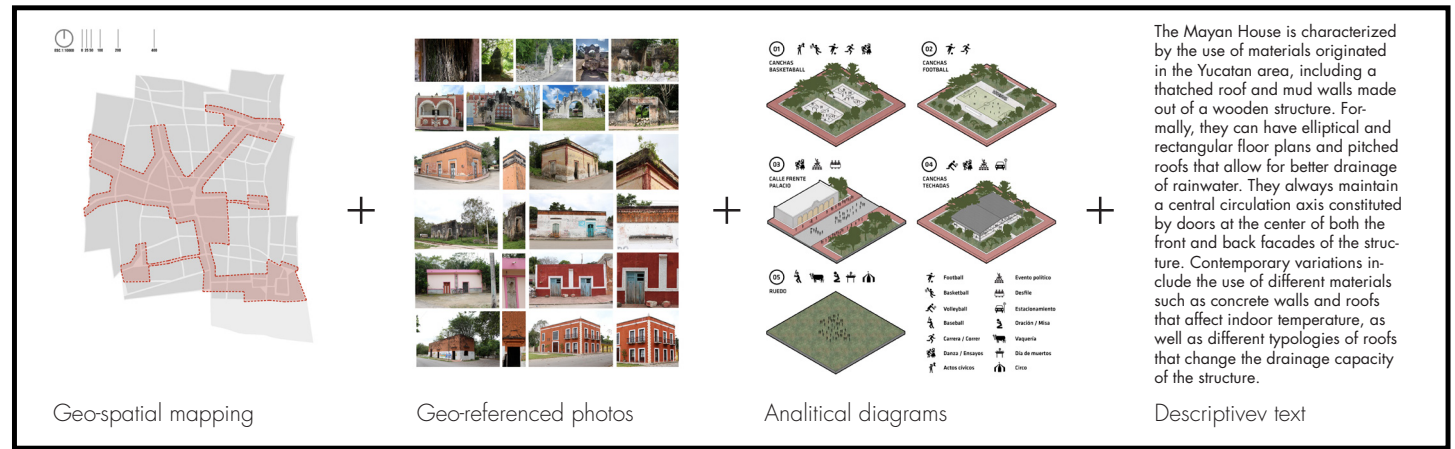
Marysol Rivas Brito, Alice Armstrong, Alex Duffy, Chris Liao, Arianna Galan, Alejandro Fernandes Linares, Alfonsina Rosas, Daniel Ríos, Alejandra Carrillo, Malena Contreras and Tania Ramar

The Research project which took place in the Yucatán Península during 6 weeks, based in the city of Mérida but contemplating 15 other cities of the region. The goal of the Initiative was to develop a visual dictionary of the mayan cities. The initiative was constituted by Harvard graduate researchers, organizations that already have been intervening in the area - INAH (National Institute of Anthropology and History of México), INFONAVIT (the Mexican federal institute for worker's housing), BAKTÚN (an alliance of organizations and individuals devoted to protect the cultural heritage of the Mayan communities), Universidad Marista de Mérida and Transformación, arte y educación (the non-profit organization behind the Baktun alliance) - and local undergraduate students.

