PORTFOLIO

Ariel Noyman, PhD

Research Scientist, City Science Group, MIT Media Lab | noyman [at] mit [dot] edu | https://www.media.mit.edu/people/noyman/| ArielNoyman.com

Dr. Arch. Ariel Noyman is an urban scientist, working in the intersection of cities and technology. His research is on novel methods of urban modeling and simulation, and the democratization of data-driven design processes. In recent years, Noyman led and helped establish a worldwide network of City Science Living-Labs, in Hamburg, Andorra, Shanghai, Helsinki, and most recently in the Negev, in an effort to confront his research with real-world challenges. Noyman's work received awards from the European Commission, the OECD, the Chinese and the Israeli Gov., was featured by The Guardian, 60 Minutes, The New York Times and was displayed in exhibitions, conferences and summits worldwide. Today, Noyman is a Research Scientist at the MIT City Science Group, and a lecturer at MIT, Northeastern University, and Bezalel Academy Bezalel Academy in Jerusalem. Before coming to MIT, Noyman practiced architecture, urban design, and city planning for over a decade in the US and EMEA. Noyman holds a PhD and a Master of Science from MIT, and a Bachelor in Architecture (cum Laude) from Bezalel Academy in Jerusalem.

URBAN HUMAN COMPUTER INTERACTION (UHCI)

CITYSCOPE
An Urban modeling and Simulation Platform

FINDING PLACES
Consensus in Refugees Housing

BRT FOR BOSTON
Public Co-creation of Transit Systems

POWER/STRUCTURES
The Urban Form of Regulations

DEEPSCOPE
A Deep Image of the City

CITYSCOPE ANDORRA
Urban Performance through Telecom Data

ARCHITECTURE

MEUSEUM OF TOLERANCE
Simon Wiesenthal Center, Jerusalem

BEIT HA'IR
Tel-Aviv City Museum & Cultural Center

NATIONAL LIBRARY
The New National Library Complex, Jerusalem

ORDOS 100
"Twice House", Ordos, Inner Mongolia, China

NIBN
National Institute for Biotechnology, Israel

COMPETITONS

REPUBLIC
Pushkinsky Cinema Hall, Moscow

SEPTUME
Synagogue as a Place of Equality

THE 8TH SOUK
Dubai, UAE

STATION NO. 5
Society for Preservation of Israel Heritage Sites

URBANISM

THE NEW MEADOWLANDS
Post-Sandy Initative, NJ

RES/INDUSTRIAL
S. Boston Resindustrial District

FICTIONAL LANDSCAPES
Tel-Aviv Metropolitan Leisure Areas

KIVUTZ [SHRINKAGE]
The Nature of the Capitalist Kibbutz

WHAT CAN WE LEARN FROM CHINA?
Chinese Urbanism in Tel-Aviv

TEL, AVIV
Urban landscape for a Densifiyng Metro

URBAN HUMAN COMPUTER INTERACTION (UHCI)

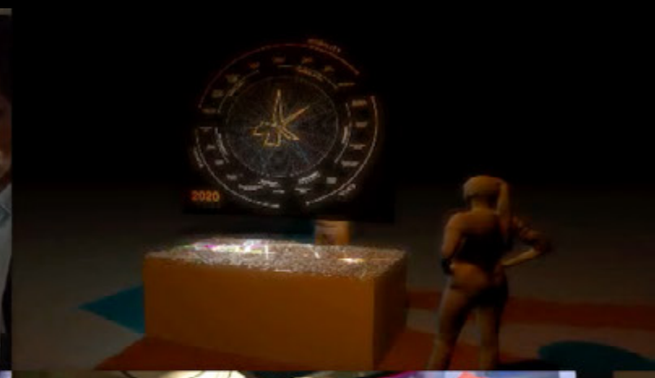
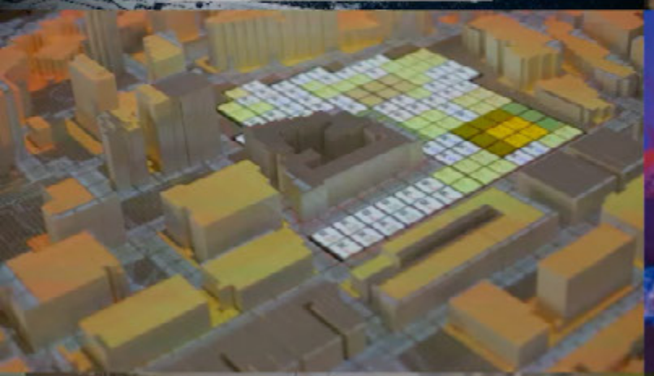
CITYSCOPE

An Urban modeling and Simulation Platform

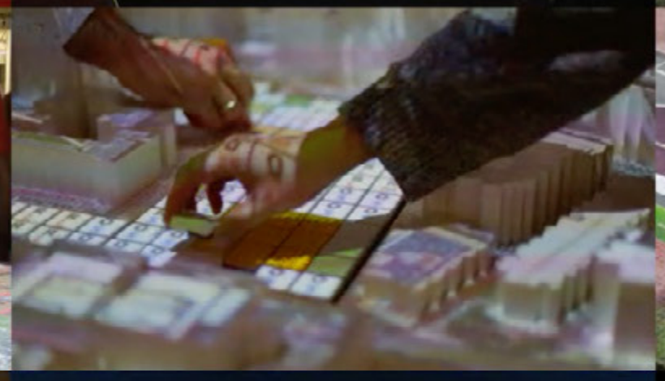
CityScope is an urban modeling, simulation, and decision-making platform. CityScope has diverse applications, including its involvement in projects such as refugee-housing allocation in Germany, prediction of tourist behaviour in Andorra, public safety in Guadalajara through crowd-sourcing, and mass-transit co-creation in Boston. CityScope contributes to inclusive urban planning across four key areas:
Insight: CityScope as an urban observatory, utilizing real-time spatial data and urban dynamics analytics.
Transformation: CityScope serves as a collaborative and iterative Urban Human Computer Interaction system, facilitating real-time engagement.
Prediction: CityScope enables urban forecasting and simulation of implicit aspects within the built environment.
Consensus: CityScope promotes collaborative decision-making involving diverse stakeholders and communities.

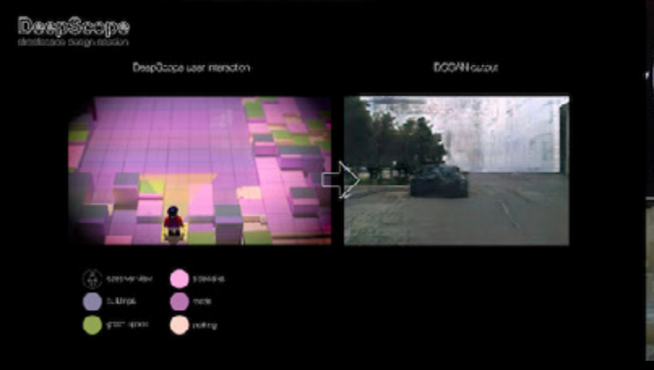
Location MIT City Science
Project duration 2013-2023



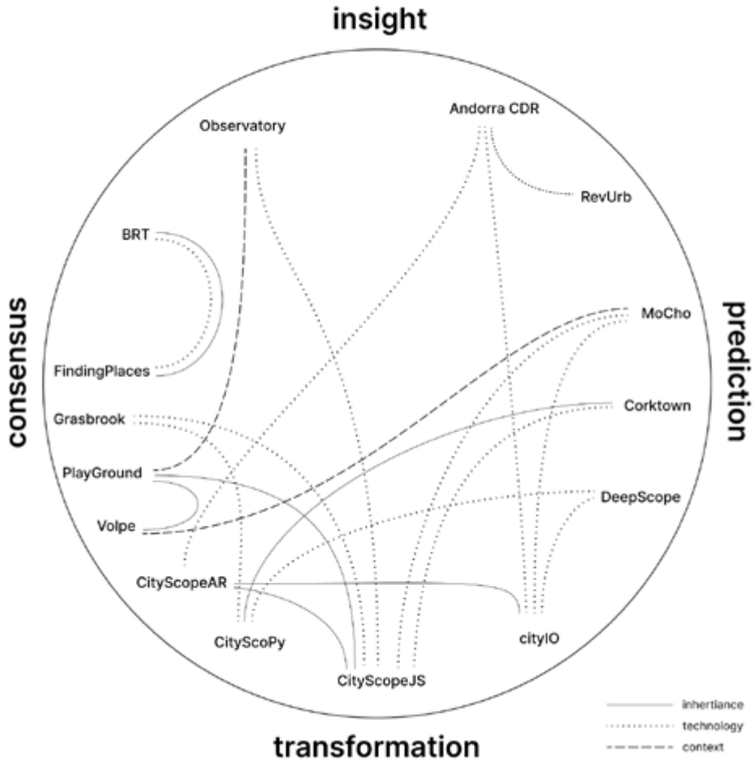


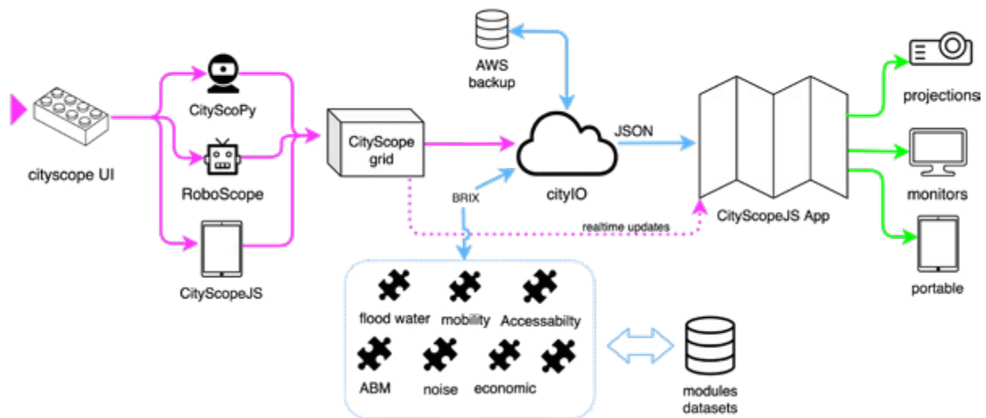







CityScope projects and deployments(from top left): Grasbrook, Boston BRT Neighborhood, Volpe, Champs-Elysees, Volpe, Urban Observatory, Andorra, csAR, MoCho, FindingPlaces, Volpe, Boston BRT Street, DeepScope, Volpe, Reversed Urbanism, MoCho





CITYSCOPE ECOSYSTEM

Relations between projects, publications, and deployments of the CityScope platform. In this diagram, projects are approximated to their corresponding theme through three types of relations: Inheritance: project was built upon the thematic ideas and learning outcomes of previous work; Technology: project made use of technological advancement achieved in prior work; and Context: project was built in a similar context (geographical location, time period, research question, etc.).

CITYSCOPE ARCHITECTURE

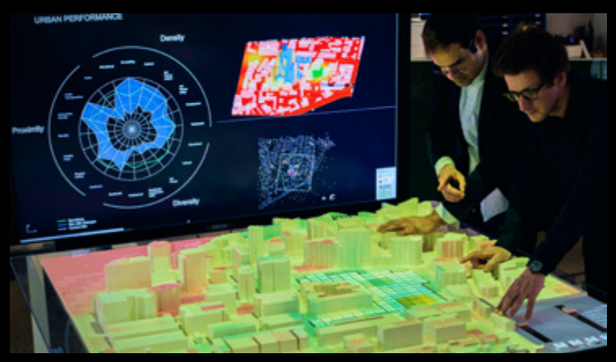
This diagram presents the data flow and different components of the CityScope architecture: (purple) Different modules control the inputs and CityScope Grid interaction; (blue) Upon interaction, cityIO VPC handles the transaction with different analytics modules; (green) When the computation phase is completed, the grid and analysis modules results are sent to output devices, either online (CityScopeJS, API), or on site (projectors, monitors)

CITYSCOPE VOLPE

Real-time Urban Performance Analytics Platfrom

This CityScope instance offers an observatory for different layers of urban information as well as a real-time scenario analytics. CityScope Volpe was designed to explore the impact of different interventions, both within the site and its surrounding context, with three primary objectives: (i) To communicate complex urban data and the inter-relationships between urban systems; (ii) To simulate the impact of urban interventions; (iii) To support decision making in an iterative process using a tangible interface.

Location Kendall Sq., Cambridge, MA
Project Year 2016-2018
Publication Cityscope: a data-driven interactive simulation tool for urban design - Use case Volpe. In International Conference on Complex Systems, pages 253–261. Springer, 2018.



FINDING PLACES

Consensus in Refugees Housing Accommodation

In late 2015, CityScope was used as a way to construct consensus in the context of the intensifying refugees crisis in northern Europe. “FindingPlaces” (FP) was a city-wide public engagement process that was created for the allocation of housing accommodation for thousands of refugee in the City of Hamburg, Germany. CityScope was in the center of the FindingPlaces process, offering a socio-technical solution to facilitate effective interaction between participants and stakeholder groups. Between May and July 2016, 34 workshops were held with nearly 400 participants, resulting with 161 sites being allocated for refugee housing all around Hamburg’s metro area. Following its completion, FP was awarded the UN-URBACT Good Practice Award (2017), named Global Innovation by the OECD Observatory for Public Sector Innovation (OPSI) and the Centre for Government Innovation (MBRCGI) (2018), and was exhibited at the Edge of Government summit in Dubai (2019). Site founded during FP are still in use by the City of Hamburg for current, as well as future refugee housing needs.

Location Hamburg, Germany
Project year 2015-2016
Team MIT City Science, HCU CSL

INAUGURATING FINDINGPLACES

On May 11th 2016, Olaf Scholz, (First Mayor of Hamburg ‘11-‘18, Chancellor of Germany since ‘21), inaugurated the project and invited the public to take active role in setting their city’s future:

“FindingPlaces brings together the knowledge of residents, authorities and geographers and makes it immediately usable. The participants in the workshops are in the position of informed city planners who have to deal with an extremely complex task. It’s not just any theoretical task, but the task that our city has to solve together: Which areas can we use to house refugees? FindingPlaces answers: This is your city! Here is your chance to examine whether what makes sense in theory, is also suitable in practice.”

(Excerpts from Olaf Scholz’s speech, May 11th ‘16, HCU)

A TYPICAL FINDINGPLACES SESSION

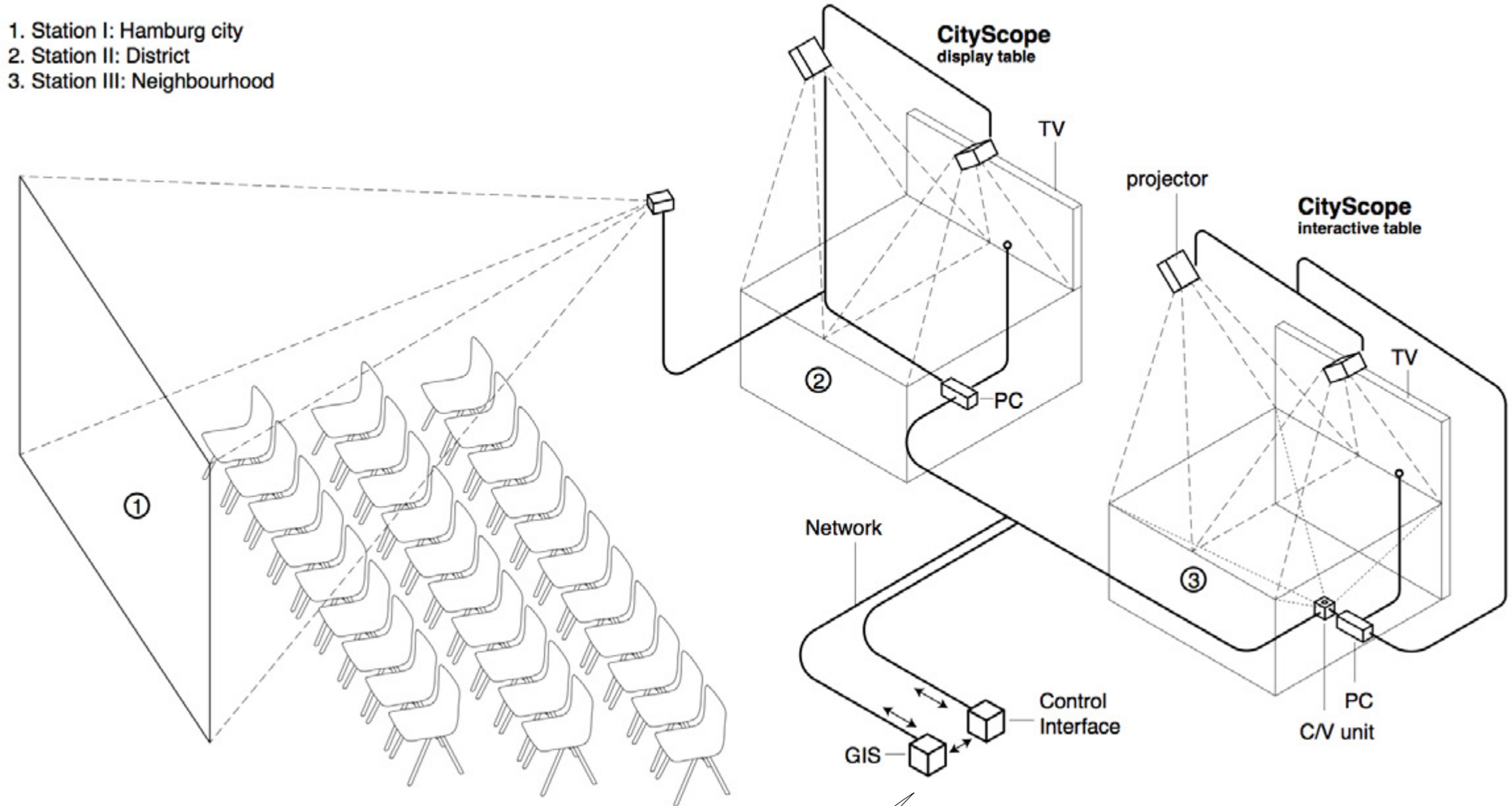
Groups of up to 20 participants were gathered in the HCU campus; After an introduction, participants were asked to use the first CityScope table, in order to discuss the current state of refugee accommodation in Hamburg (noticeable as blue dots). Additionally, they were introduced to the spatial limitations of accommodations in certain vacant areas, such as parks, playgrounds, and sports fields (marked in different hues of red).
Photo: W. Schieswohl, HCU

REFUGEES IN GERMANY, 2015

The influx of refugees and asylum-seekers during ‘15-‘16 brought the German Government and local municipalities to seek quick solutions: Under-used facilitates, such as Berlin’s Tempelhof Airport, were transformed into refugee camps; In Hamburg, tent-cities were constructed and empty properties were re-used in an effort to accommodate thousands of refugees. In most cases, these solutions could only offer short-term remedy, but were not suitable as long-term accommodations. Photo: C. Charisus, DW.com

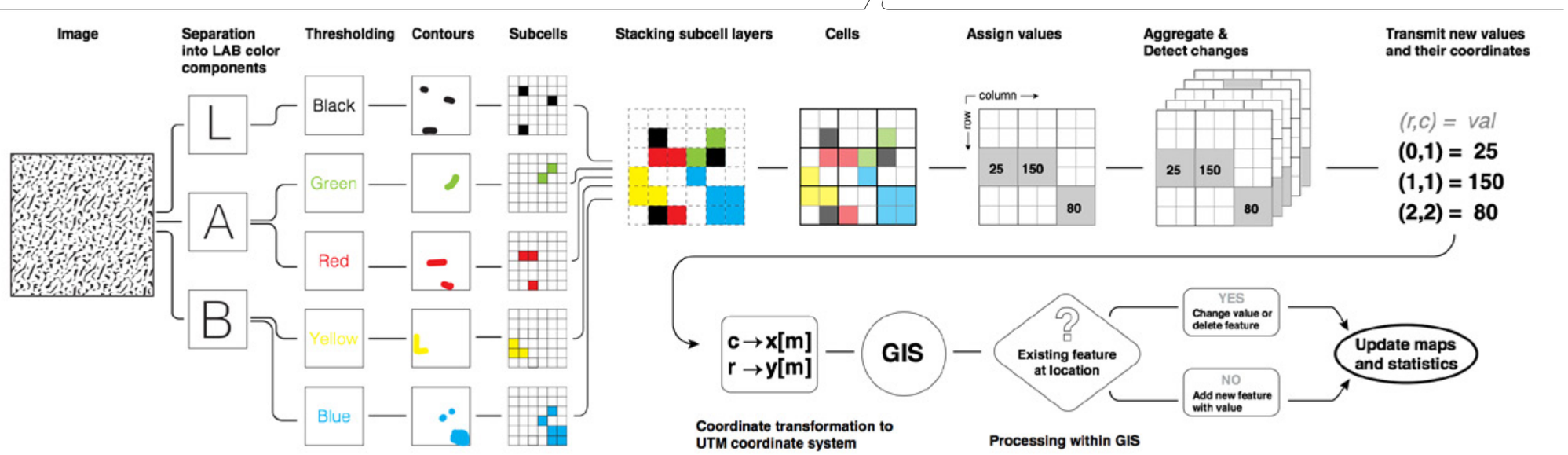
CITYSCOPE FINDINGPLACES SETUP

FindingPlaces was the first interconnected CityScope system that linked user-interactions and data from multiple instances, and utilized it in all other places. This created a sense of continuation between the different Stations, as participants could observe their previous actions reflected in other stations.



TUI AND SCANNING

FindingPlaces TUI Scanning Module: Processing of a video frame to GIS query. FindingPlaces utilized 4 webcams to capture the overall table state; The captured image would then be processed to allocate colored tiles, and project them onto a geographic coordination system. Finally, tiles found to match a designated site would add or subtract housing capacity in that area, thus affecting the overall housing count.

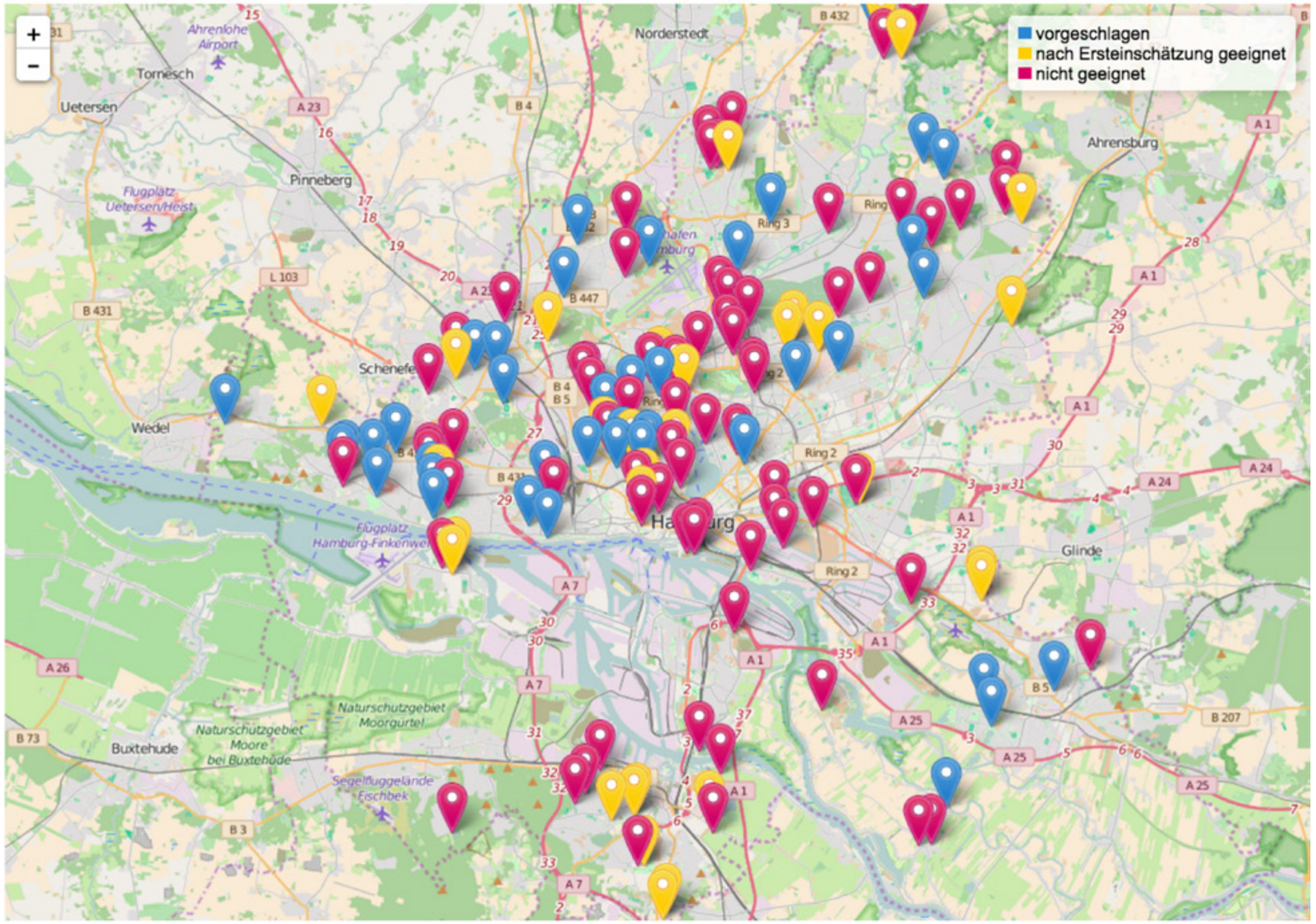


FINDINGPLACES RESULTS

The map marks the total places found by community members. The colors present ‘suggested to approval’ (blue), ‘to be further investigated’ (yellow), or ‘not suitable’ (red). Importantly, the map demonstrates the rather equal distribution of places found by the general public, which solidifies the sense of general acceptance of asylum seekers amongst diverse neighborhoods. (bottom) Breakdown of results per each administrative district.

PARTICIPATION & ENGAGEMENT

(right) FindingPlaces CityScopes were designed as a literal common-ground, in which technology is only set to encourage a vibrant public discourse. The tables were sized to accommodate a large number of participants, and the groups were able to interact freely with the system. Extra effort was made to ensure disabled and elderly participants were not disadvantaged.



	Bergedorf	Eimsbüttel	Hamburg-Mitte	Hamburg-Nord	Harburg	Wandsbek
workshop participants	13	76	55	56	29	43
areas proposed	11	27	23	23	21	24
verifed as "suitable on first assessment"	0	5	7	3	13	11
areas verifed as"unsuitable"	11	22	16	20	8	13
accommodation places assessed as suitable	0	1180	1310	620	1010	1840

NEIGHBORHOOD SCALE

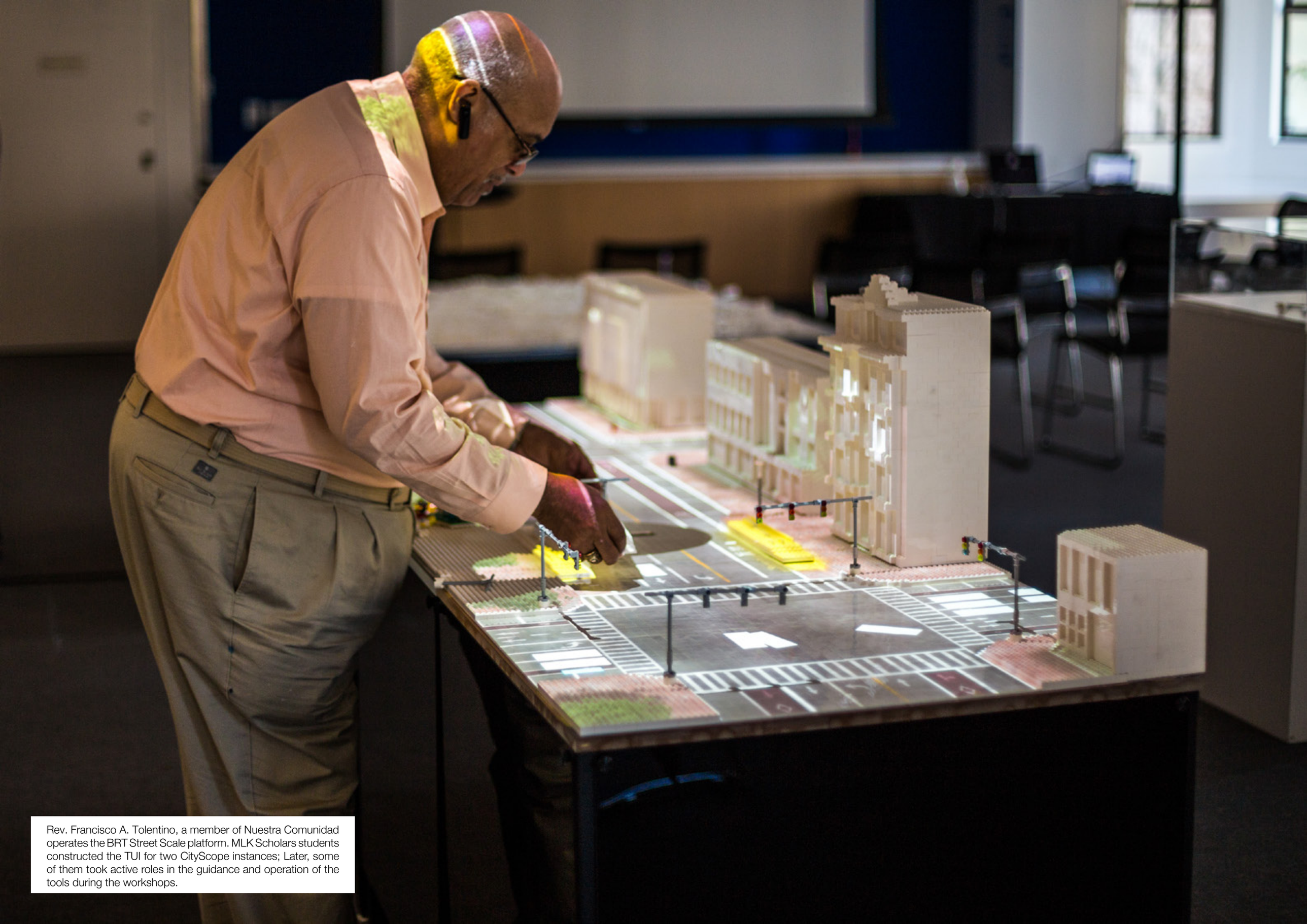
After observing the regional scale, a chosen focus area was projected on an interactive CityScope, in which participants were able to identify details such as buildings, parks or playgrounds. By placing a marker piece onto a parcel, the potential accommodation capacity for the site was indicated. Additionally, area, planning regulations, and restrictions such as nature conservation, biotope, or high-voltage lines, were presented. When participants reached a consensus and identify a location suitable for refugee accommodation, another marker piece was placed on the TUI, indicating the number of accommodation places (40 - 1,500); the screens and the CityScope at the Hamburg and district-stations were also displaying the location of the suggested parcel

BRT FOR BOSTON

Consensus and Co-Creation of Transit Systems

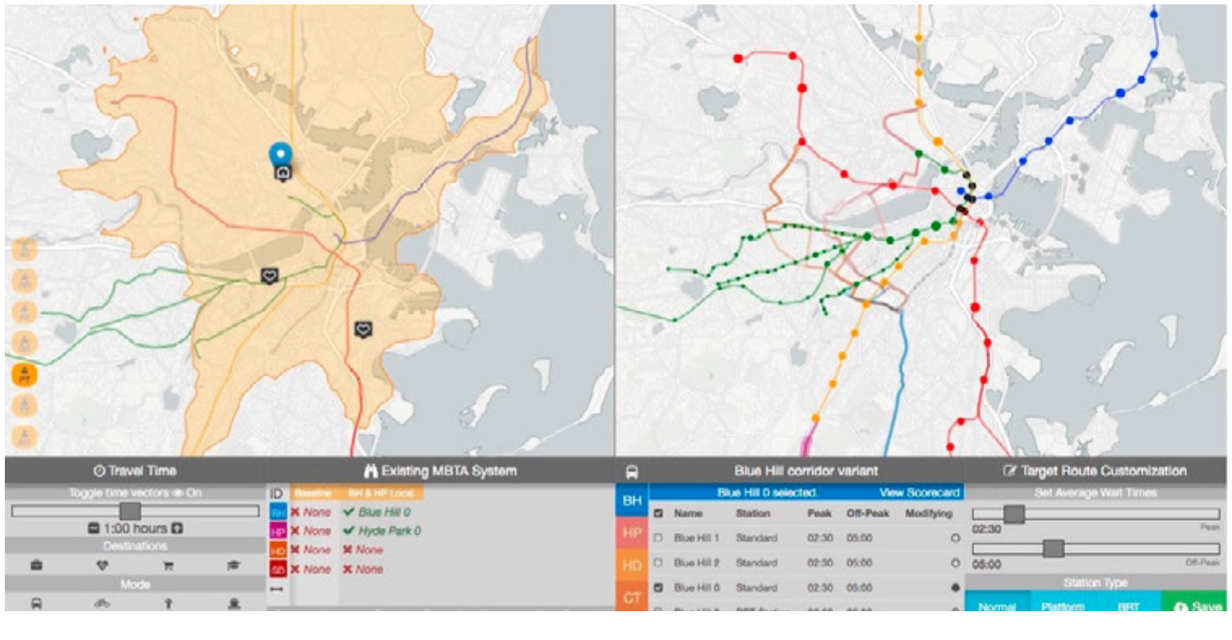
The development of improved transportation systems, particularly in undeserved communities, is a community engagement challenge. With many members of the public generally skeptical of government's ability to generate viable solutions, transport agencies and community organizations have been looking for ways to engage the general public on project proposals. With support from the City of Boston and the Barr Foundation, CityScope BRT proposed several interactive urban-planning tools to explore the potential for implementing new Bus Rapid Transit (BRT) in different parts of the City of Boston. Three tools were devised for the exploration of multiple urban scales: the regional, neighborhood, and street level. Partnering with Nuestra Communidad, a local community organization, the tools were deployed in a public participation process, which was designed to test the potential benefits of CityScope as an alternative medium for community planning, co-creation, and learning.

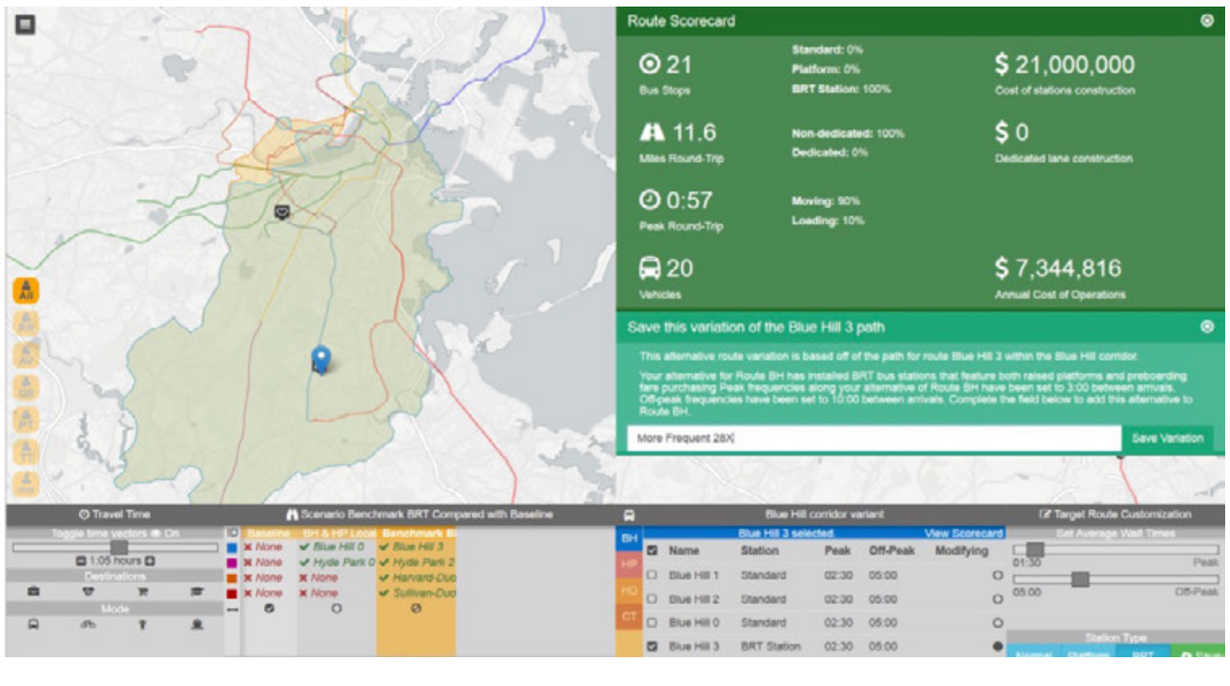
Location Roxbury, Boston, MA
Competition year 2015-2016
Team MIT Department of Urban Studies and Planning, MIT Media Lab, Nuestra Communidad, Barr foundation, Roxbury Innovation Center.



Rev. Francisco A. Tolentino, a member of Nuestra Comunidad operates the BRT Street Scale platform. MLK Scholars students constructed the TUI for two CityScope instances; Later, some of them took active roles in the guidance and operation of the tools during the workshops.

Regional (bottom) **and local** (top) **scales**
UI reflected results from the Conveyal accessibility service, including assessed travel time, access to different amenities and functions, as well as estimated cost change





Street scale and CityScopeAR BRT
As users interact with the TUI (top), both the projection and AR device (right/bottom) update information about the impacts of the different BRT tiers, including travel time, emission, and parking

The many faces of public participation

Key aspect of this project was the engagement of stakeholders and the general public in every phase, from initiation and design to execution and evaluation.

JUN 2015
Beta test with stakeholder leaders

AUG 2015
Boston youth build LEGO model

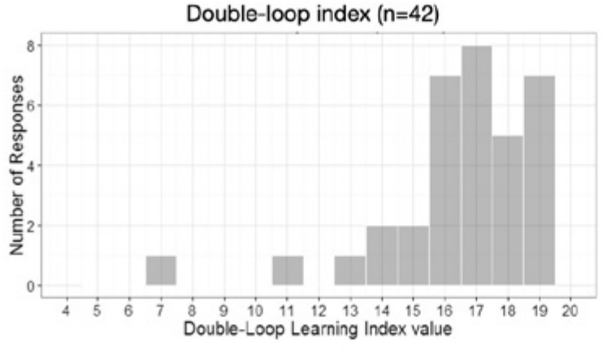
SEP 2015
Facilitator input and training

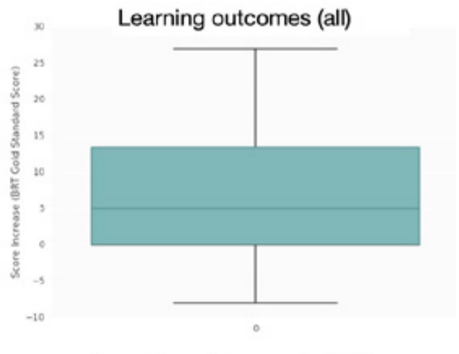
OCT 2015
Six public workshops

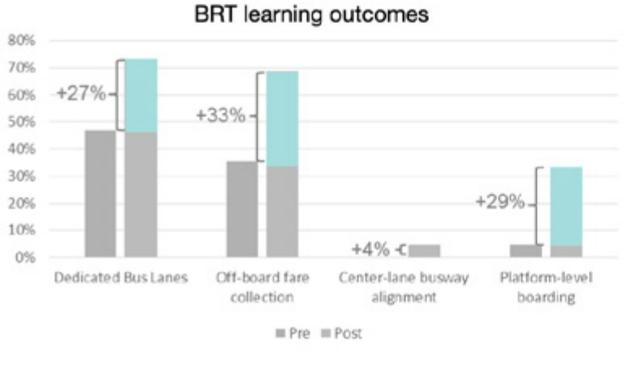
MAR 2016
Community follow-up

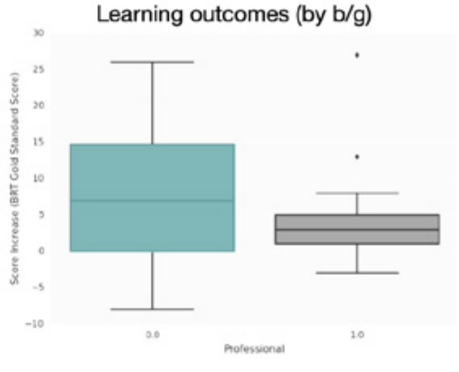
Results from entry & exit surveys

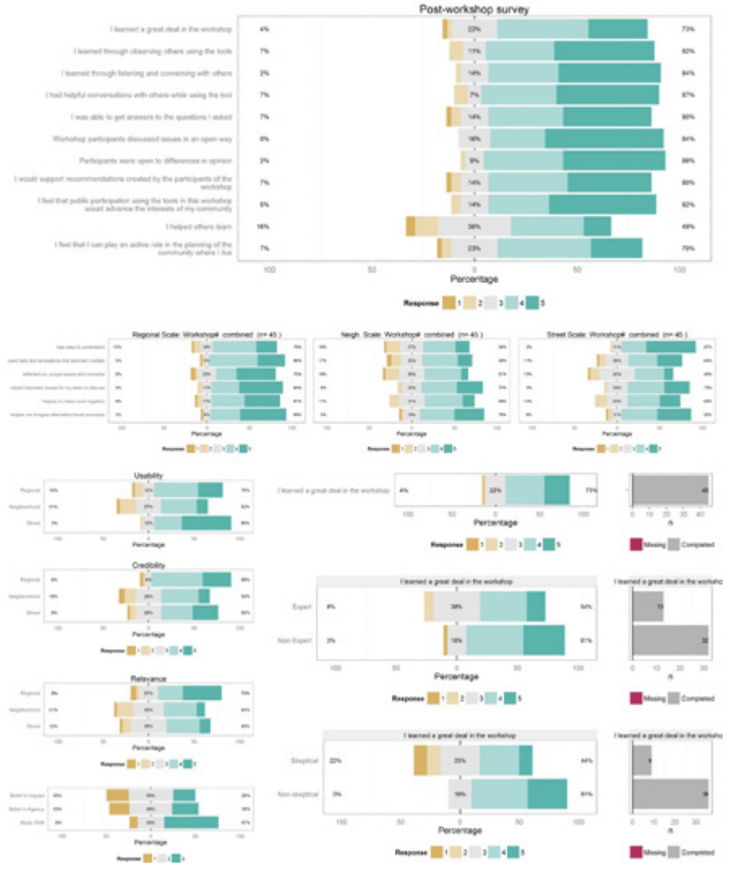
Participants reflected on their learning outcomes and attitudes towards the BRT system in comparison to their initial perception. They rate each of the CityScope tools as well as cumulatively evaluate their learning from the overall experience.





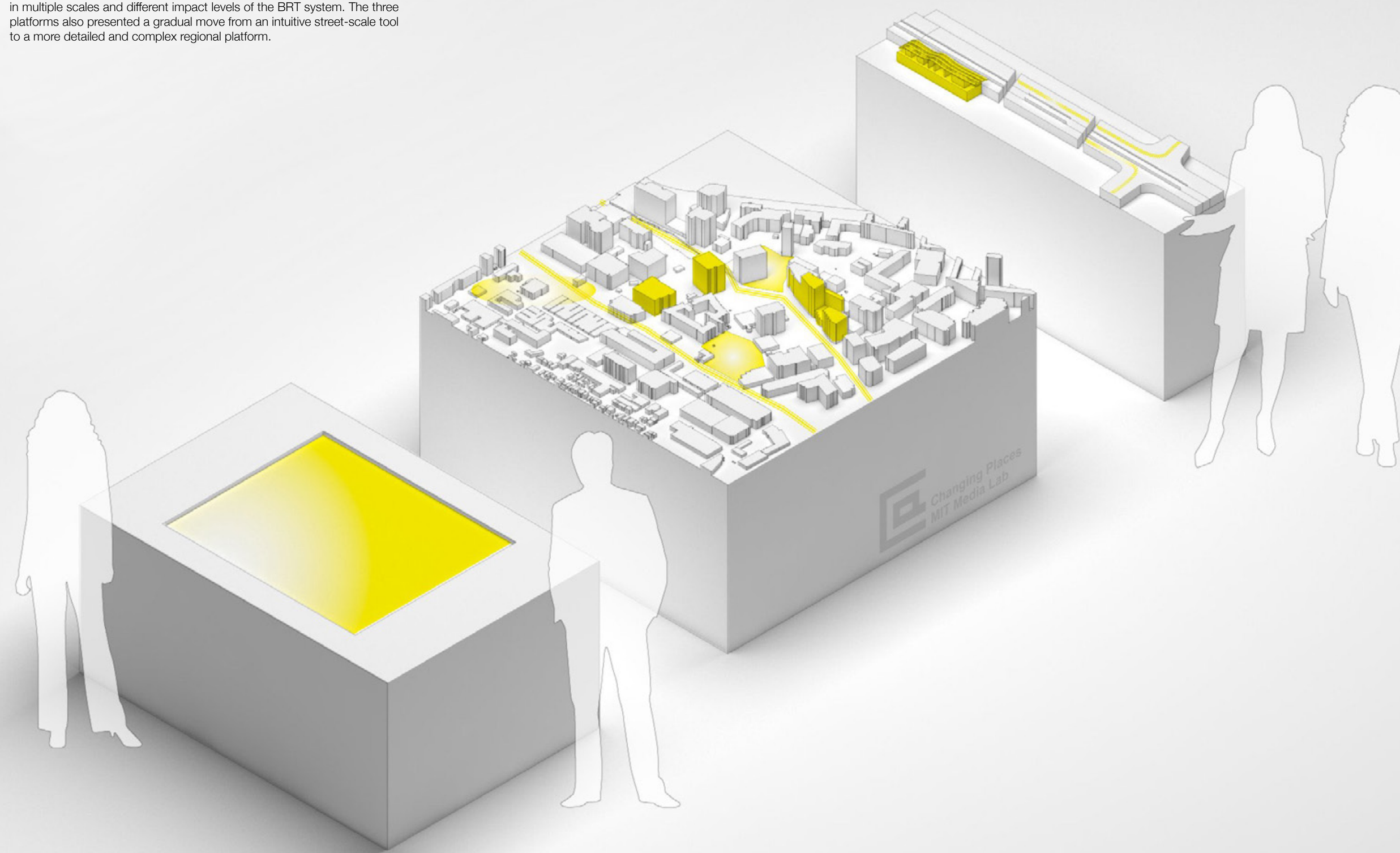






CITYSCOPE BRT PLATFORM

Three CityScope instances were designed to allow simultaneous discussions in multiple scales and different impact levels of the BRT system. The three platforms also presented a gradual move from an intuitive street-scale tool to a more detailed and complex regional platform.

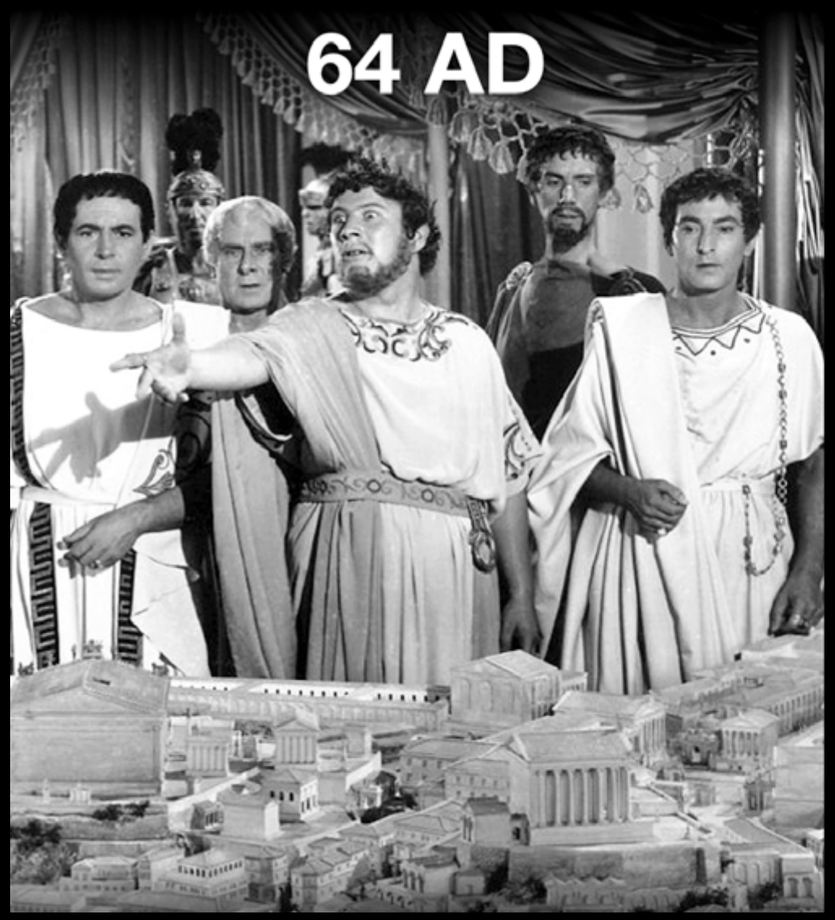


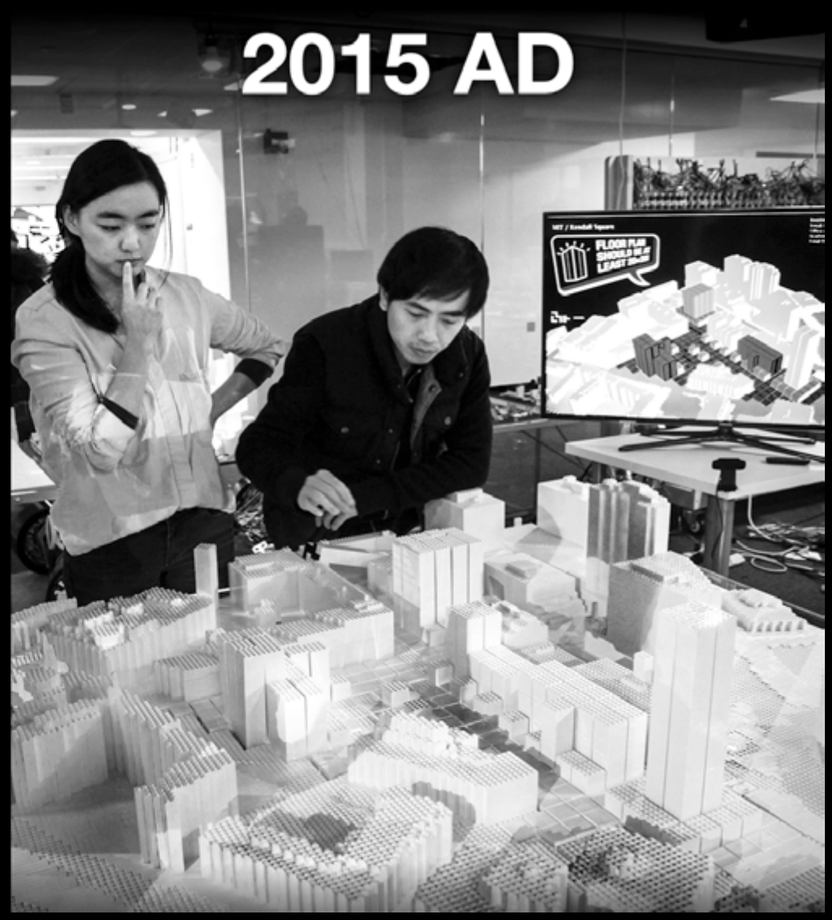
POWER/STRUCTURES

The urban Form of Regulation

This work examines user engagement and decision-making in the context of urban-regulations and zoning. The objectives of this study are twofold: (i) to examine user interactions with tangible user interfaces for urban-planning, and (ii) to investigate stakeholders' engagement and decision-making using these tools. This observational study was conducted with a representative sample of users from different backgrounds. These were invited to examine the usability of a CityScope variant developed in 2015, called 'Playground'. A comparative analysis of different approaches examined the users' interaction and decision-making using CityScope, in comparison to traditional planning aids.

Location Kendall Sq., Volpe site, Cambridge, MA
Project year 2014-2015
Publication PowerStructures: The Urban Form of Regulation [Master's dissertation] Massachusetts Institute of Technology, Boston MA. United States, 2015.