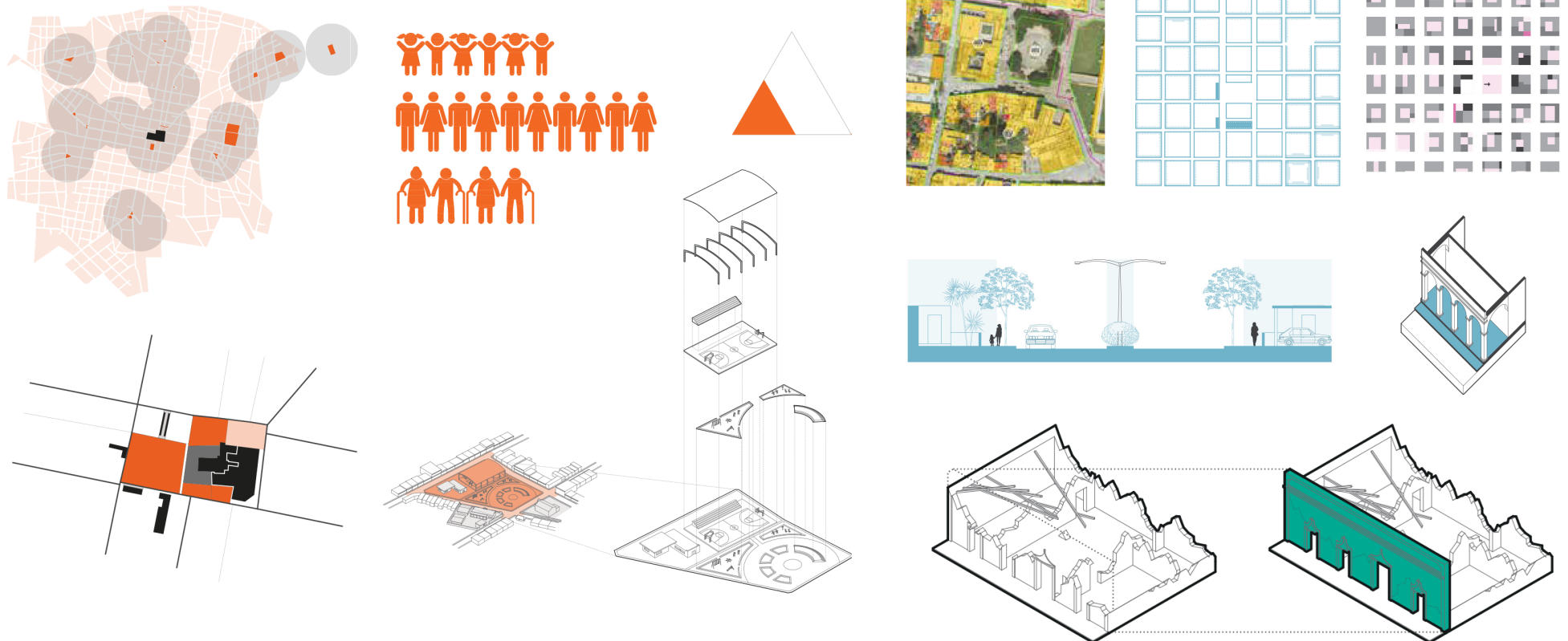
Collection of urban grids and administrative boundaries of the case studies in scale.