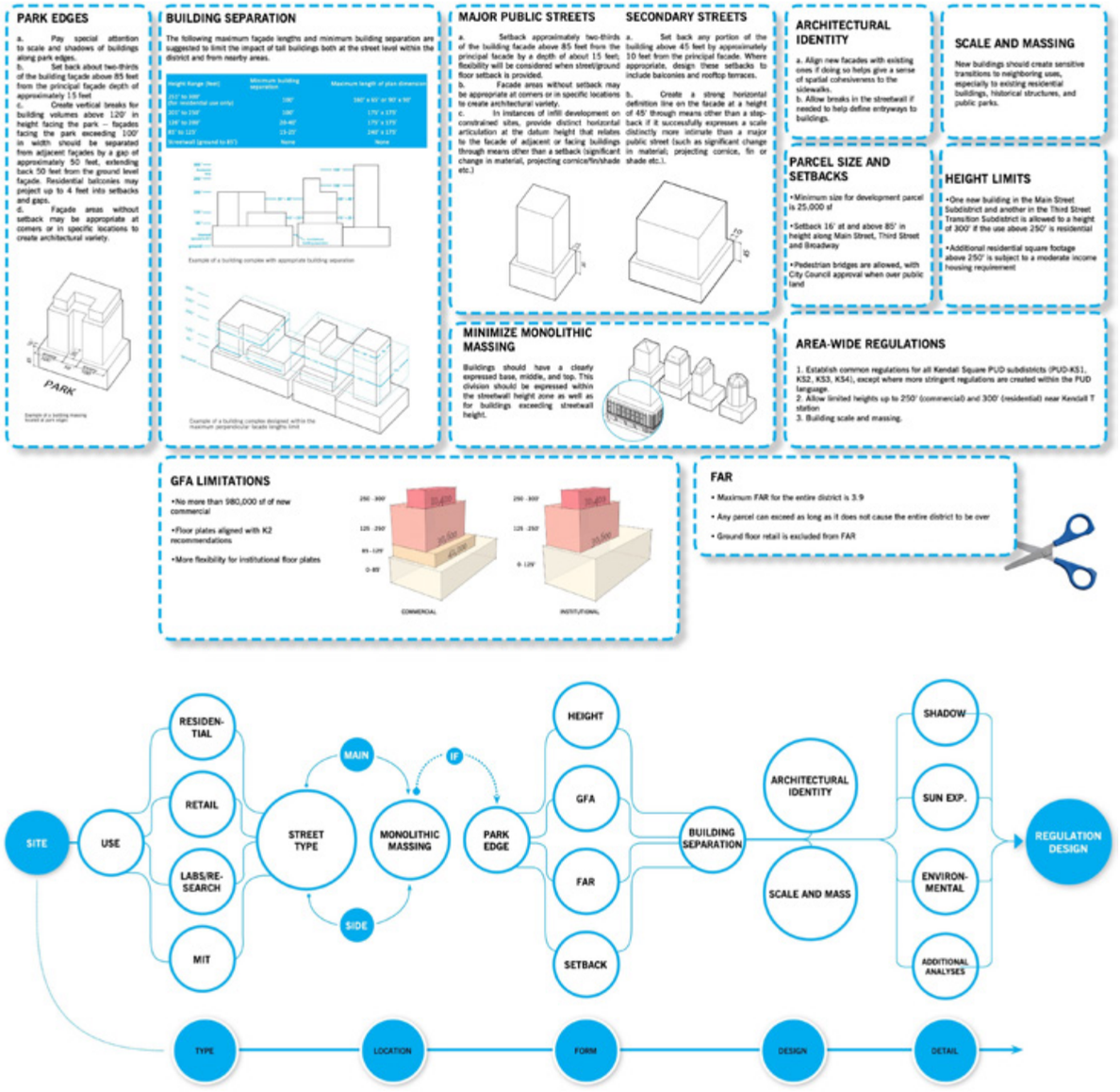


Top Down -> Citizen Expert

In complex decision-making processes, stakeholders from varying backgrounds and expertise are involved. The existing frameworks for city-planning are often designed around certain professional audiences (e.g., planners and architects) and are usually less accessible to a wider scope of users

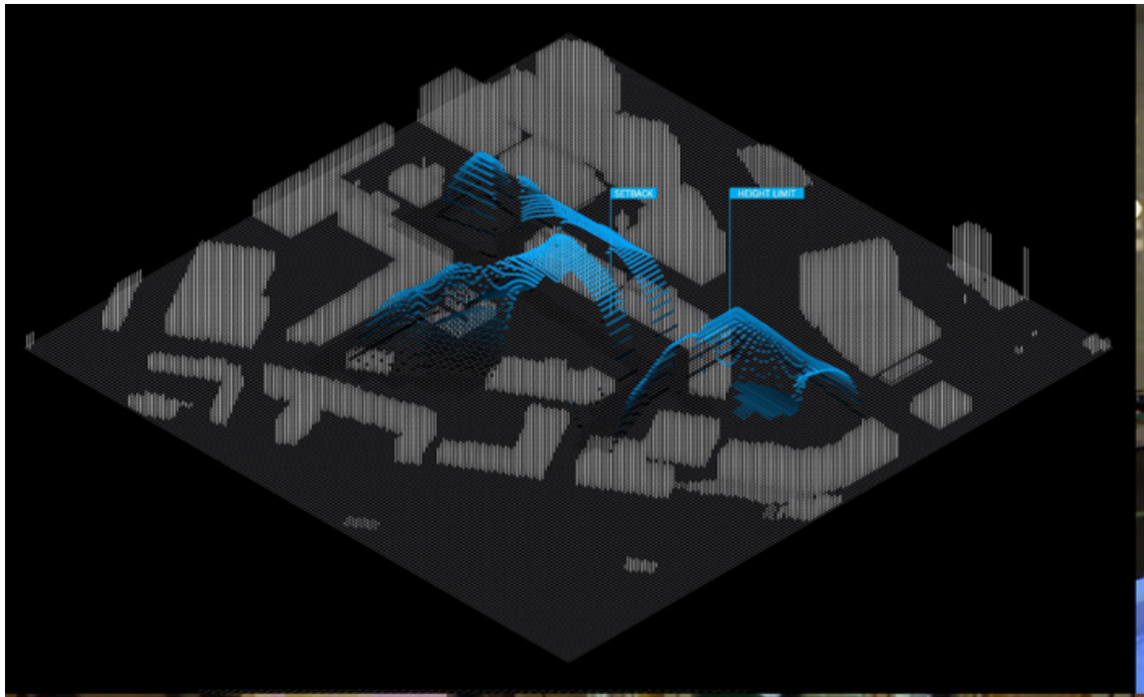
CityScope Playground

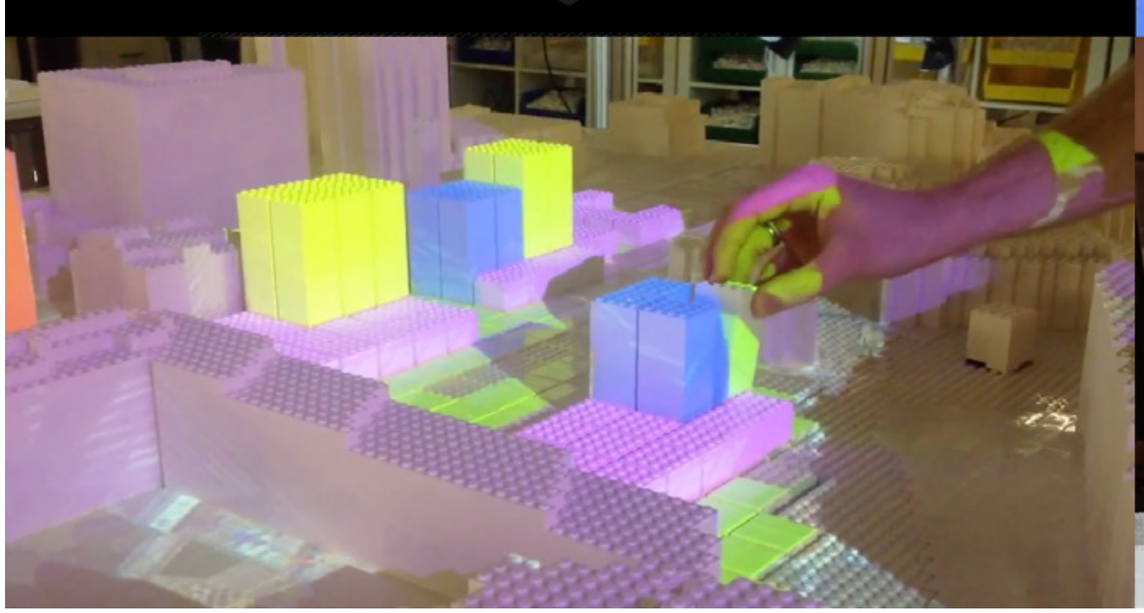
(top) Overview of the complete system, including the TUI, feedback module, and the ‘Bank’. (bottom) The TUI in use during the experiment. Users can collaboratively interact, discuss, and improve their design based on feedback from their peers and the system’s responses.

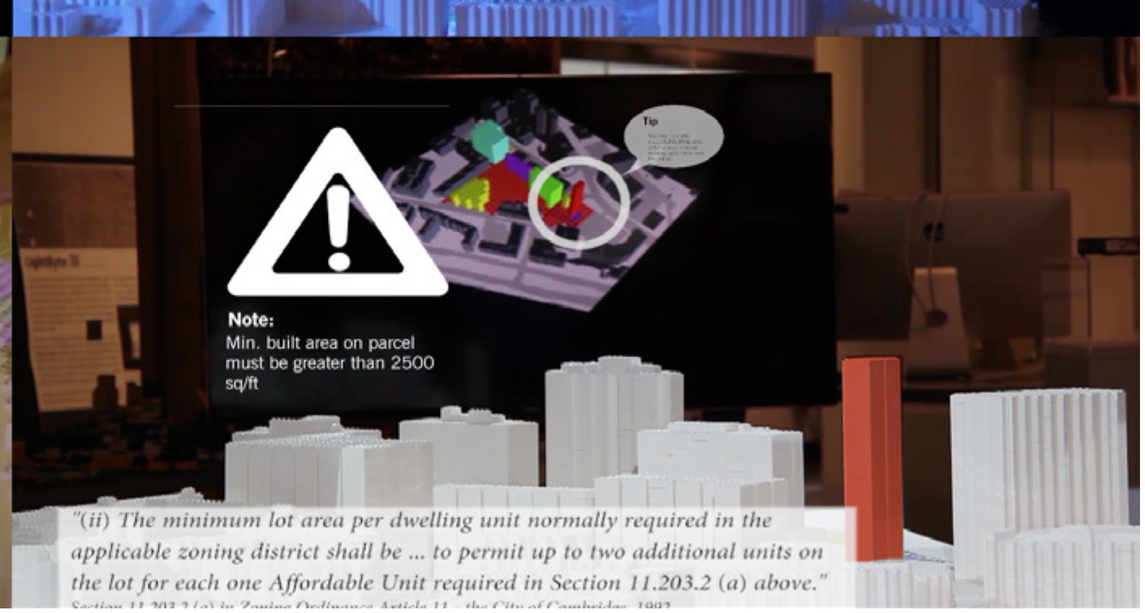


The ‘Zoning Simulator’

(from the top) A subset of the zoning amendments proposed for this site was used for modelling the platform. The zoning codes and building regulations were converted to logical methods (center), and then linked to other methods to evaluate each design proposal. Finally, the results of the simulation was visualized (bottom).







User interaction, Simulation Feedback

As users interact with the TRP, the system evaluates the design based on the zoning simulator module. As users progress with their spatial design, the system highlights violations of the zoning-laws and building-codes, allowing the user to align their design or otherwise challenge the zoning rules.

theguardian

Lego: can this most analogue of toys really be a modern urban planning tool?

MIT CityScope: Beta testers use CityScope to explore the feasibility of placing new buildings in Kendall Square (Cambridge, Massachusetts). Photograph: MIT Media Lab

The answer might be found in Cambridge, Massachusetts, where MIT's CityScope has created what managing director Ryan Chin calls an "urban observatory". It's a 30x60in Lego model of the city's Kendall Square, on to which research scientists project digital data. For example, geolocated Twitter feeds from people working and studying in the real Kendall Square are mapped on to buildings; traffic information is projected on the brick roads. The idea, explains Chin, is to get a sense of how people live and work in the city. "We can look at flows of traffic, goods and people, and flows of energy," he says. "What are the passive solar gains on a building? What are the shadows cast from a building on to a roadway?" Details about household sizes, population numbers and walkability can be programmed to provide, as he puts it, "a finely grained geospatial view of where things are happening in cities".

Lego: can this most analogue of toys really be a modern urban planning tool?

The Guardian, Craille Maguire Gillies, 2014

DEEPSCOPE

A Deep Image of the City

Urban-design renderings and streetscape visualizations are commonly used by designers, stakeholders, and decision-makers to assess future design. These visual aids can clarify the outcomes of design decisions, such as zoning, building codes or land-use allocations, and can affect urban development for decades to come. Yet despite major advancements in computer graphics, rendering, and visualization tools, crafting quality urban visualizations is still a complex, lengthy and costly task. This work introduces DeepScope, a CityScope module for real-time urban-design visualizations. DeepScope utilizes a Generative Neural Network (DCGAN) designed for real-time feedback. The rest of this section details the design and the implementation of DeepScope.

Project year 2019
Publication Deepscope: HCI platform for generative cityscape visualization. In Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems, pages 1–9, 2020.

"To understand the role of environmental images in our own urban lives (...) we needed to develop and test the idea of imageability"

- K. Lynch

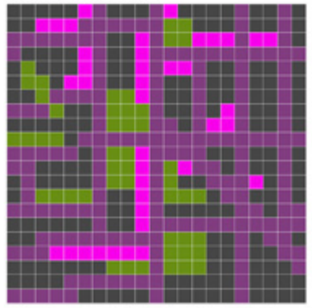
From interaction to prediction

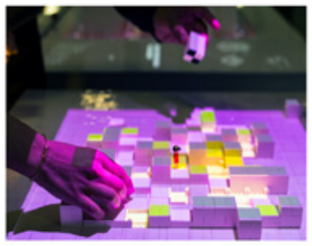
(left) This process depicts site selection, conversion to CityScope Schema, interaction, and prediction using the DCGAN model.

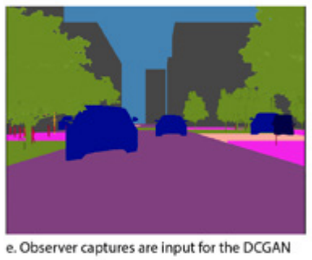
(right) TUI interactions are captured using OpenCV and streamed to the webGL app. A 3D model is created based on the grid's JSON array and the Observer viewing angle. Lastly, a snapshot image is fed as an input vector to the DCGAN model. (1) Observer position (2) Observer view angle and FOV cone (3) Observer's 3D street-view as input for DCGAN (4) DCGAN model prediction of street-view (5) TUI interactive grid.


a. Urban landuse map


b. Selected design area


c. Landuse converted to DeepScope labels


d. DeepScope TUI and "Observer"


e. Observer captures are input for the DCGAN


f. DCGAN Streetview perspective output

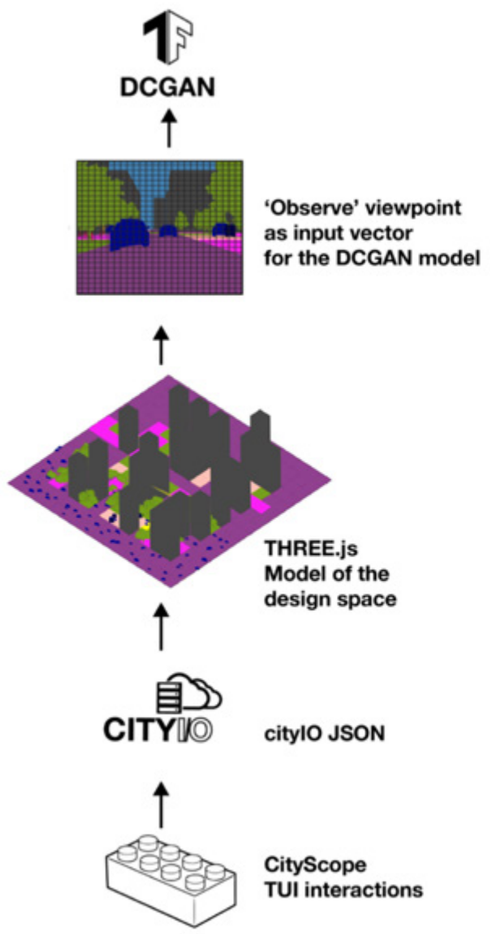
Cityscapes
Edited dataset

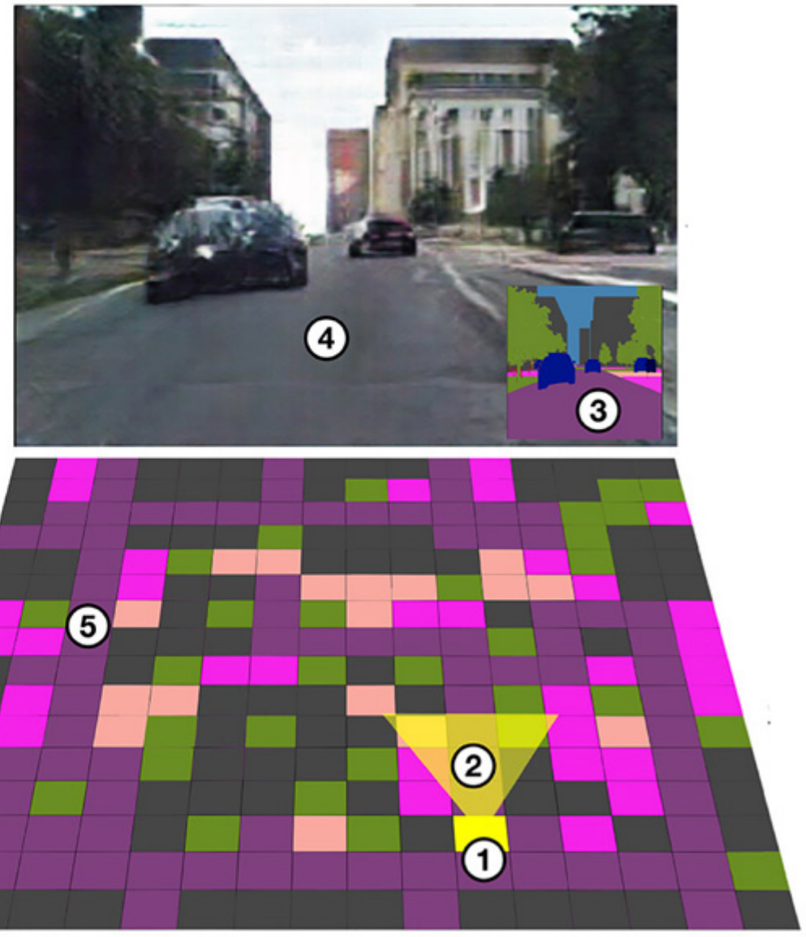
DCGAN
Pix2pix at 16/32/64 filters

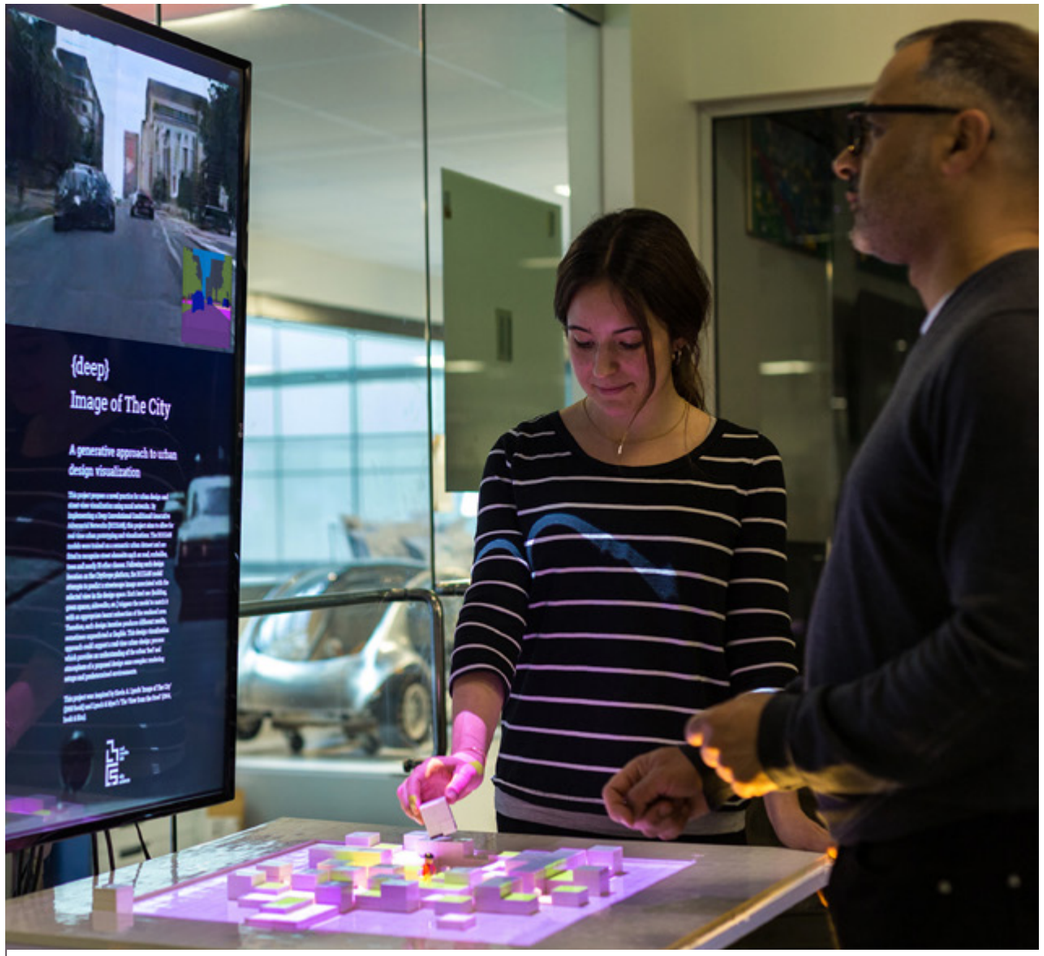
Keras API
Train/test on VM GPU

TFjs
Model

Node.js
Model Host Service





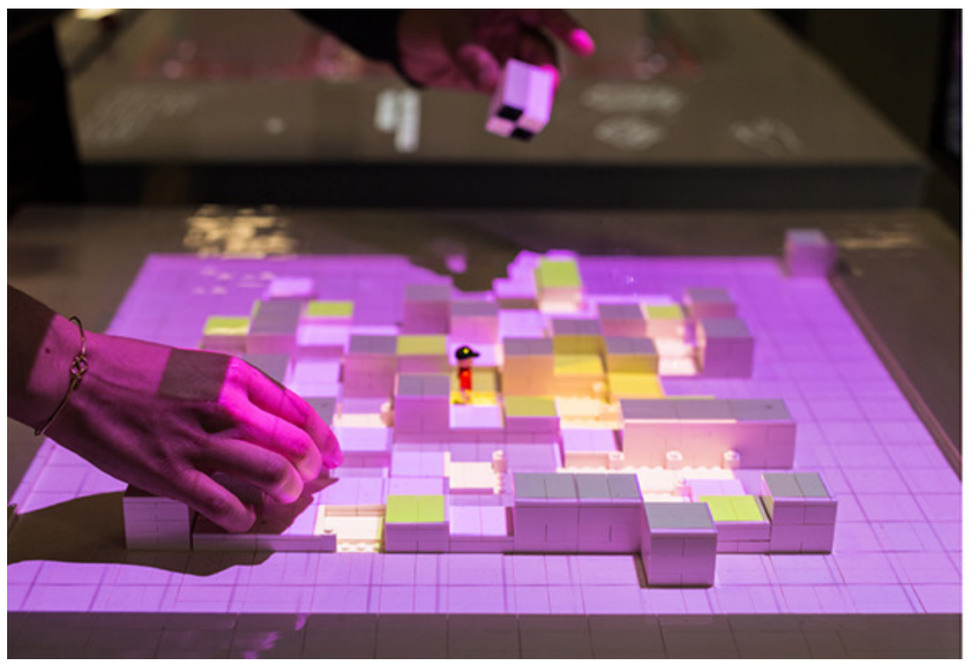


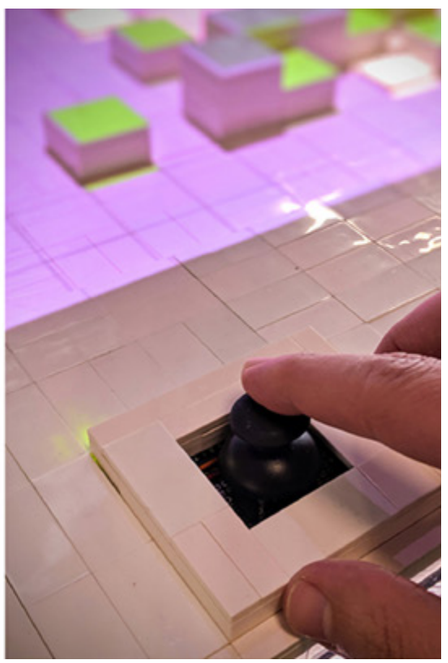
Multi-user interaction with DeepScope

Multiple users can simultaneously interact and discuss urban-design iterations. The table-top is used as both the design space and a schematic urban top-view. The vertical monitor visualizes the DCGAN street view.

DeepScope TUI

(top) TUI and the Observer tile. (left) User interaction with grid-cells. (right) ‘Observer’ viewing angle, depth and position is set via an Arduino game-pad





CITYSCOPE ANDORRA

Urban Performance and Behavioural Patterns Inference through Telecom Data

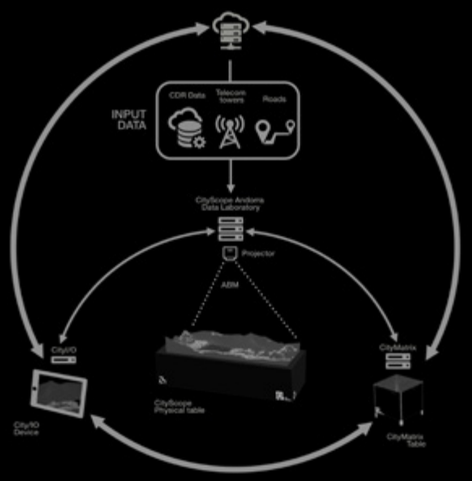
As part of the collaboration with the Andorran government, a set of tools to analyze, visualize, and extract insights on large public events were created. (1) A data-visualization platform that (i) models the trajectories of large amount of individuals and visitors in several public gathering in Andorra's major cities, (ii) use Agent Based modeling (ABM) to analyze these patterns, and (iii) extract relevant insights and conclusions from these insights. (2) Using Radio Network Controller (RNC) data, two statistical models were developed to explore the relationship between the physical features of Andorran cities and the discrete behavior of its residents and visitors. These models highlighted various dependencies and detractions between certain urban-design settings, and human behavioral patterns. (3) An Augmented Reality subsystem was designed to allow users to observe spatial, ABM, and interventions data. The AR subsystem collects data from several sources: (i) Raw telecom data (CDR OD matrix), (ii) Existing built environment, (iii) Real-time 3D representation of design and planning iterations, and (iv) Mobility analysis.

Location Andorra La Vella, Andorra
Project year 2015-2019
Publications
Reversed urbanism: Inferring urban performance through behavioral patterns in temporal telecom data. Environment and Planning B: Urban Analytics and City Science, 46(8), 1480-1498.
CityscopeAR: urban-design and crowdsourced engagement platform. arXiv preprint arXiv:1907.08586 (2019).

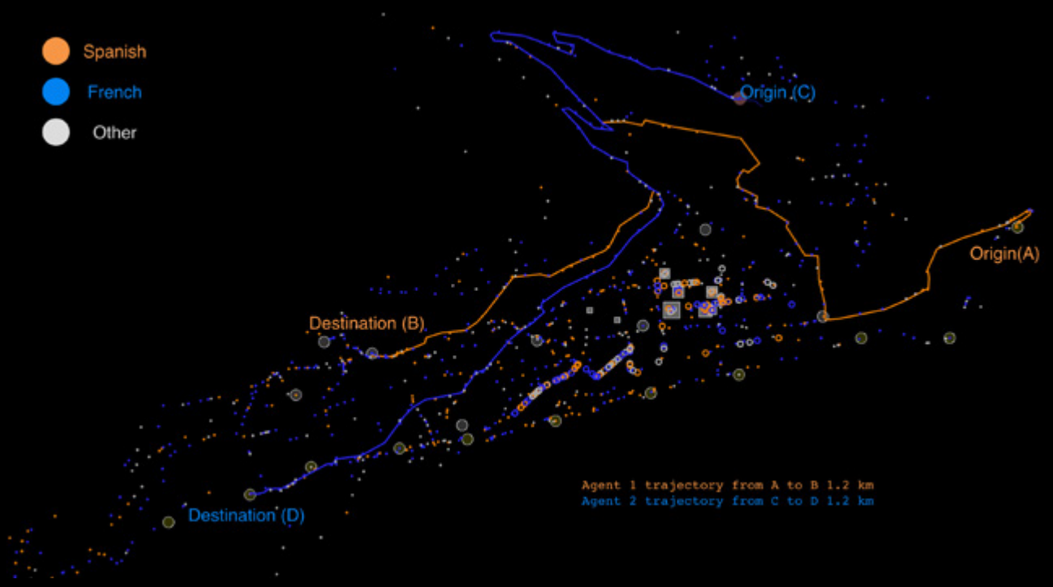
CityScope Andorra at the City Science Lab in Caldea, Andorra la Vella. Built in 2016, this platform was one of the first to serve as an interactive, real-time tool for urban decision making. Here, a user interacts with a Tangible User Interface to assess the impacts of different interventions in the city center.

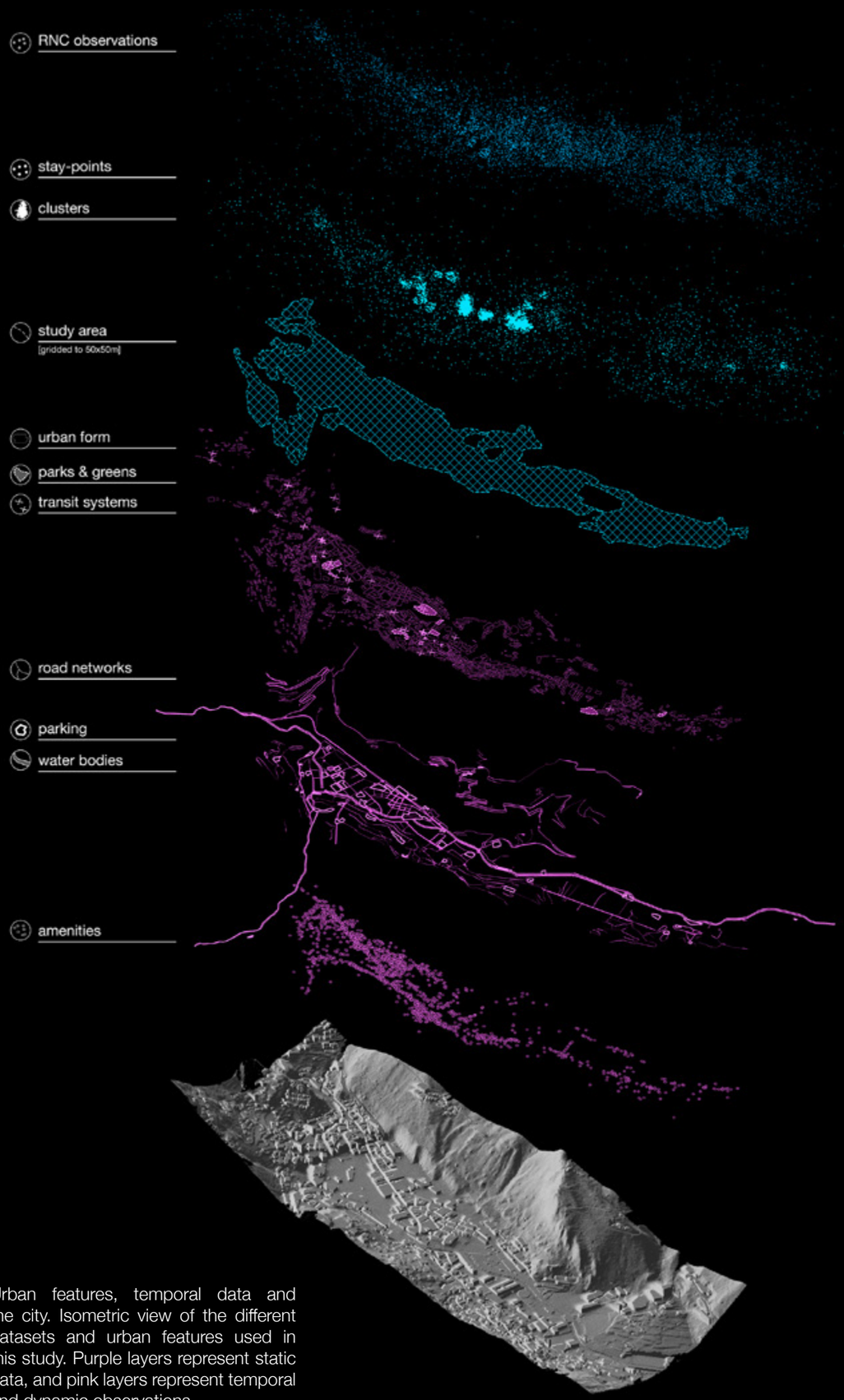
CITYSCOPE ANDORRA

Data pipelines and TUI: The ABM is computed from both static (GIS) and dynamic (telecom) datasets. It reacts to changes occurring on auxiliary interfaces and recompute the simulation in accordance.

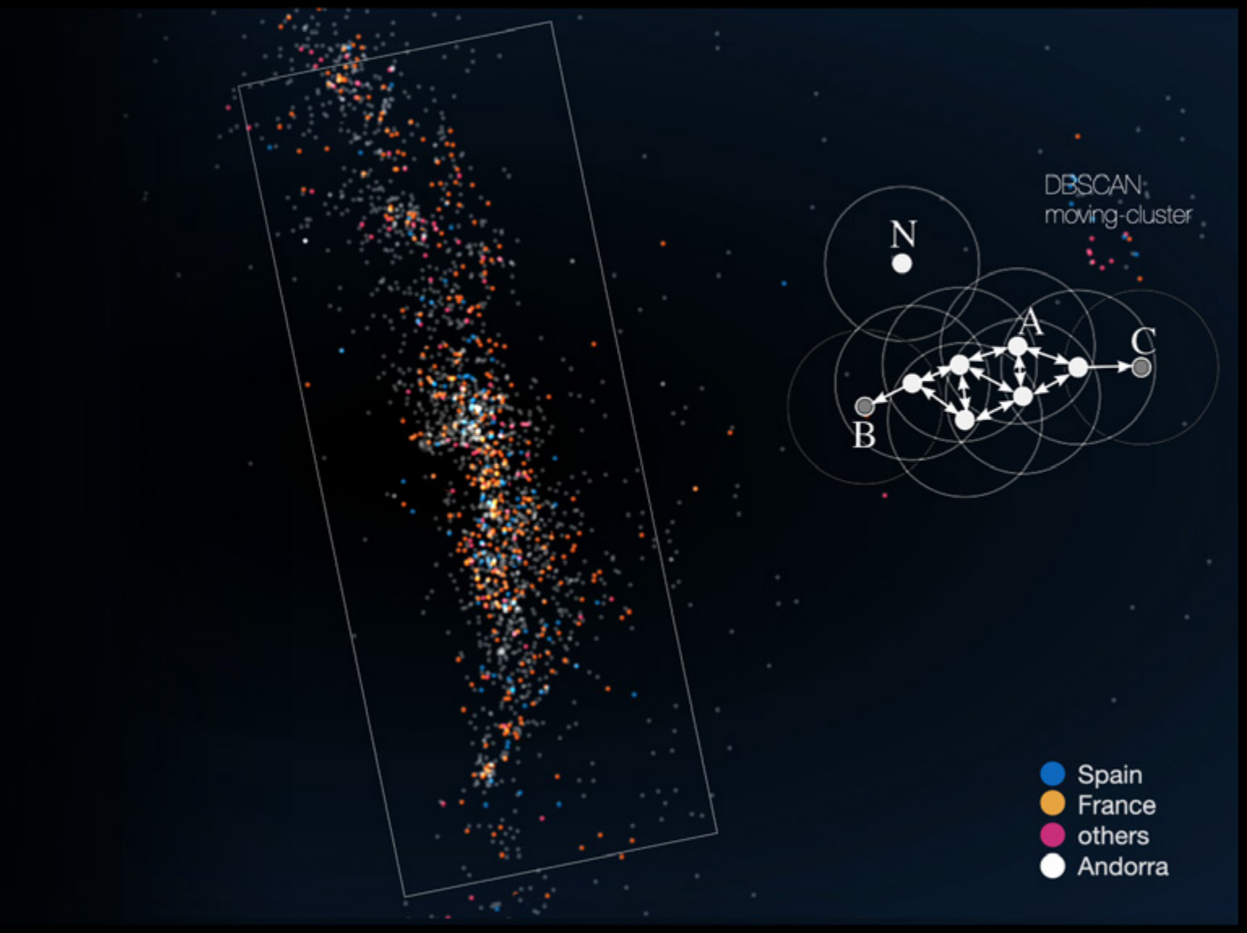


(top left) Aggregated congestion for the entire day during Le Tour de France. (top right) Travel patterns anchored to the road network and associated to inferred amenties as destination points. (bottom left) Raw CDR data; points represent locations recorded from cell towers. (bottom right) ‘Hot-spots’ agglomerated in areas where multiple simulated agents are passing through a given street.





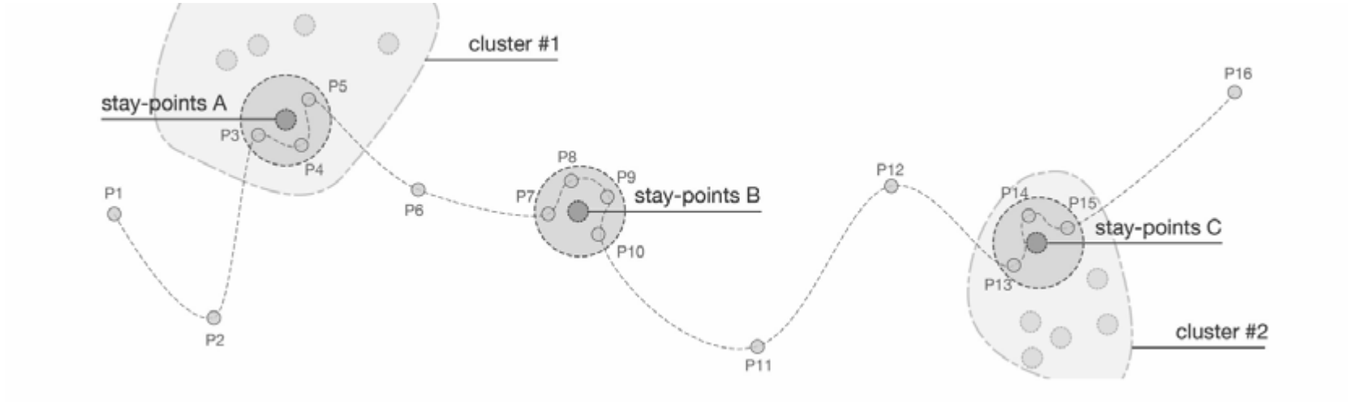
Urban features, temporal data and the city. Isometric view of the different datasets and urban features used in this study. Purple layers represent static data, and pink layers represent temporal and dynamic observations.

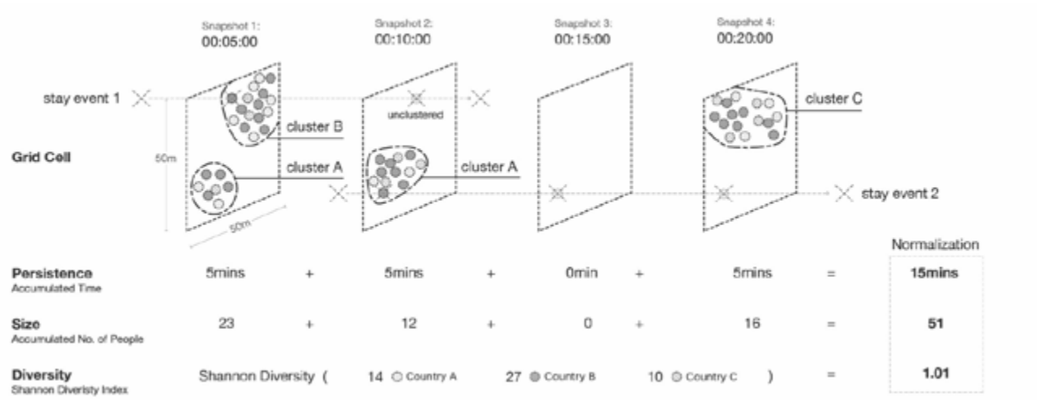


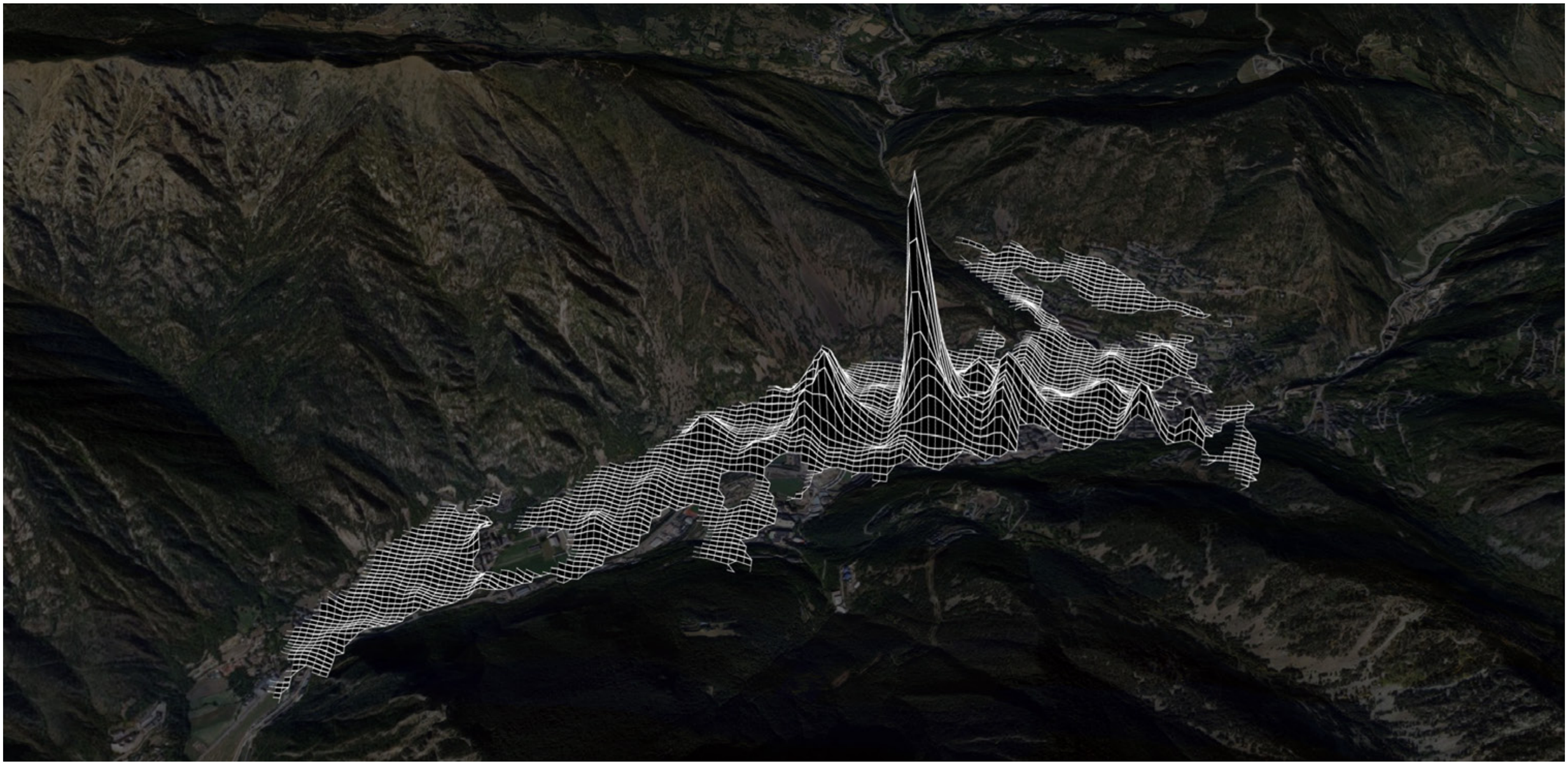
CityScope Andorra at the City Science Lab in Caldea, Andorra la Vella. The space is situated in the heart of the city, and was designed to accommodate multi-party discussions, meetings, and events, around a large scale CityScope installation.

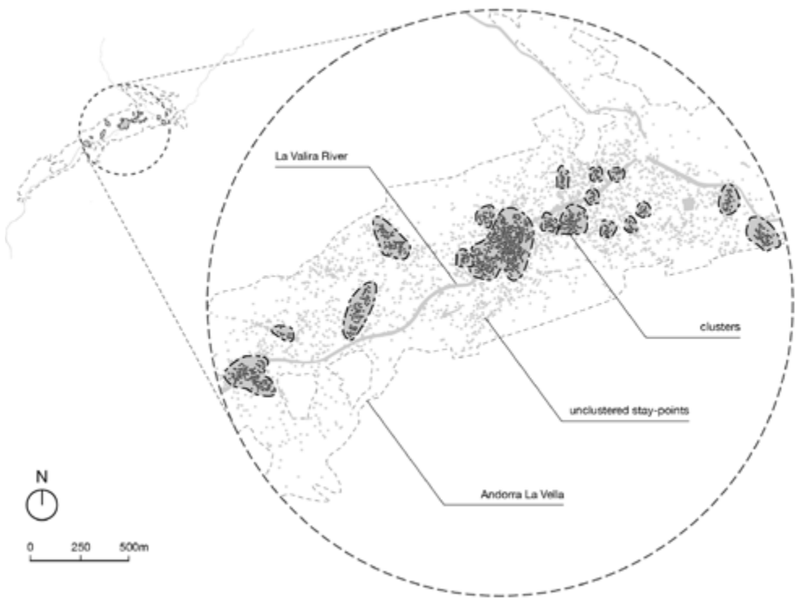
CLUSTERING STAY-POINTS AS 'MOVING CLUSTERS'

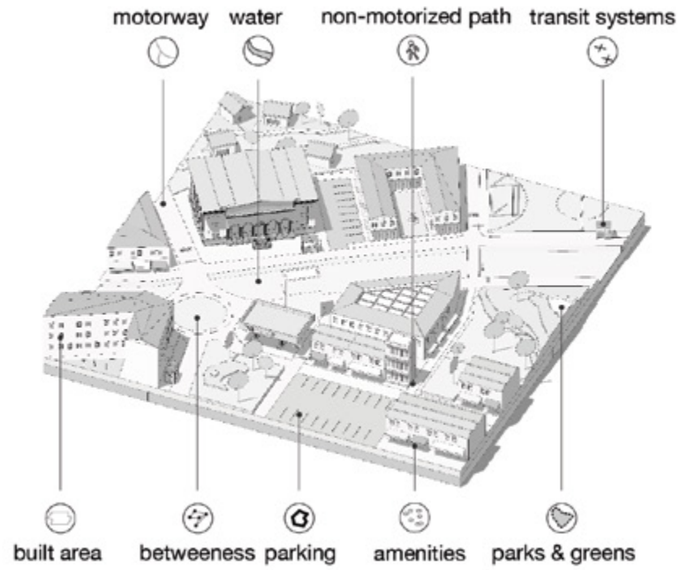
Each potential cluster was deemed relevant considering its longevity, density, and diversity. (bottom) Propensity for clusters' creation in the city

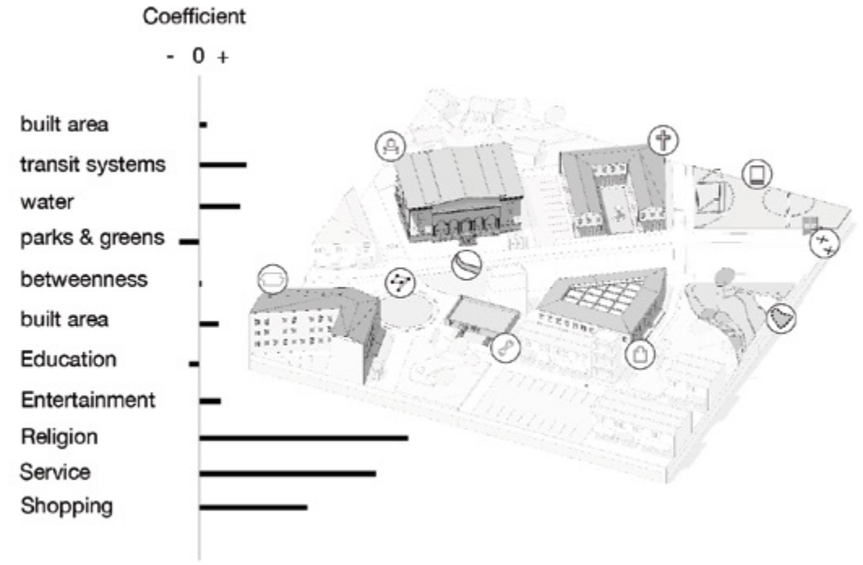






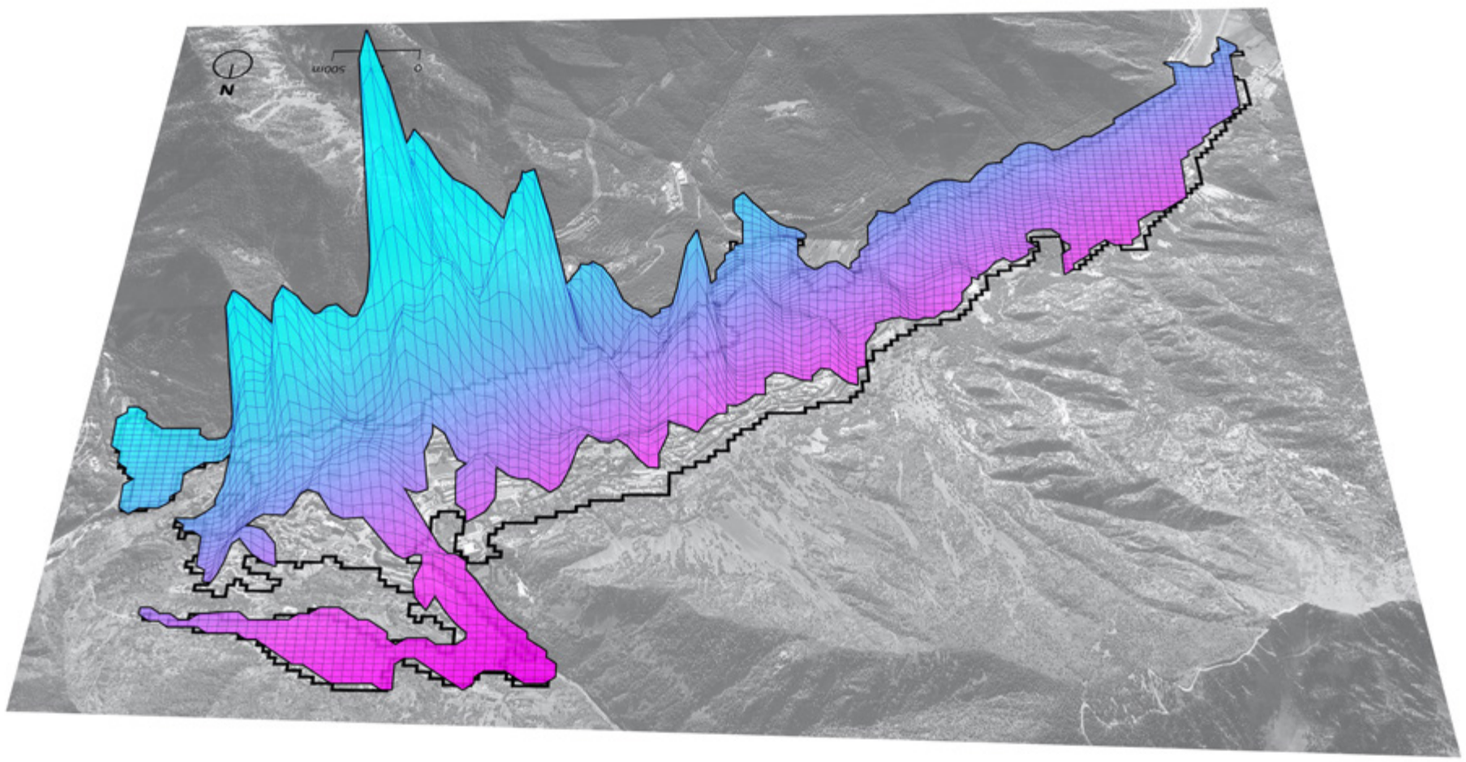


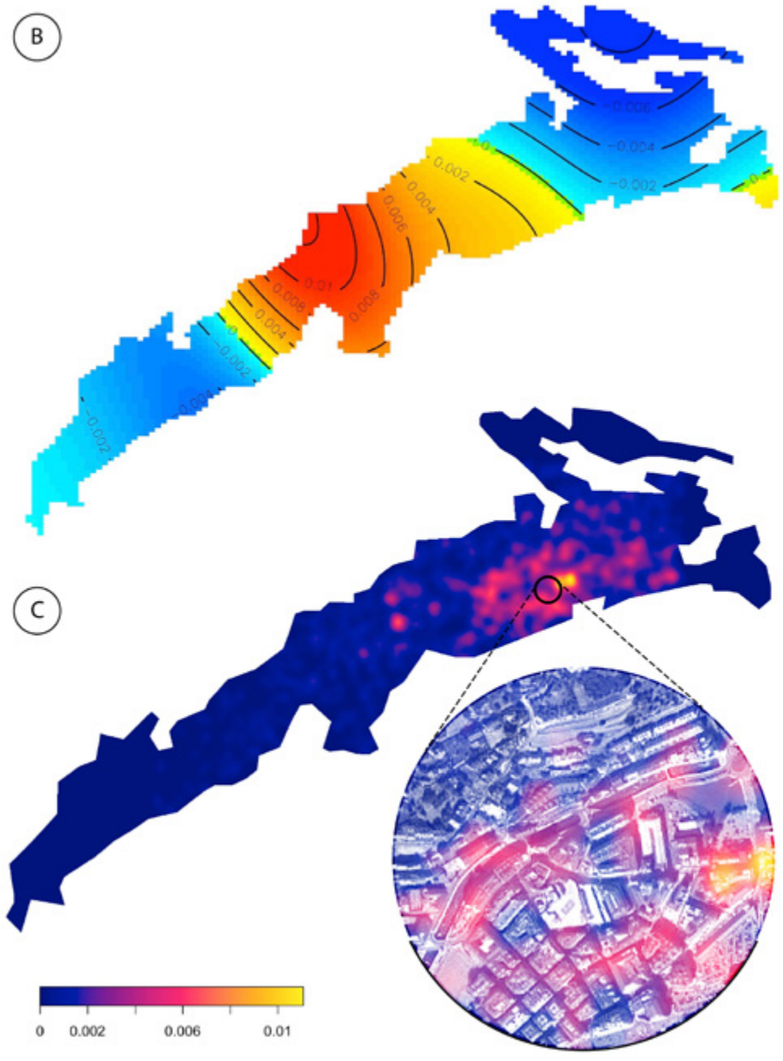




RESULTS AND INSIGHTS

Model area and densities. (above) Study region, (b) Contour plot of Pearson residuals from fitted model, (c) Smoothed density of points simulated from Inhomogeneous Poison Process model (bellow) Perspective contour plot of point pattern simulated from Inhomogeneous Poison Process model (top-right) Model inference on a single grid-cell. The urban features are highlighted on the left, with their modelled coefficients on the right.