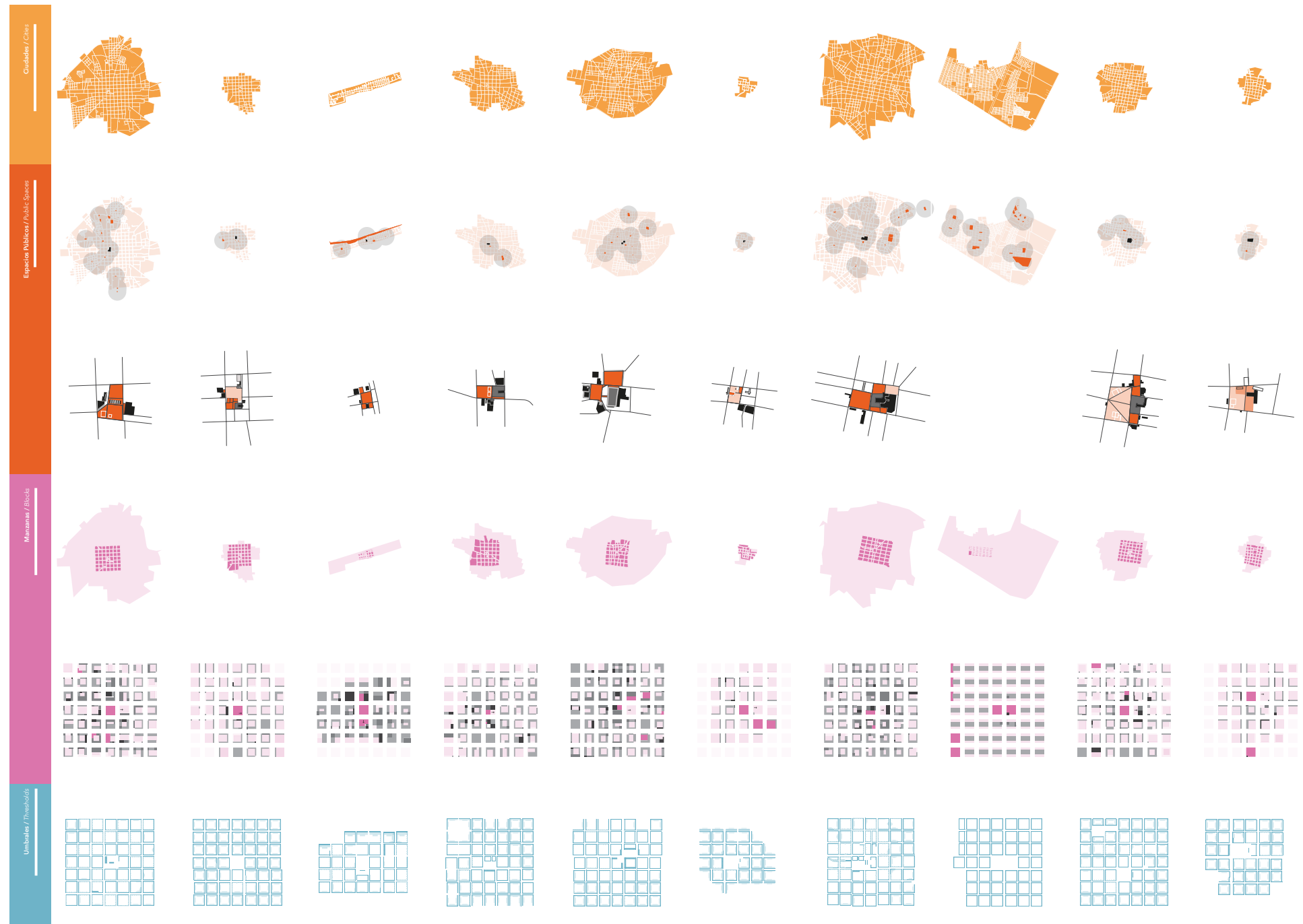
After the establishment of the conceptual framework, based on an initial categorization provided and redefined according to the site visits, the challenge of the research was to come up with a non-biased product, that could be understood by different stakeholders. By organizing the methodology and processing of data it is possible to engage a larger number of participants in the discussion. In this sense, the final product was divided in two: a web platform, to be publicly feed and consulted, and a publication, with the results taken from this phase of the process.