CITYSCOPE_AR

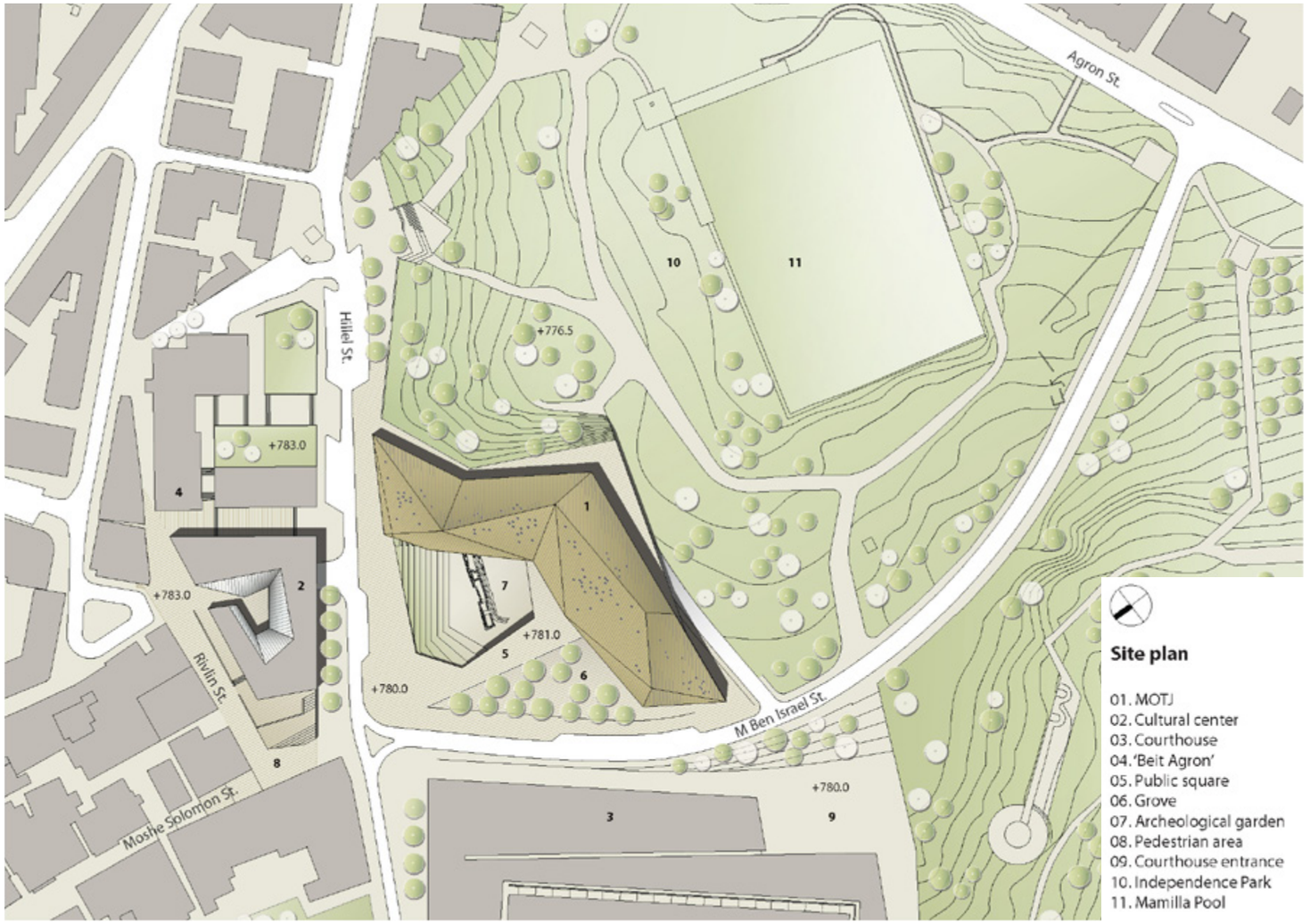
Augmented reality platform for CityScope Andorra. Remote participation and complex 3D visualizations are extending the capability of CityScope beyond the limitations of the physical TUI

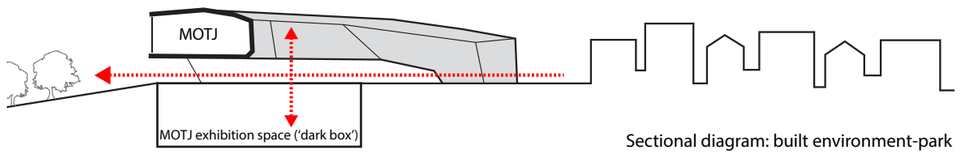
ARCHITECTURE

MUSEUM OF TOLERANCE, JERUSALEM (MOTJ)

Situated at the very heart of modern Jerusalem, the Museum occupies a pivotal position, bridging the gap between the bustling urban core and the city center's park. The proposed square and building stand as both an entryway to the park and a communal space for outdoor gatherings and events. The Museum's architectural composition comprises two distinct horizontal wings: an elevated three-story wing that seemingly hovers, accommodating the theater and communal spaces, and a sunken two-story wing, housing the exhibition spaces for both children and adults within its enigmatic 'dark box' concept.

Architects Chyutin Architects
Location Jerusalem, Israel
Project area 160,000 sq ft
Construction Cost $100M
Project year competition 2010, opens 2023
Role Team architect (group of 3), planning & design, 3D modelling and rendering, CAM & physical models, 2D drawing & presentations

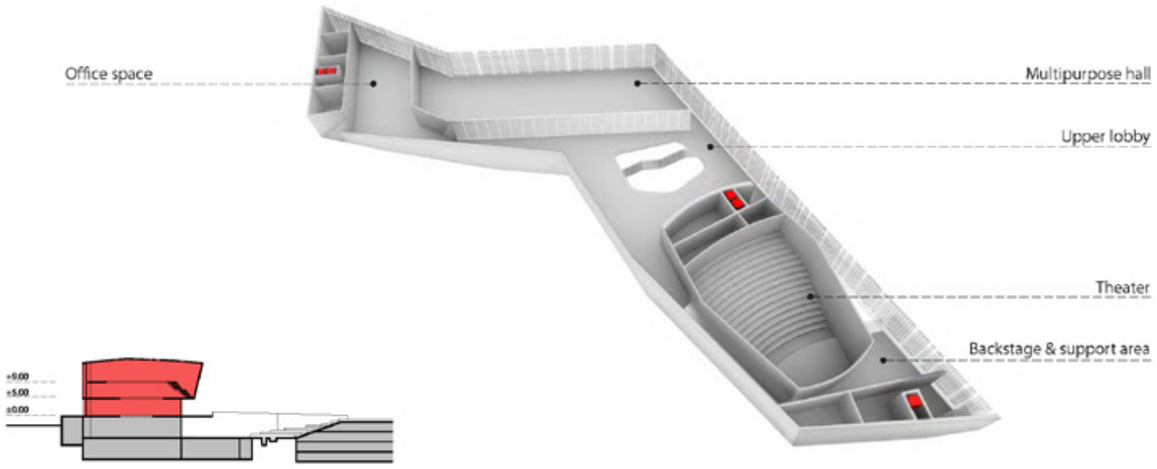




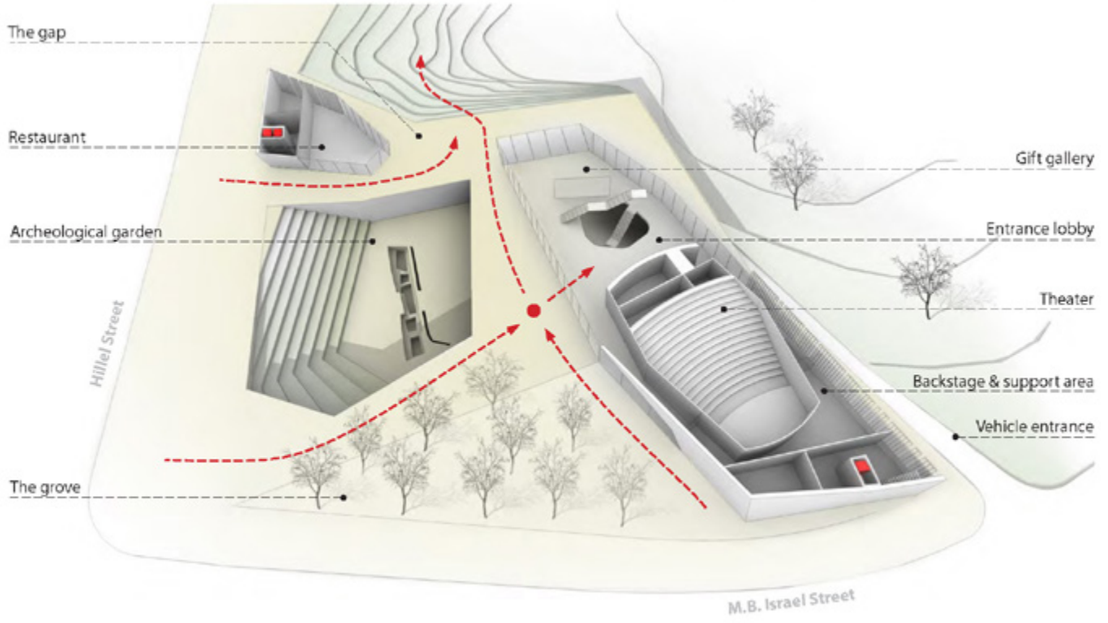
Sectional diagram: built environment-park

THE URBAN SETTING

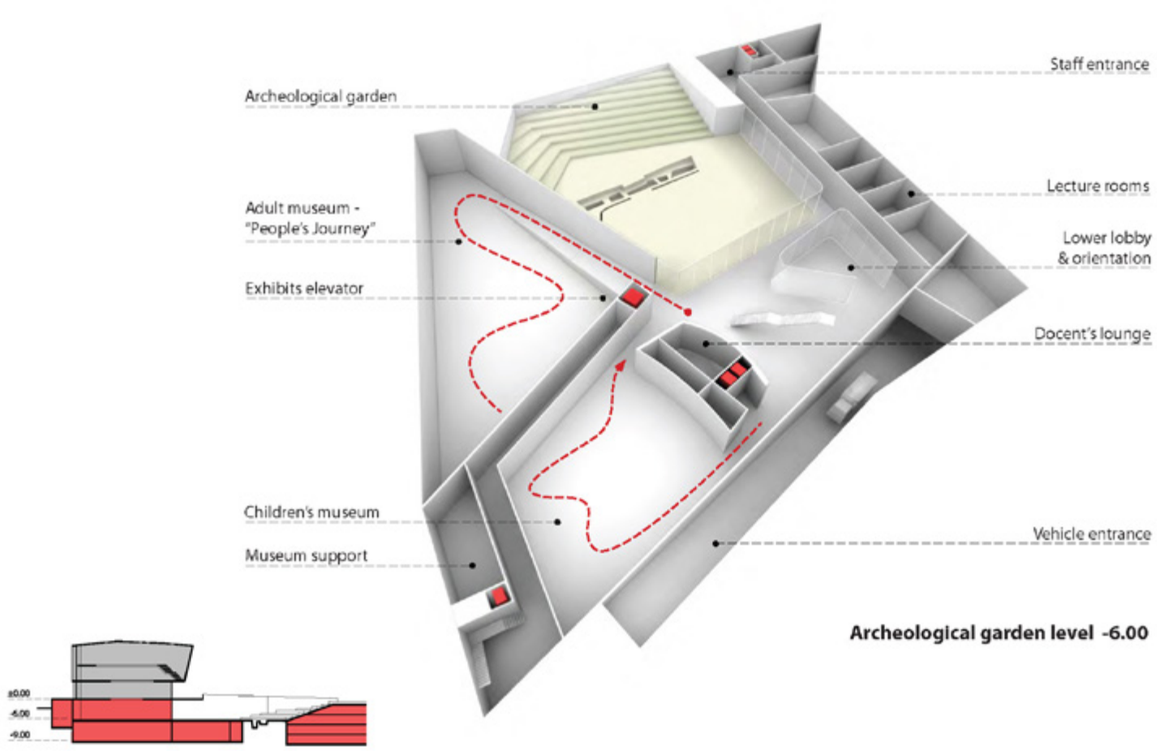
The program required a museum, a cultural center, and a public space for events. We arranged these three elements in a way that the new square aligns with the main street flow, also serving as an entrance to the city park. By physically separating the two wings of the building and adding an elevated upper portion, the structure appears much smaller than its actual size. The cultural center's design maintains the alignment with the surrounding street fronts. This design choice guides people towards the new building while also reducing the open space at the intersection in front of the MOTJ square.



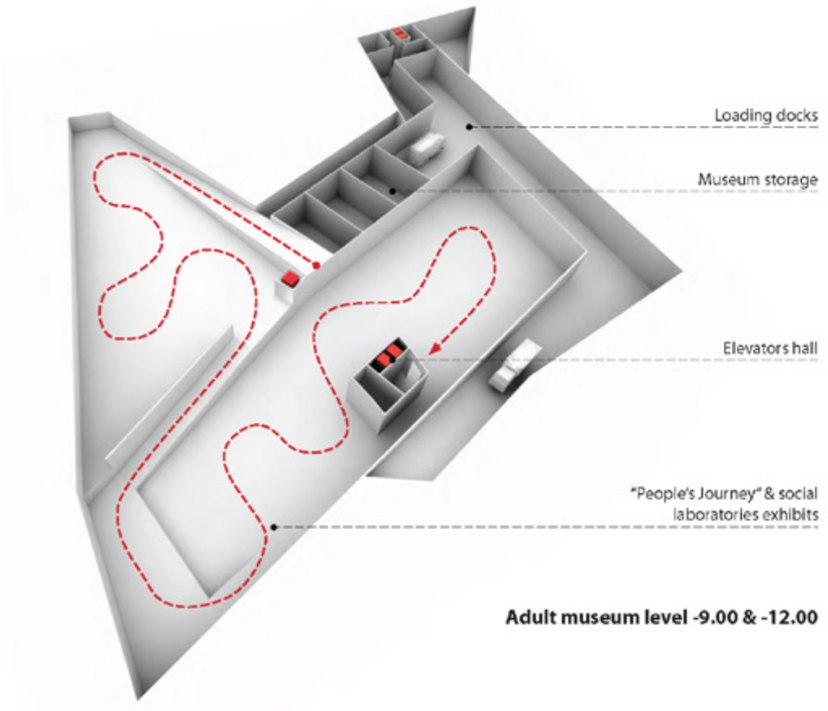
Theater & multipurpose hall (+5.00)



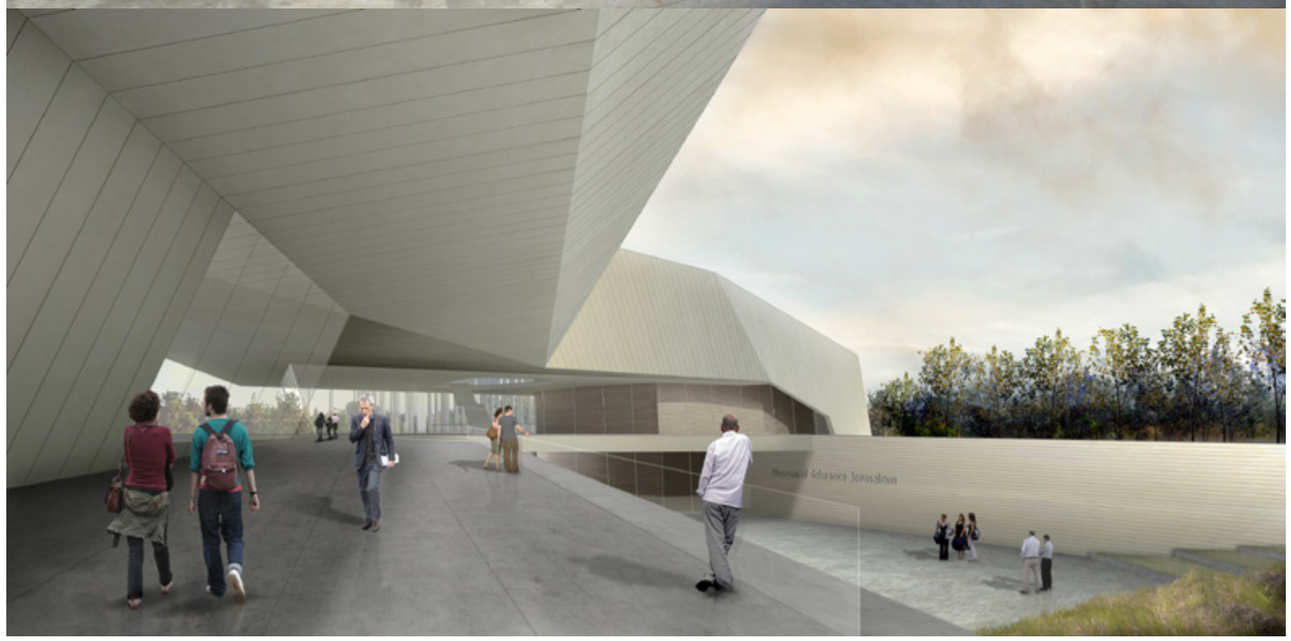
Public square level (0.00)

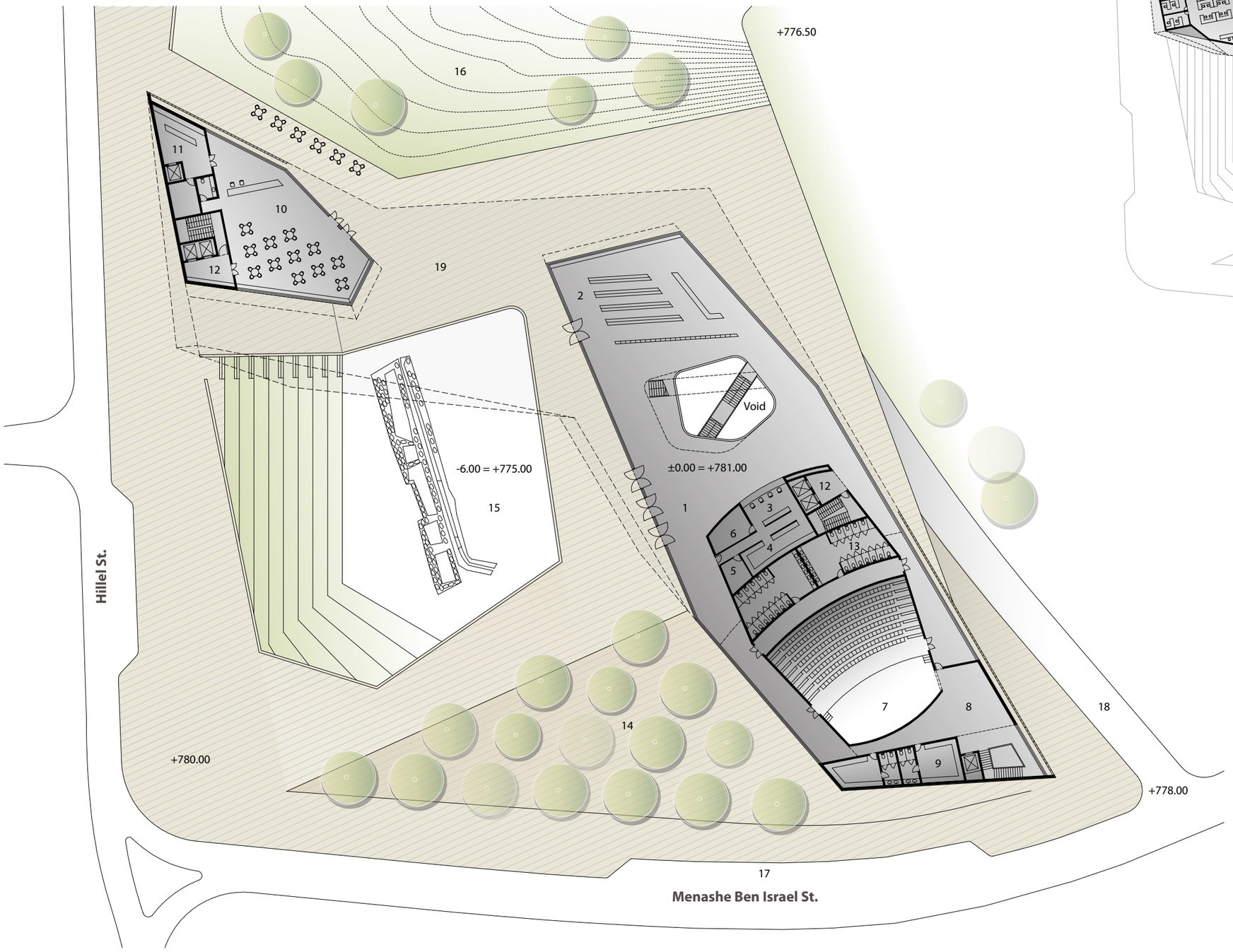


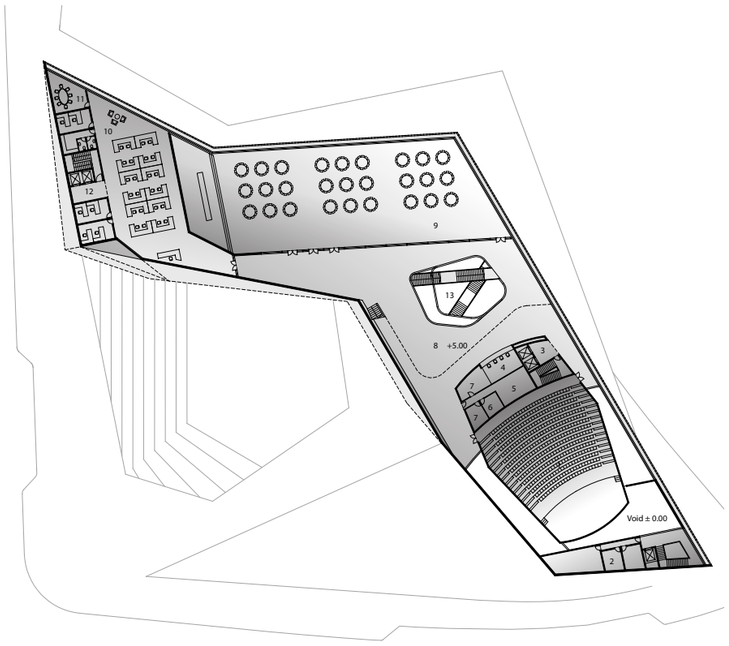
Archeological garden level -6.00



Adult museum level -9.00 & -12.00

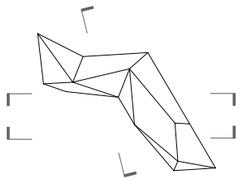

Memorial Holocaust Jerusalem



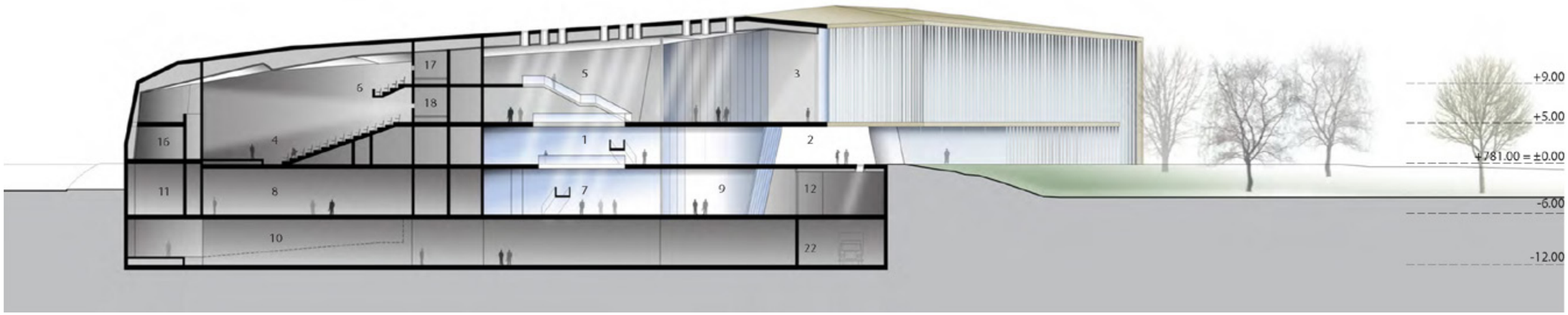


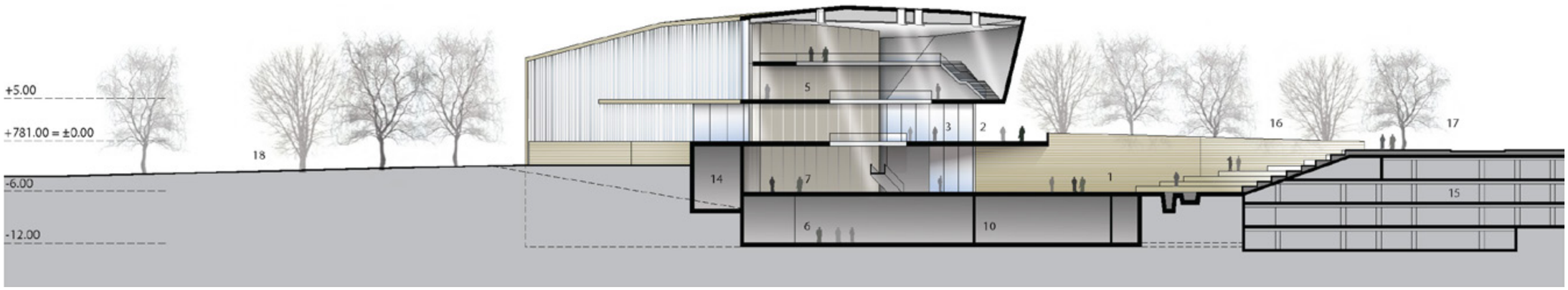
Public square level
Level ±0.00 (+781.00) 1:500

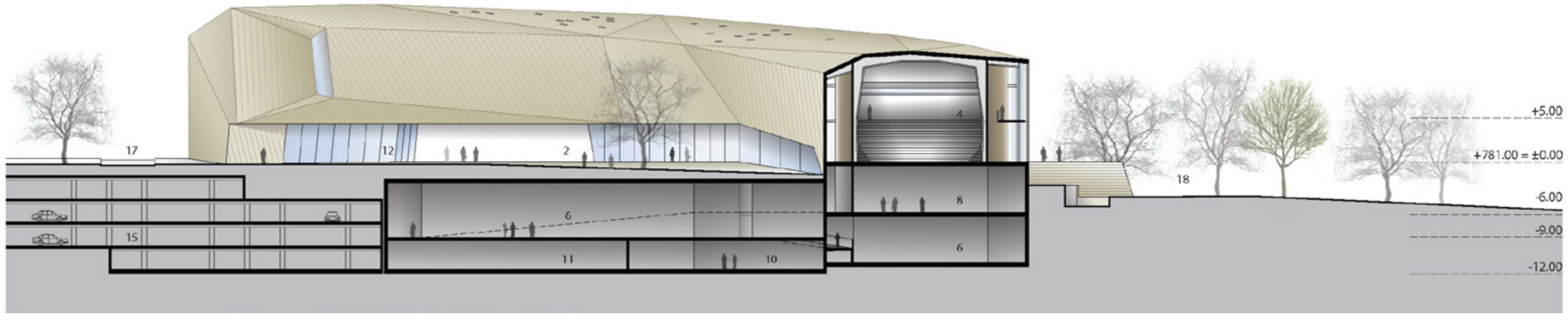
01. Entrance lobby
02. Gift shop
03. Ticket box office
04. Cloakroom
05. Security office
06. Office / storage
07. Theater stage
08. Backstage support area
09. Dressing room
10. Restaurant
11. Kitchen office
12. Elevators hall
13. Restrooms
14. The grove
15. Archeological garden
16. Independence Park
17. Bus stop
18. Vehicle entrance
19. The gap



Sections







Theater entrance

Multipurpose hall

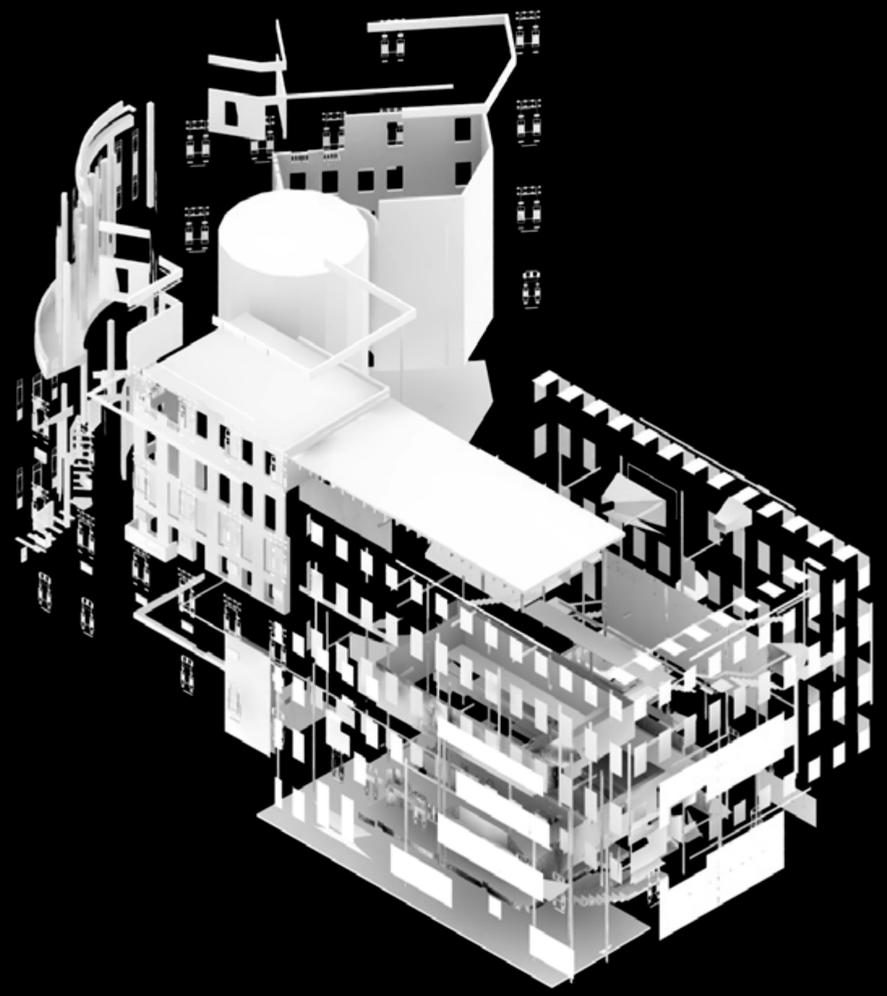
Park & museum cafe

In 2023, MOTJ construction was completed

TEL-AVIV CITY MUSEUM

The Tel-Aviv City Museum, (“Beit-Ha’ir”), was unveiled to the public in 2009 to commemorate the city’s 100th anniversary. The complex previously housed the city hall from 1926 to 1965 and subsequently served as the city museum until 2001. The objective of this project was the meticulous restoration of this historic edifice, which once stood as the inaugural civic nucleus of the city.
In conjunction with Bialik Square, this building operated as a pivotal urban nexus for ceremonies, festivities, demonstrations, and processions. The Front Façade, on occasion, even doubled as a balcony for performances and significant historical occurrences. In light of this heritage, our effort extended beyond mere restoration; our primary intent was to imbue the structure with a fresh lease of vitality, rejuvenating it as a thriving contemporary urban hub, while still preserving its historical essence.

Architects EKA Architects
Location Tel-Aviv, Israel
Construction Cost $15,000,000
Project area 1,600 sqm
Project year 2009, completed
Role Architect in charge of bidding and construction phases, site supervision, coordinating landscape and interior design, designing and detailing new façades, 3D modelling and rendering, 2D drawing, presentations

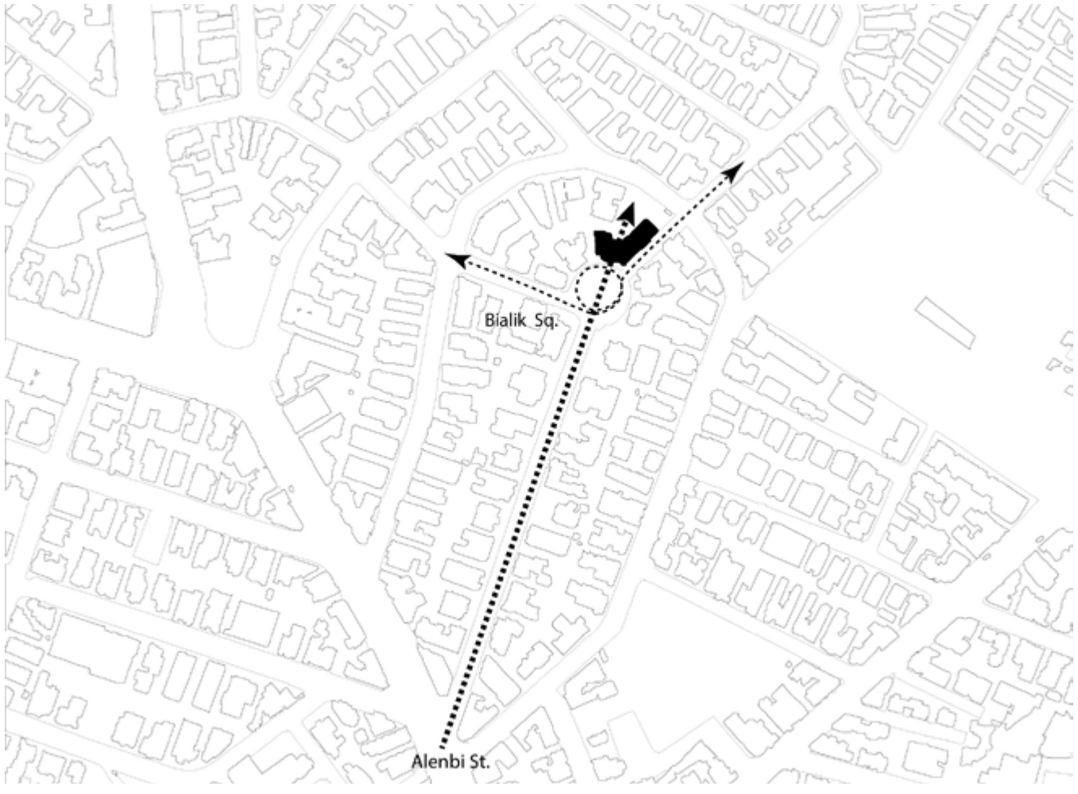


"...it appears that last December a new monument was born, even if on a scale too modest. There is no other building in the city that resembles it in its shape, its use, its opacity or its dramatic color - which casts a kind of contemporary European architectural aura on its surroundings."

Ha'aretz (Architecture section) 04.01.10

Beit Ha'ir dressed as a fictitious American Embassy in Syria. Set of "Homeland" TV series, HBO, 2012

Beit Hair as connector of the south city parts (Alenbi St.) and city center

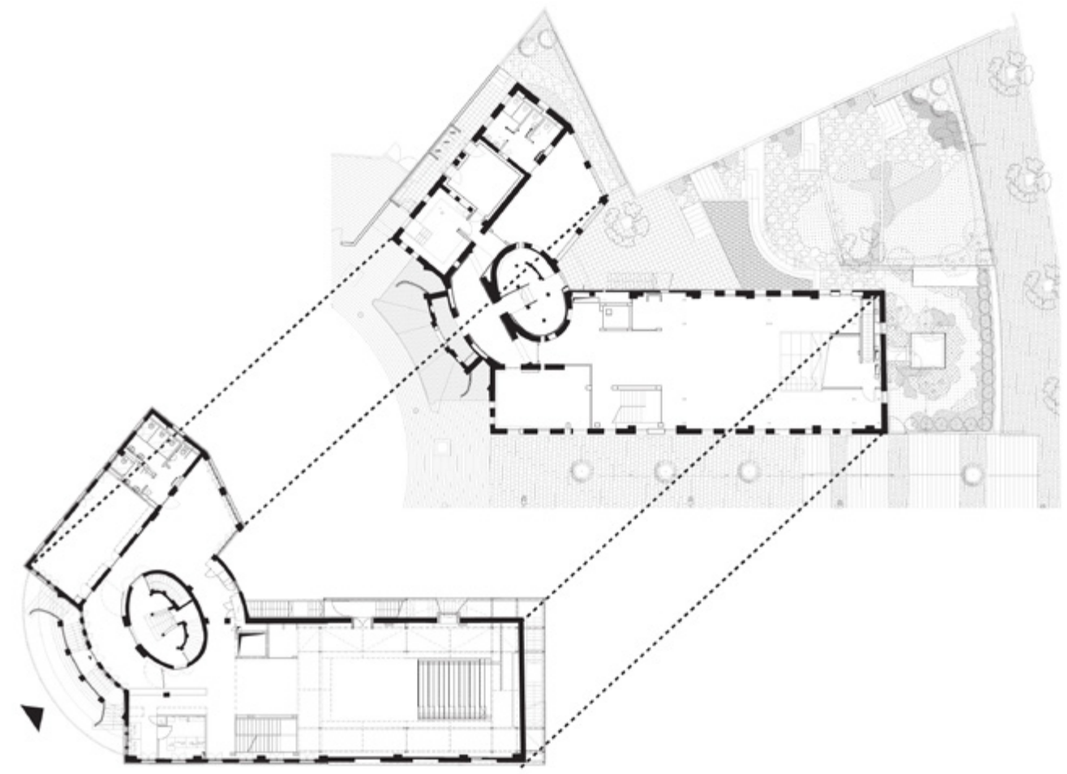


The urban intention was to create sequential connection between the interior and exterior spaces of the building, including an accessible passage from Bialik Street and Bialik Square to the enclosed back garden facing Zalman Shneor Street (north) and a visual connection through the ground floor between the stairs alley, the information space and the back garden. Thus, the building that beforehand played as a façade décor to the square, today turns into a connecting object between the streets and spaces that surround it.

Public debate on future planning of Tel Aviv at Beit Ha'ir

Square level

Entrance level and gallery

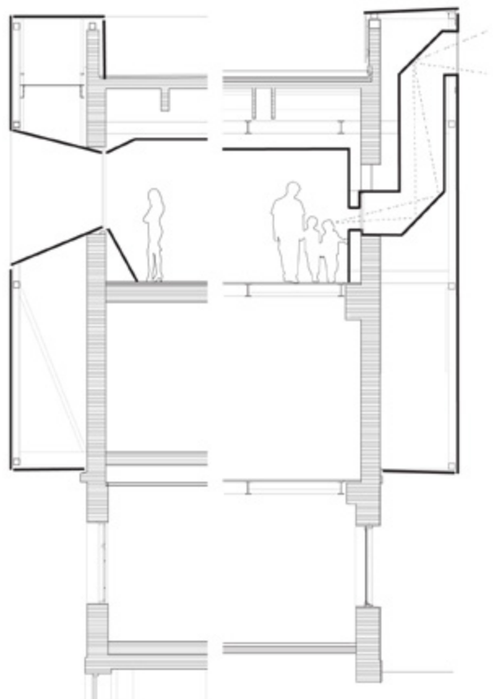


The central space of the museum is an atrium encircled by galleries functioning as exhibition spaces and as balconies for events. The galleries overlook an open auditorium, a screening space and information stands about Tel Aviv. This space is intended to perform an urban stage and as a place for urban and civil discussions.

North East wing facade

East facade

Envelope: window and periscope



Notrh wing

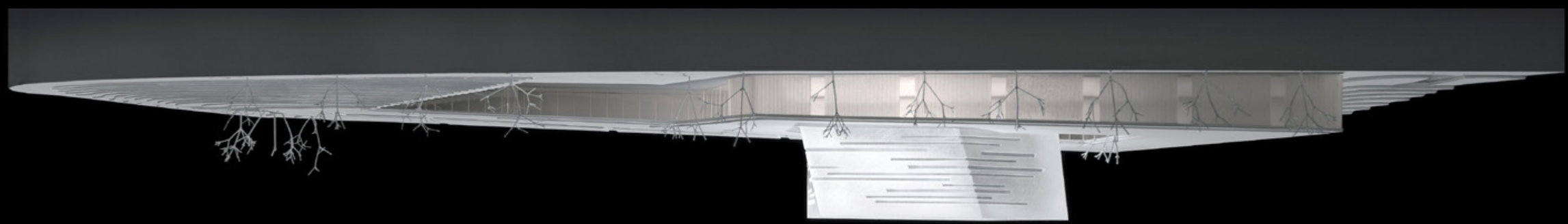
The architectural intention was to meticulously restore the historical envelope of the building together with the creation of a new urban volume scaled to a typical Tel Aviv street but designed as a monolithic body with an iconic updated presence. Four angular openings in the new envelope frame typical glances of Tel Aviv and create a unique relationship between the city itself and its representations exhibited in the interior galleries.

THE NEW NATIONAL LIBRARY, JERUSALEM

The upcoming New National Library is strategically located at the center of Jerusalem's National Precinct (Kiryat Hale'um), close to the Parliament (Knesset), The Israel Museum, and The Hebrew University. The main goal of this design is to honor the nearby institutional buildings while creating a standout landmark.

By dividing the functions into two significant sections, we were able to smoothly incorporate most of the building's mass into the natural landscape of the site. Only the reading hall stands out as a distinct and prominent urban icon. A well-planned circulation system has been put in place to ensure efficient movement of books and people, including visitors and staff at different security levels. This approach enhances the overall experience for everyone involved.

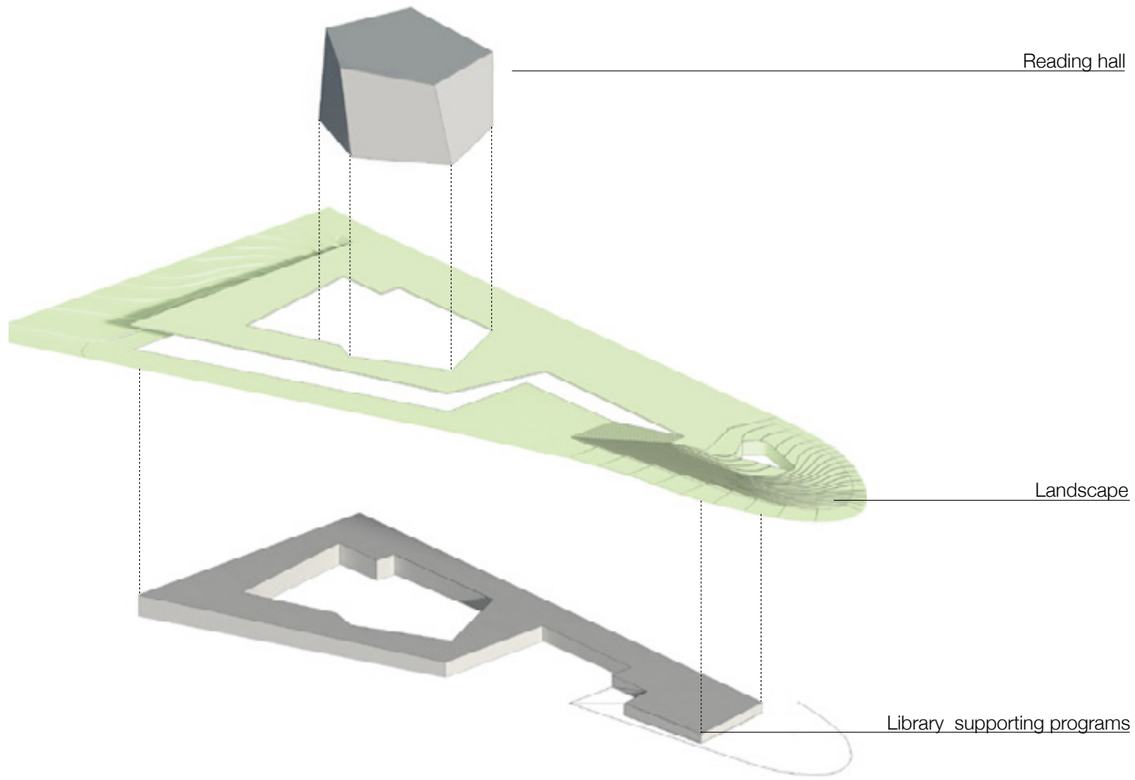
Architects Chyutin Architects
Location Jerusalem, Israel
Project area 40,000 sqm
Project year 2012
Type competition
Role team architect (group of 3), planning & design, 3D modelling and rendering, CAM for physical models, 2D drawing & final presentation

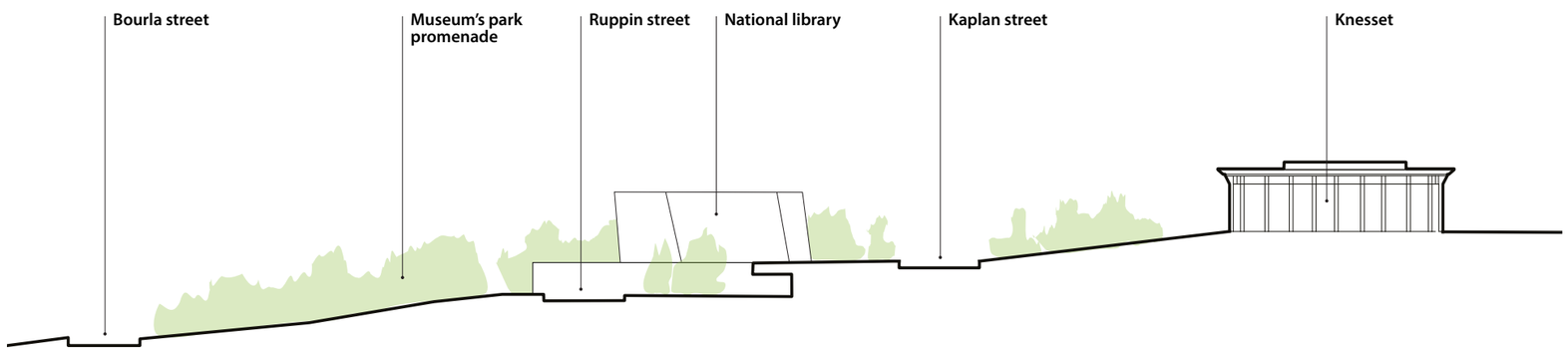


View from the upper panoramic garden

View from Kaplan street

Massing and Landscape concepts

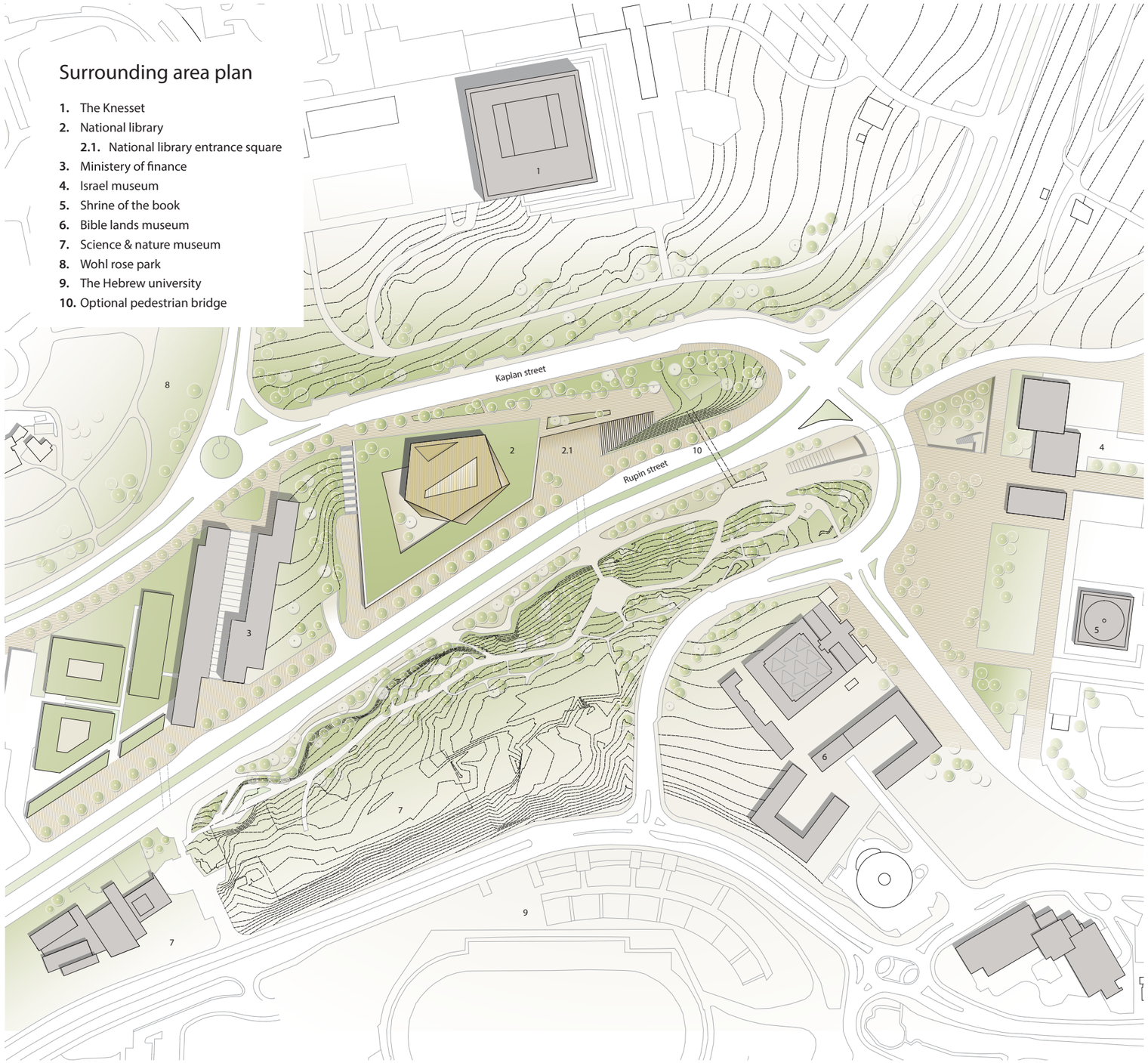


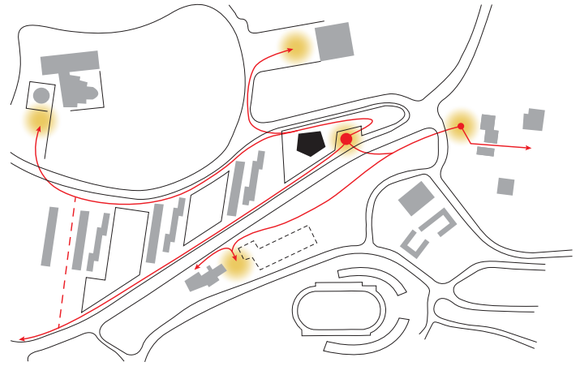


View from Rupin street

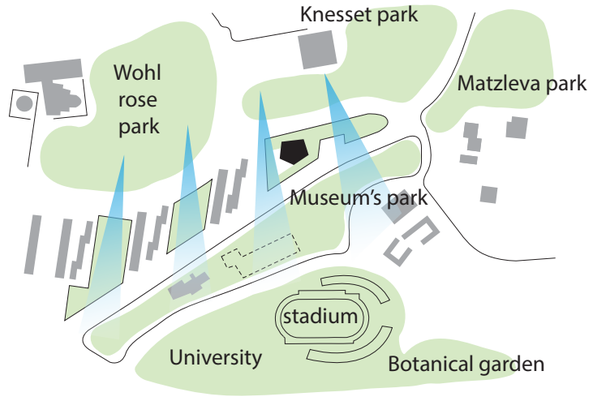
Surrounding area plan

1. The Knesset
2. National library
   - 2.1. National library entrance square
3. Ministery of finance
4. Israel museum
5. Shrine of the book
6. Bible lands museum
7. Science & nature museum
8. Wohl rose park
9. The Hebrew university
10. Optional pedestrian bridge