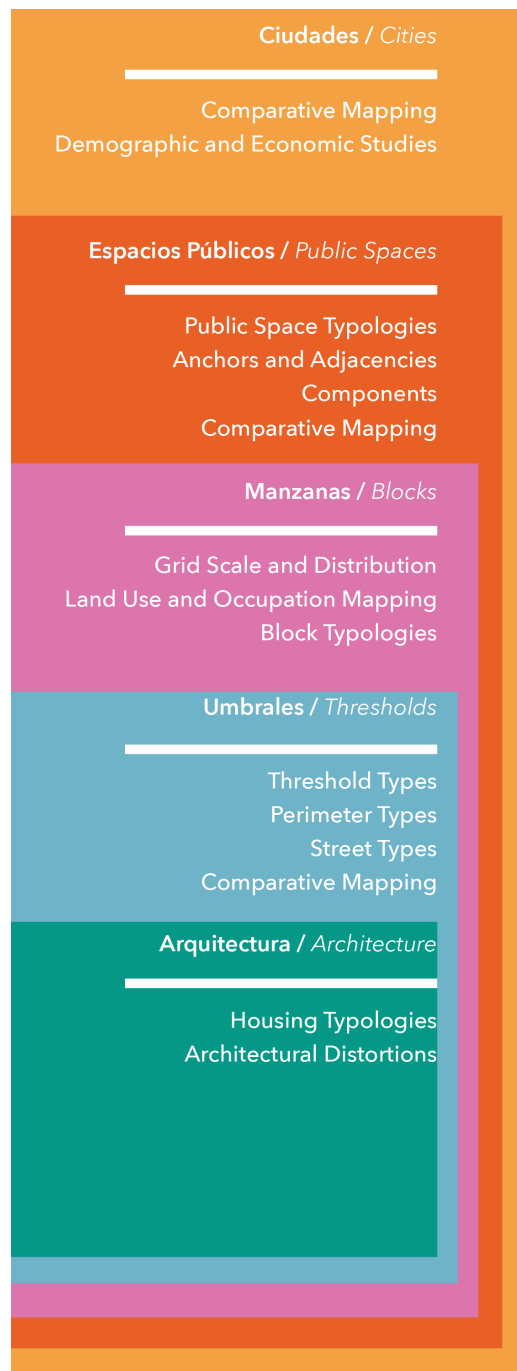
Organization of the field research



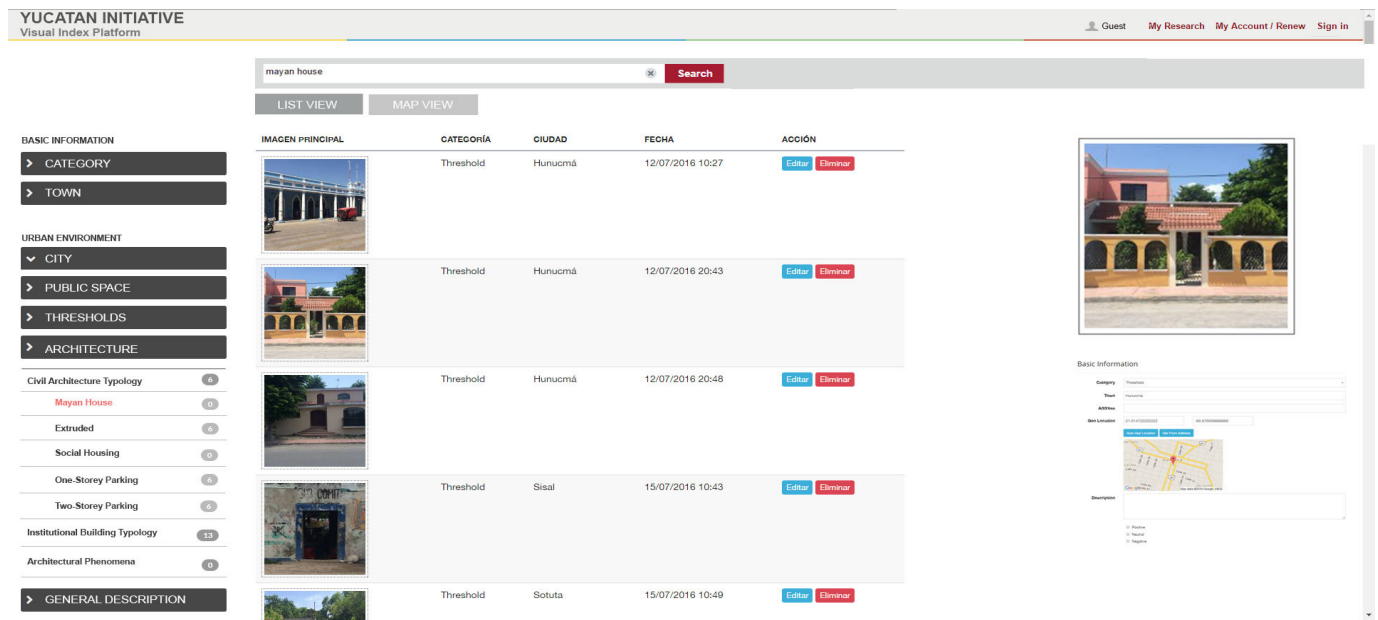
Visualization of the data by category



The teams of researchers were divided in four categories and developed their own methodology for field visit and data gathering based on an abstraction of the urban grid.



After each cycle, the collective process was revised.



PROPUESTA VISUALIZACION YUCATAN INITIATIVE
Vista "List View" con Filtros a la izquierda y Zoom-in con View Summary a la derecha

OUTCOME #1 - Web Platform + Database



OUTCOME #2 - Publication (including interpretation of data by the researchers)