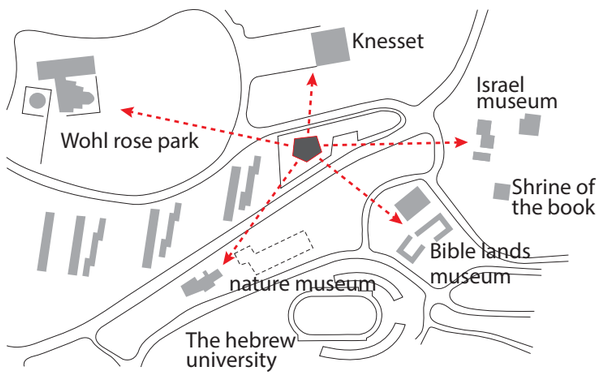




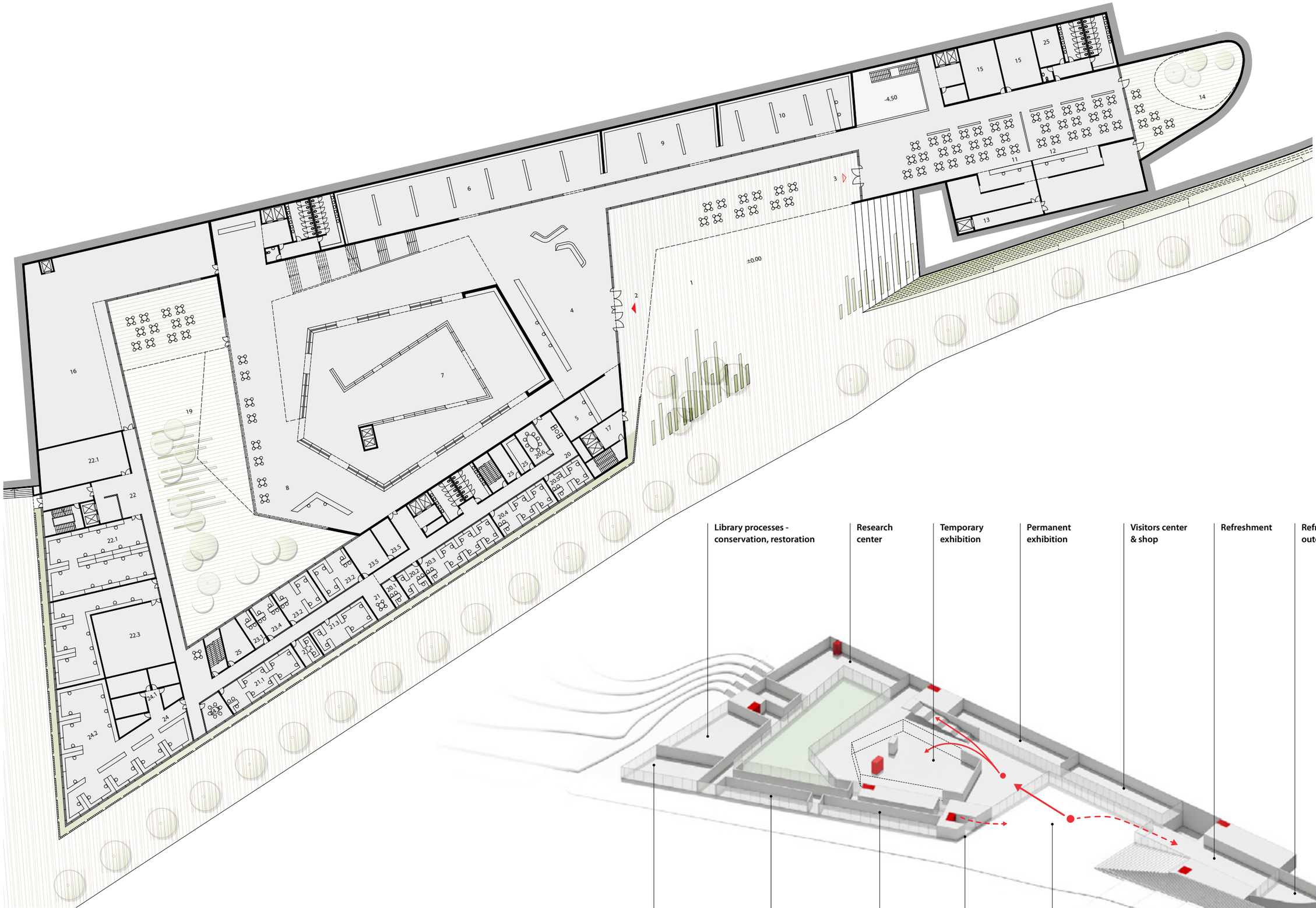
Urban context



Buildings in the park

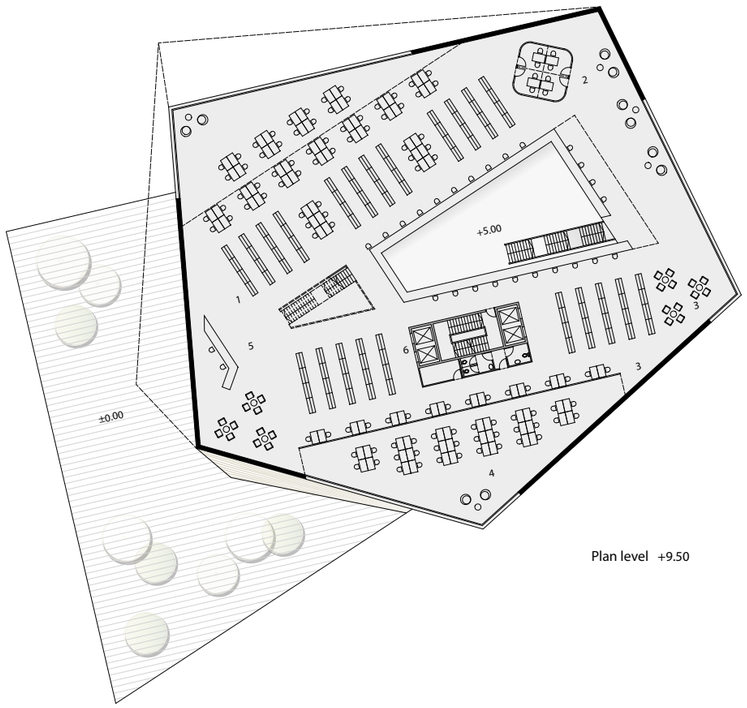


Vistas

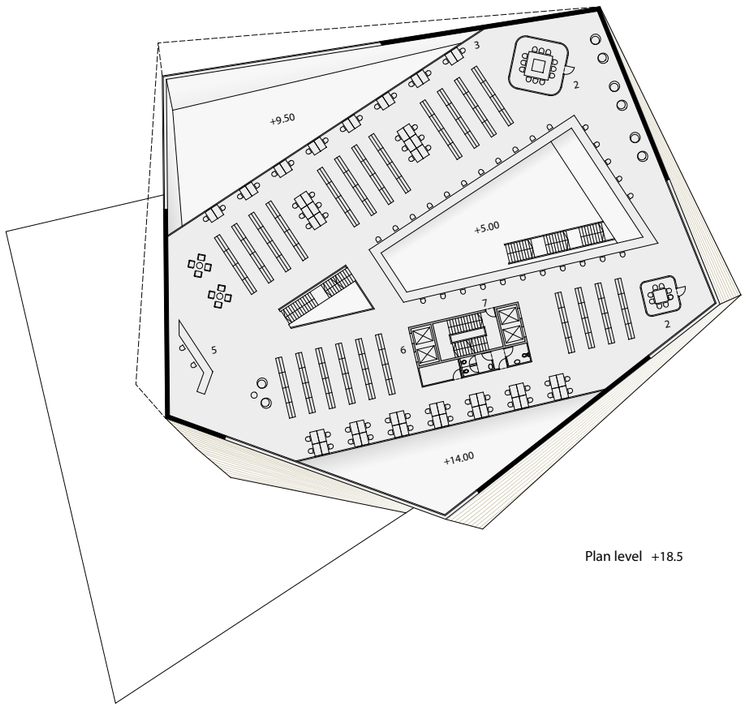

±0.00
-4.50
Hod
Library processes - conservation, restoration
Research center
Temporary exhibition
Permanent exhibition
Visitors center & shop
Refreshment
Refreshment outdoor
Information & technology dept.
Library processes - bibliography
Public services offices
Parking exit
Entrance square

Main reading hall plans

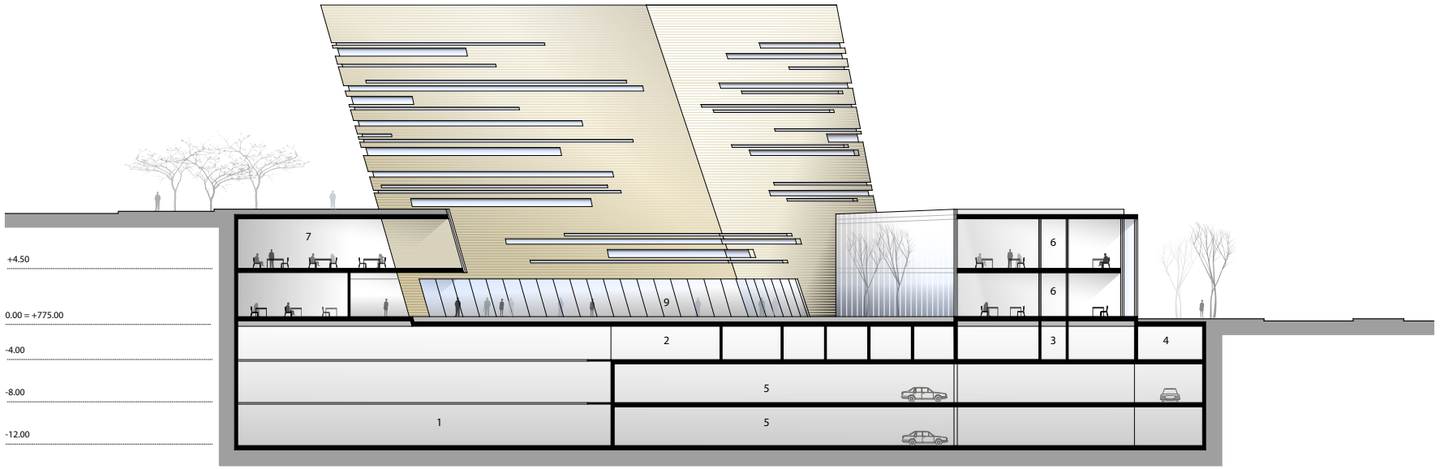
1. Open shelves
2. Group work room
3. Researcher carrels
4. Carrels in "noisy area'
5. Libarrian service desk
6. Book / Staff elevators
7. User elevators
8. Outdoor area



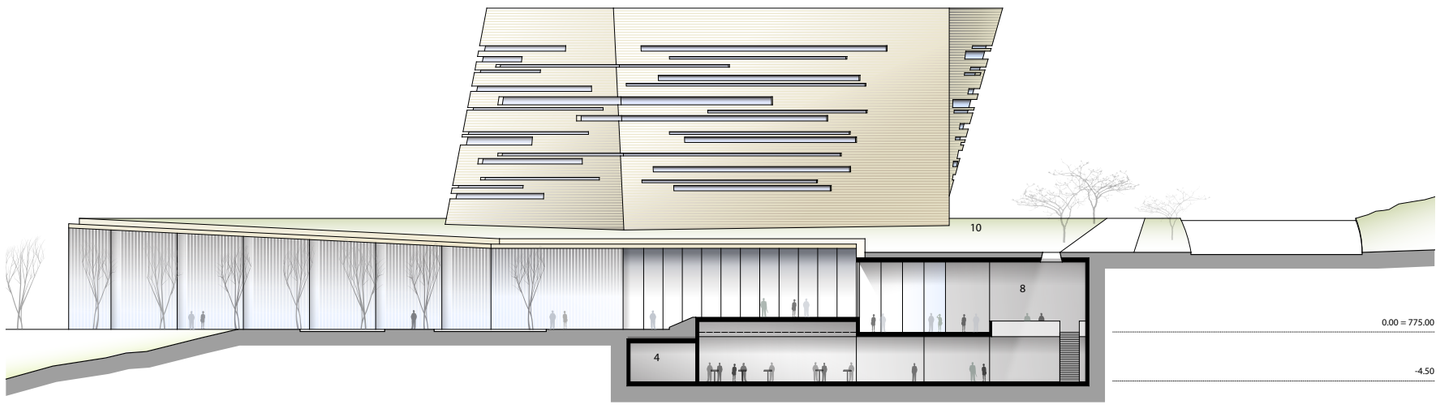
Plan level +9.50



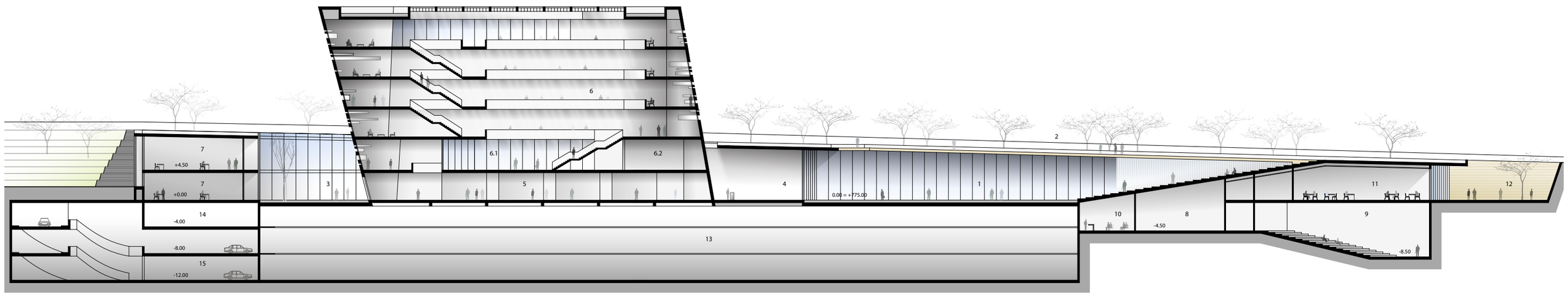
Plan level +18.5



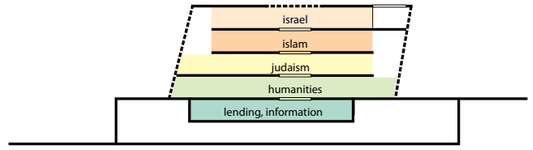
Elevation / Section - b



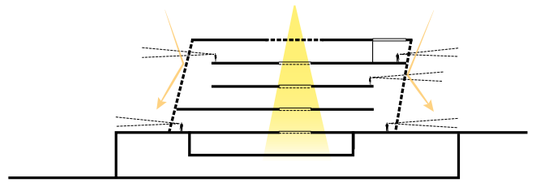
Elevation / Section - a



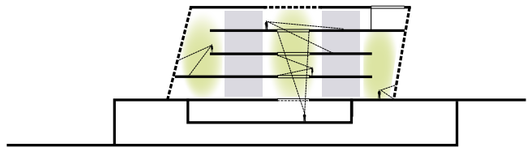
Section d



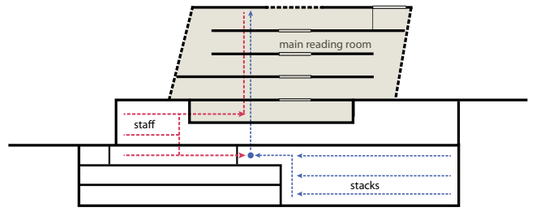
Reading hall departments



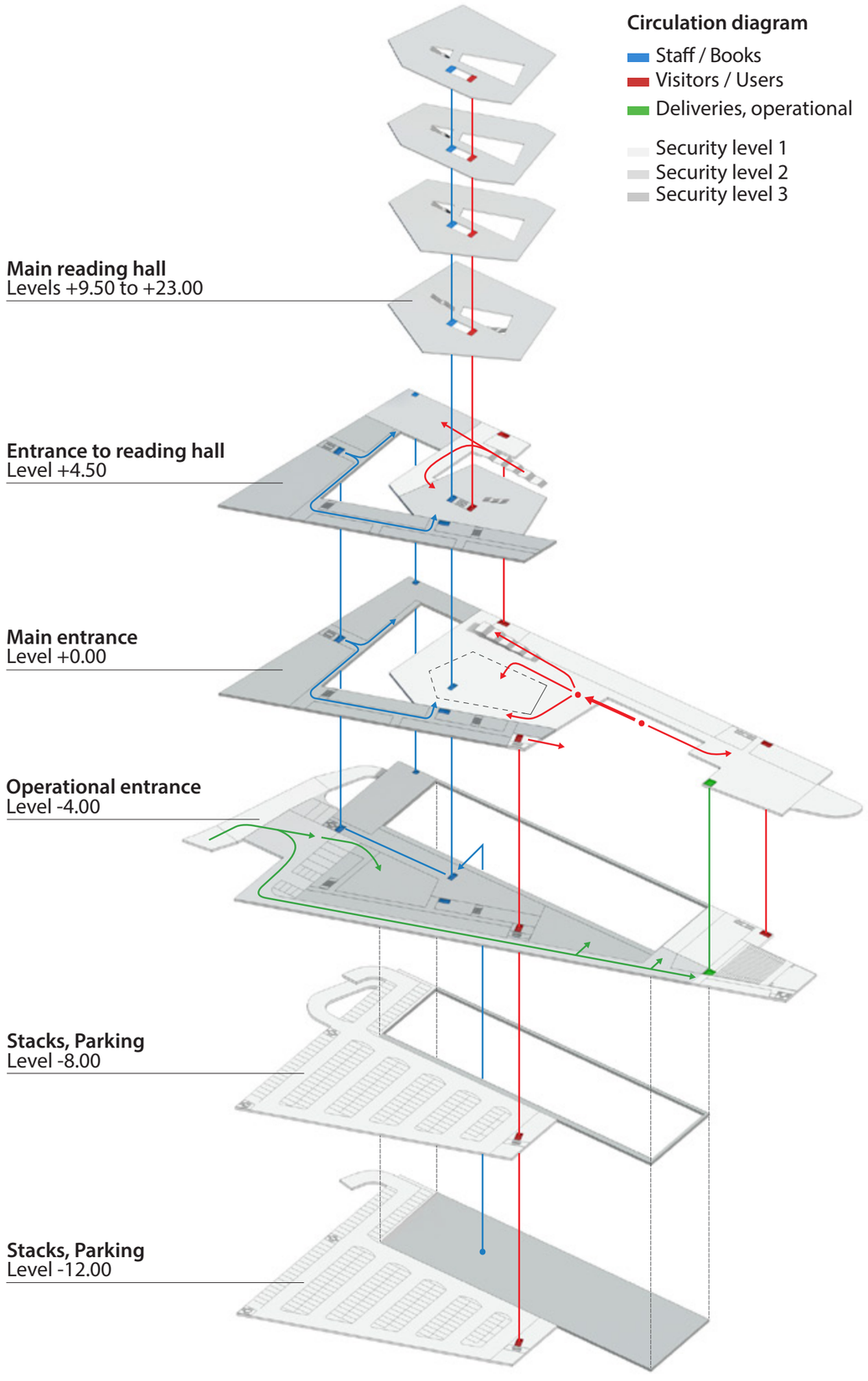
Natural indirect sun light



Reading zones vs. Noise area



The book procedure

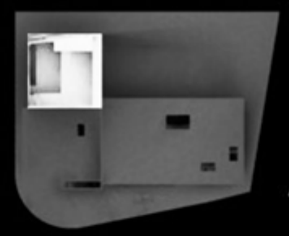

Circulation diagram
Staff / Books
Visitors / Users
Deliveries, operational
Security level 1
Security level 2
Security level 3
Main reading hall
Levels +9.50 to +23.00
Entrance to reading hall
Level +4.50
Main entrance
Level +0.00
Operational entrance
Level -4.00
Stacks, Parking
Level -8.00
Stacks, Parking
Level -12.00

TWICE HOUSE, ORDOS 100 PROJECT

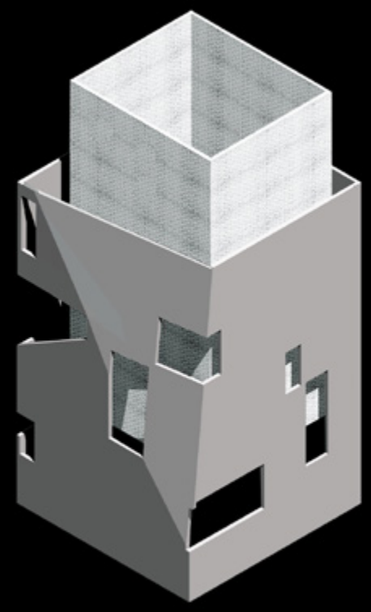
The “Ordos 100 Project” invited 100 architects from around the world to design and build a private 1000 sqm house in one of the most challenging terrains globally. This endeavor deliberately disconnected the house from its surroundings, making it a distinct departure from urban settings. The main goal of this project was to overcome this lack of context by adopting a thoughtful design approach.

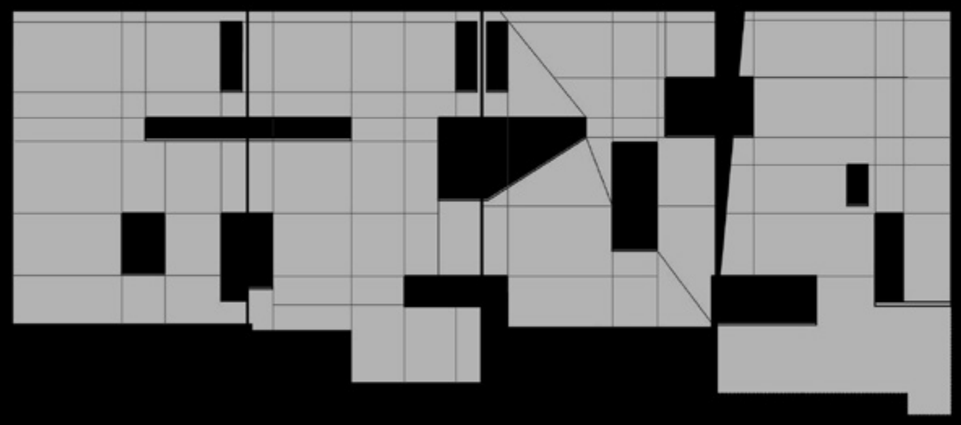
The design incorporated three main components: an object, a surface, and a public space. These elements were combined to create a self-contained environment. The surface and object were designed as separate living spaces, connected by an open courtyard. This separation allowed the building’s footprint to be only 10% of the total lot area. However, inside, the house showcased a striking contrast: an underground desert sanctuary alongside an upright urban villa; a bright summer retreat contrasting with a cozy winter haven; an open organic layout alongside a multi-layered spatial arrangement; and a formal guest area harmonizing with a comfortable home.

Architects EKA Architects
Location Ordos, Inner Mongolia, China
Project area 1,000 sqm
Design year 2008
Construction year 2009-2010
Curator Ai Weiwei, Beijing, China
Role Team architect (group of 3) site and massing studies, initial and detailed planning, landscape development, 3D modelling and rendering, 2D drawing, presentations



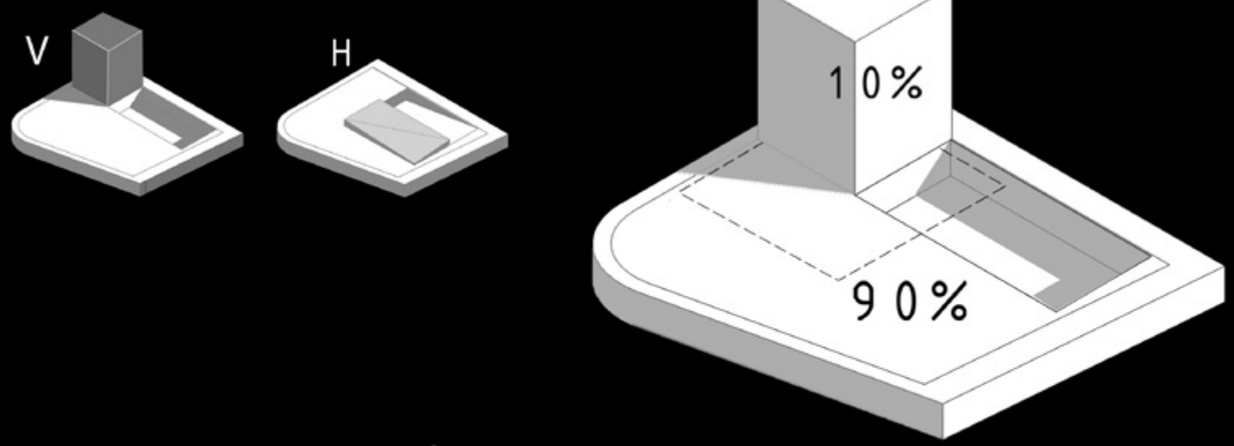
Core and Envelope concept: Robert Smithson, 1969

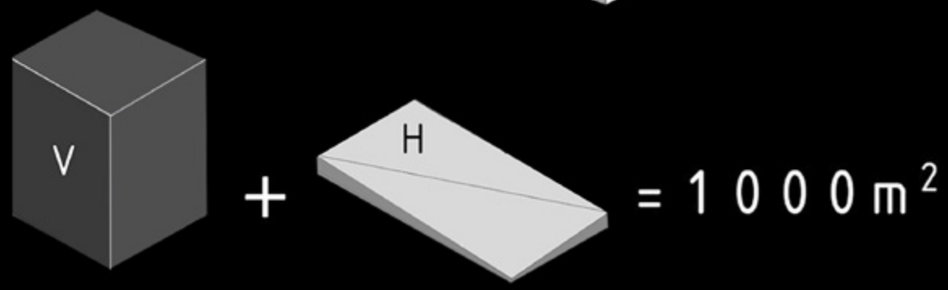




Core and Envelope

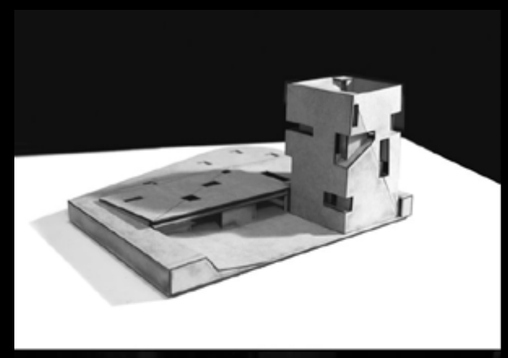
The inner core

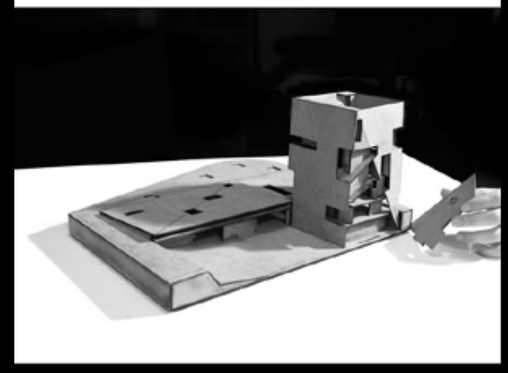


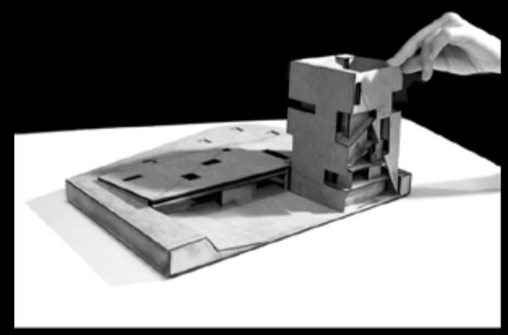


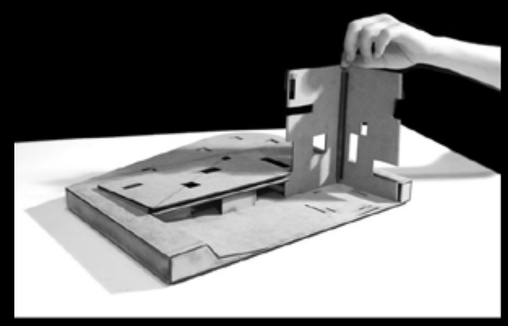
$= 1000 m^2$

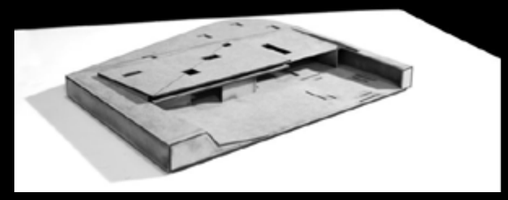
Two houses at 10% plot occupancy

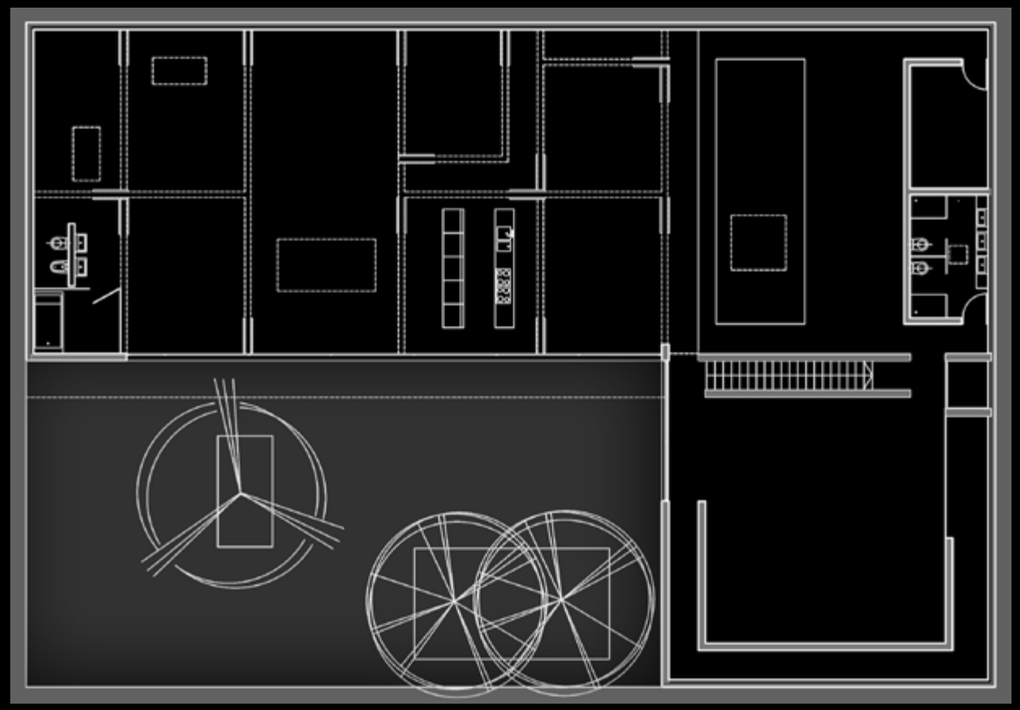




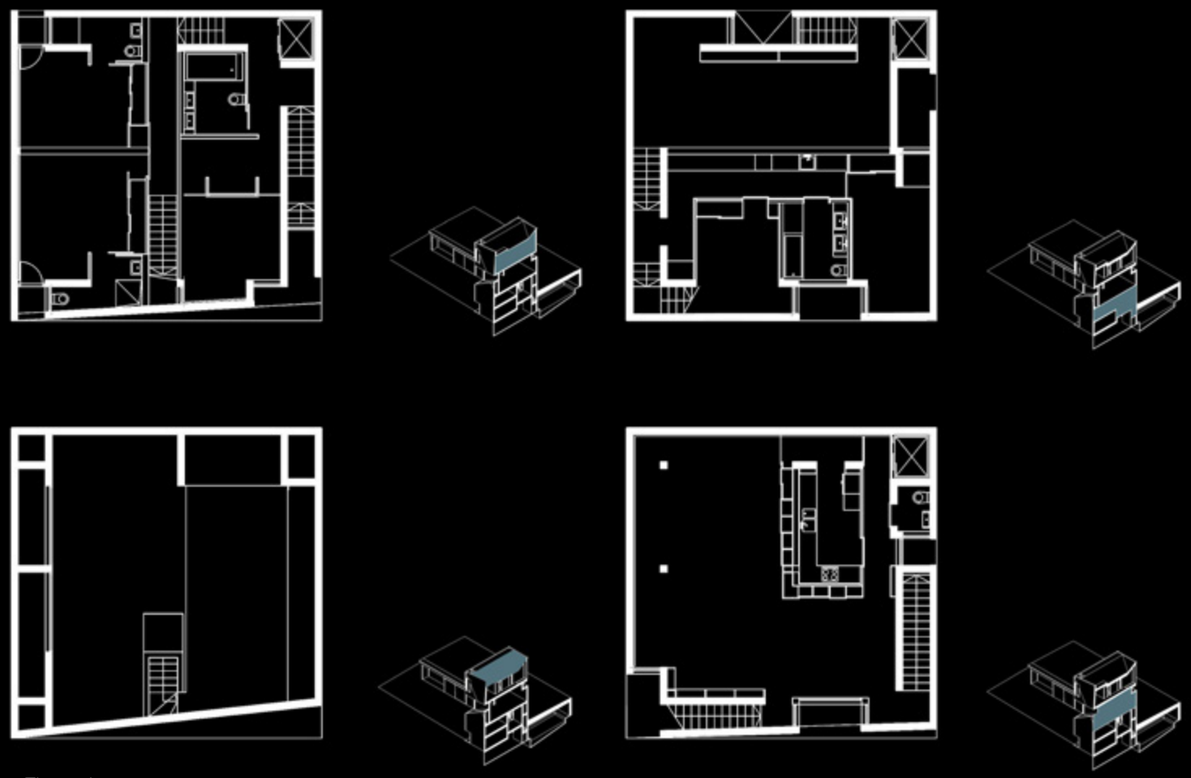




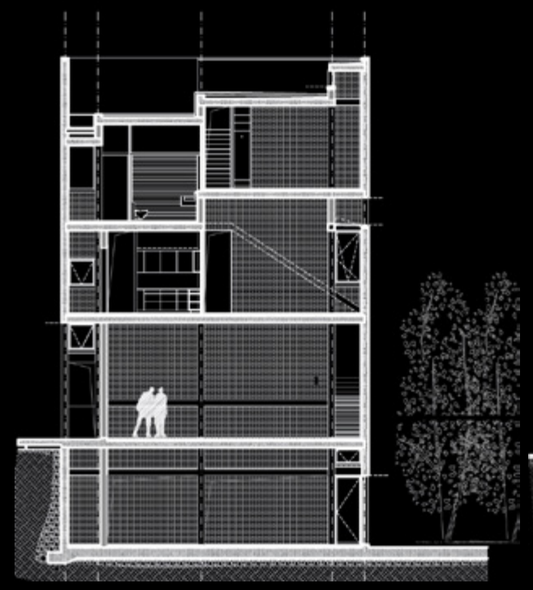




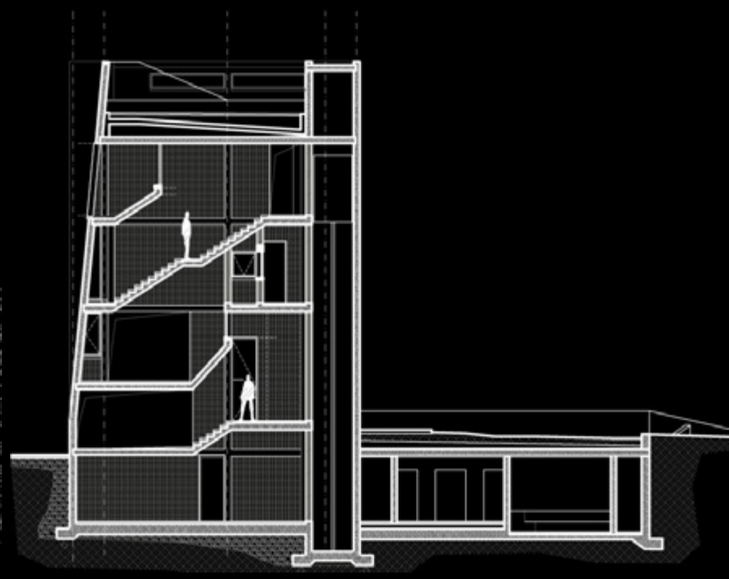
Horizontal house plan



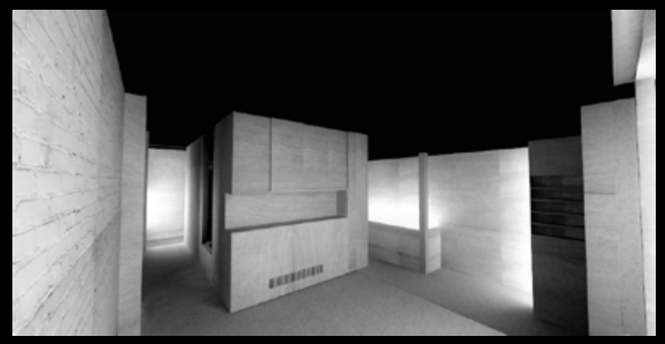
Floor plans

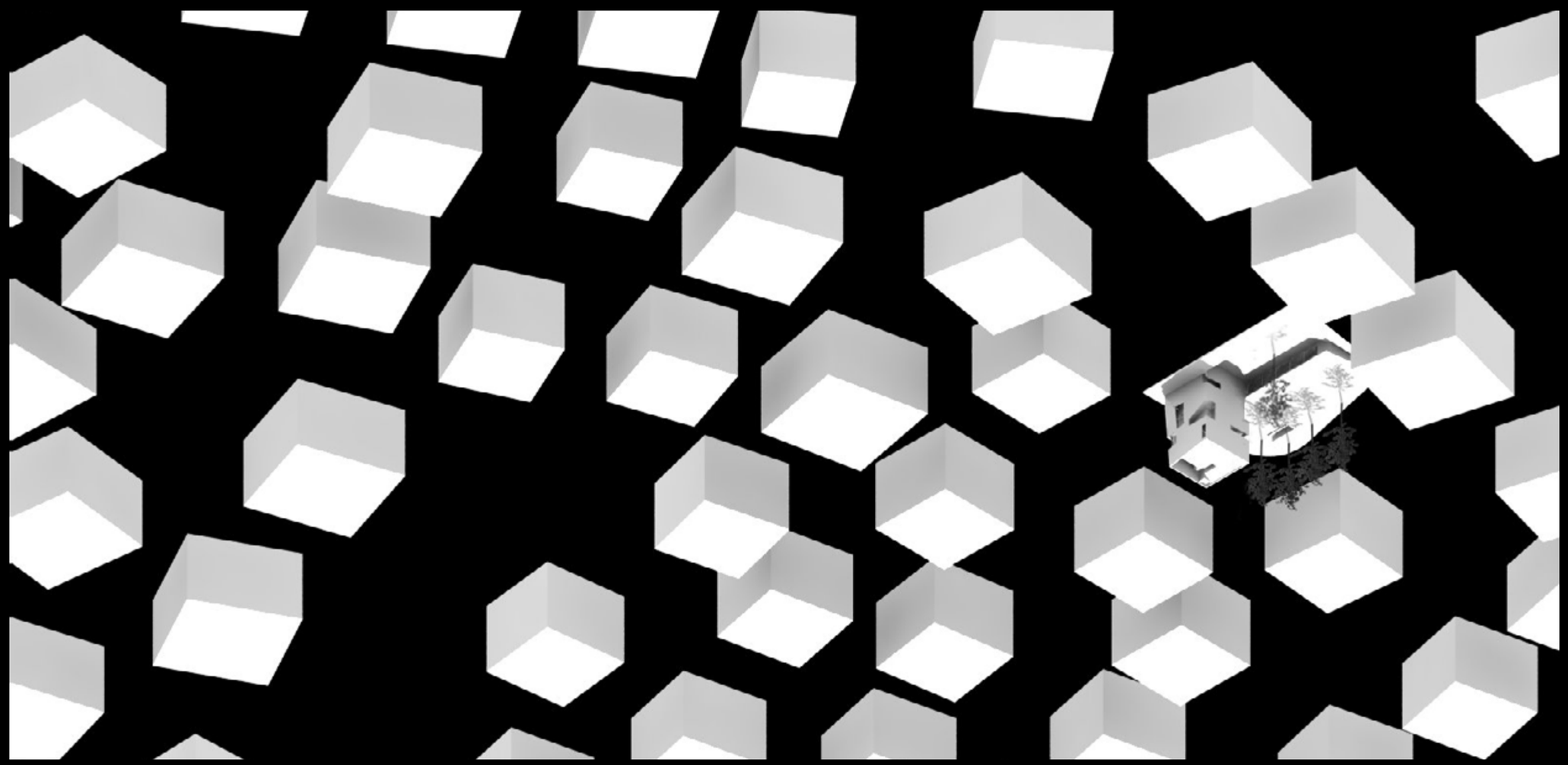


Vertical House section



Vertical and Horizontal Houses section





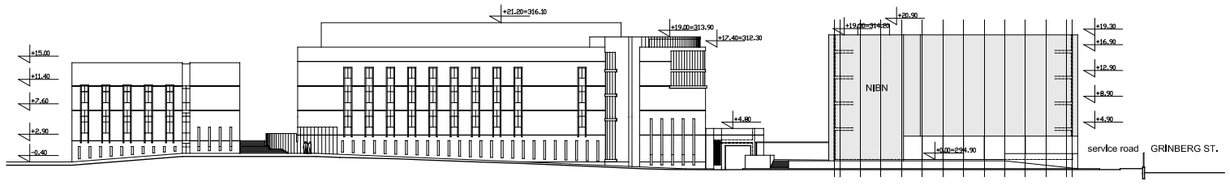
NATIONAL INSTITUTE FOR BIOTECHNOLOGY IN THE NEGEV (NIBN)

The NIBN project emerged from a strict set of rules and requirements, leaving little room for design expression. Our goal was to pay homage to the local architectural style and the modest character of the brutalist-modernist BGU campus, all while creating an inclusive plan. A significant part of our design work was focused on the building exteriors: We considered the client's preference for a covering material other than concrete, financial limitations, and the challenging desert climate. Throughout the design process, we explored various workable solutions, examining them through physical models, 3D simulations, assessments of sunlight and shade, and on-site trials of the chosen designs.

Images by Dan Chyutin, Amit Geron

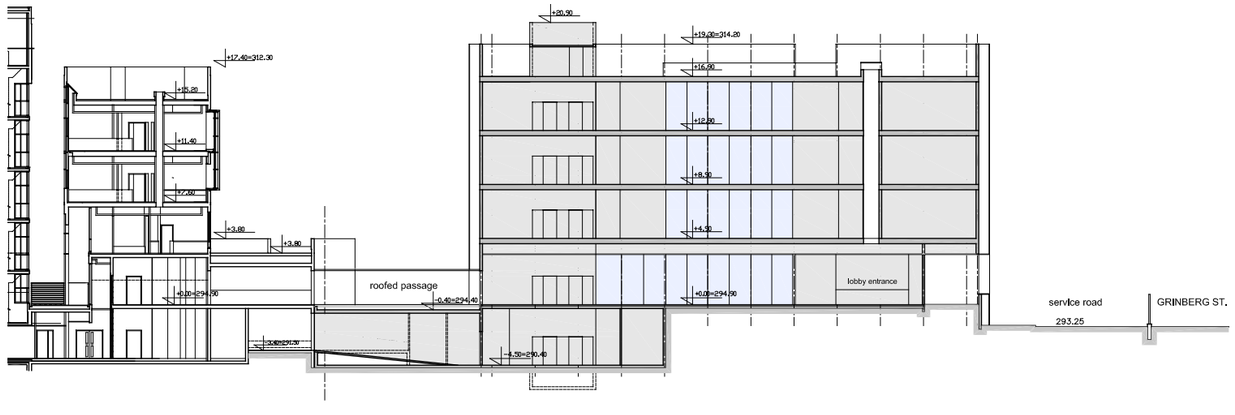
Architects Chyutin Architects
Location Be'er-Sheva, Israel
Project area 1,600 sqm
Project year 2010-2019
Role Design Lead, massing studies, façades design, 3D modelling and rendering, CAM for physical models, 2D drawing, presentations

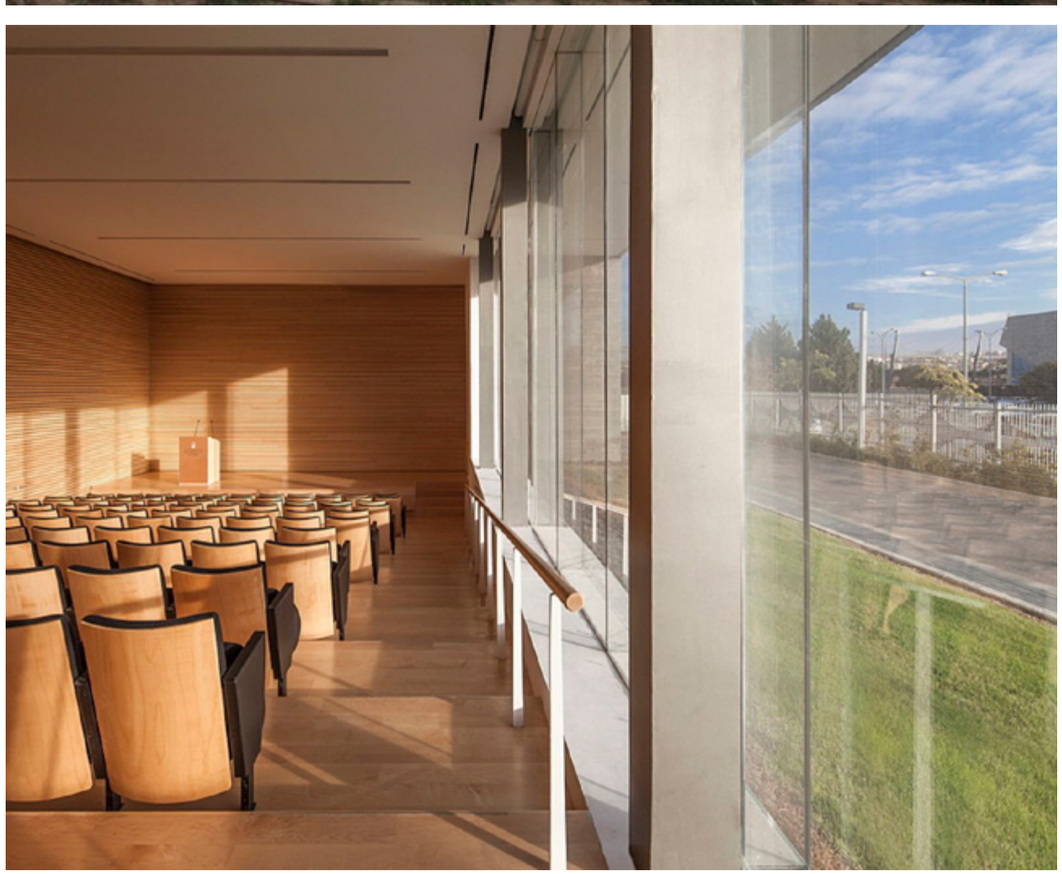
Building 41 (NIBN) as part of the BGU campus



SOUTHERN ELEVATION

Cross section at the patio and underground connection





Labs - typical floor plan

REPUBLIC

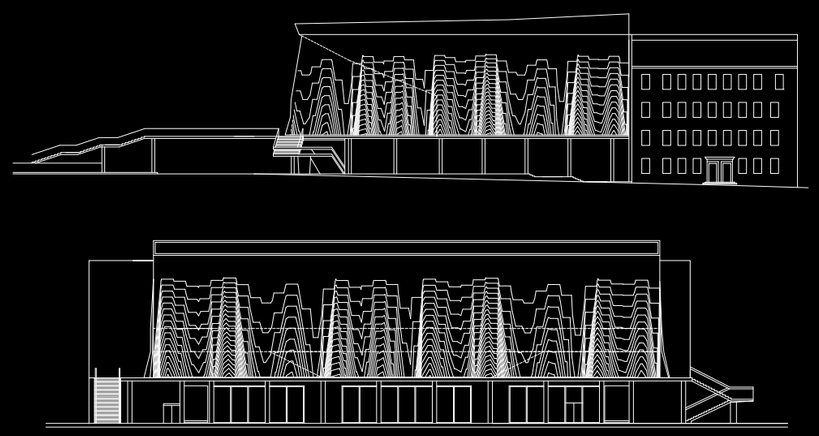
Competition - Finalist

This project aims to revive the importance of the Pushkinsky Cinema Hall, while also creating a unique landmark that draws in both residents and visitors of Moscow. Despite its rich history as a cultural center, the cinema has lost its connection with its surroundings over time. By using advanced technology and modern design principles, this proposal brings a contemporary look to the building's exteriors. It also expands the central cinema hall to reach out to the square and the cityscape around it.

Through this redesign, the renovated structure will pay homage to the cinema's prestigious past and will restore its former glory. Additionally, it will add value by hosting open-air events and infusing a new layer of cultural importance to the surrounding area.

Location Pushkinsky Cinema Hall, Moscow
Competition year 2011
Curator Architizer & DuPont

Pushkinsky sq. Site Plan



“An opera begins long before the curtain goes up and ends long after it has come down.”
Maria Callas

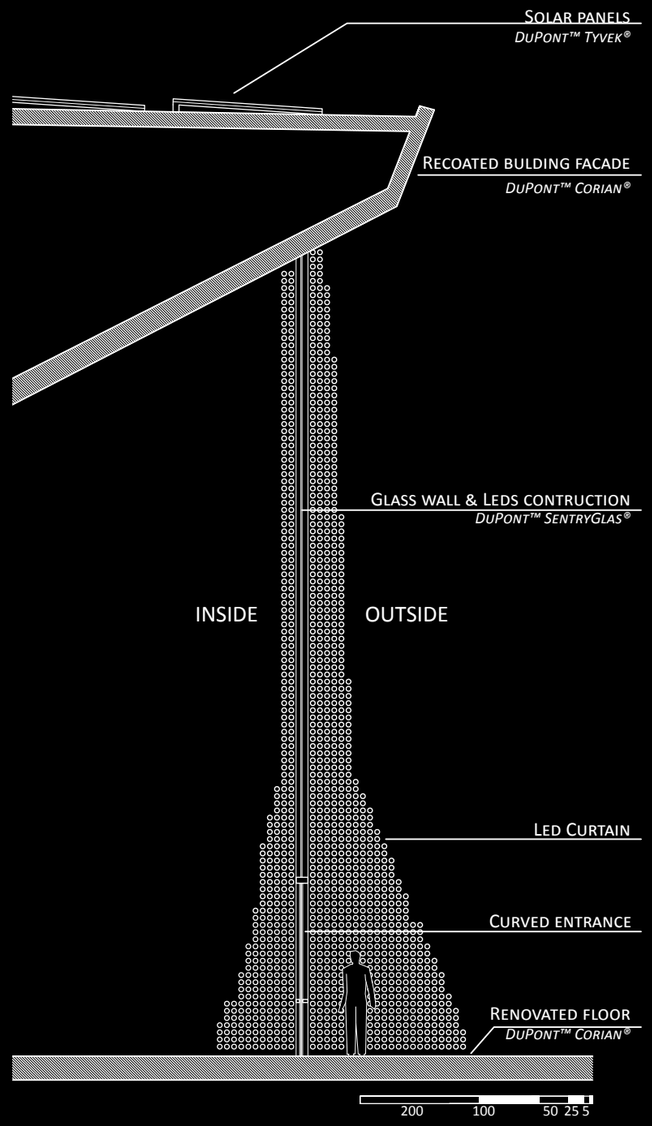
REPUBLIC

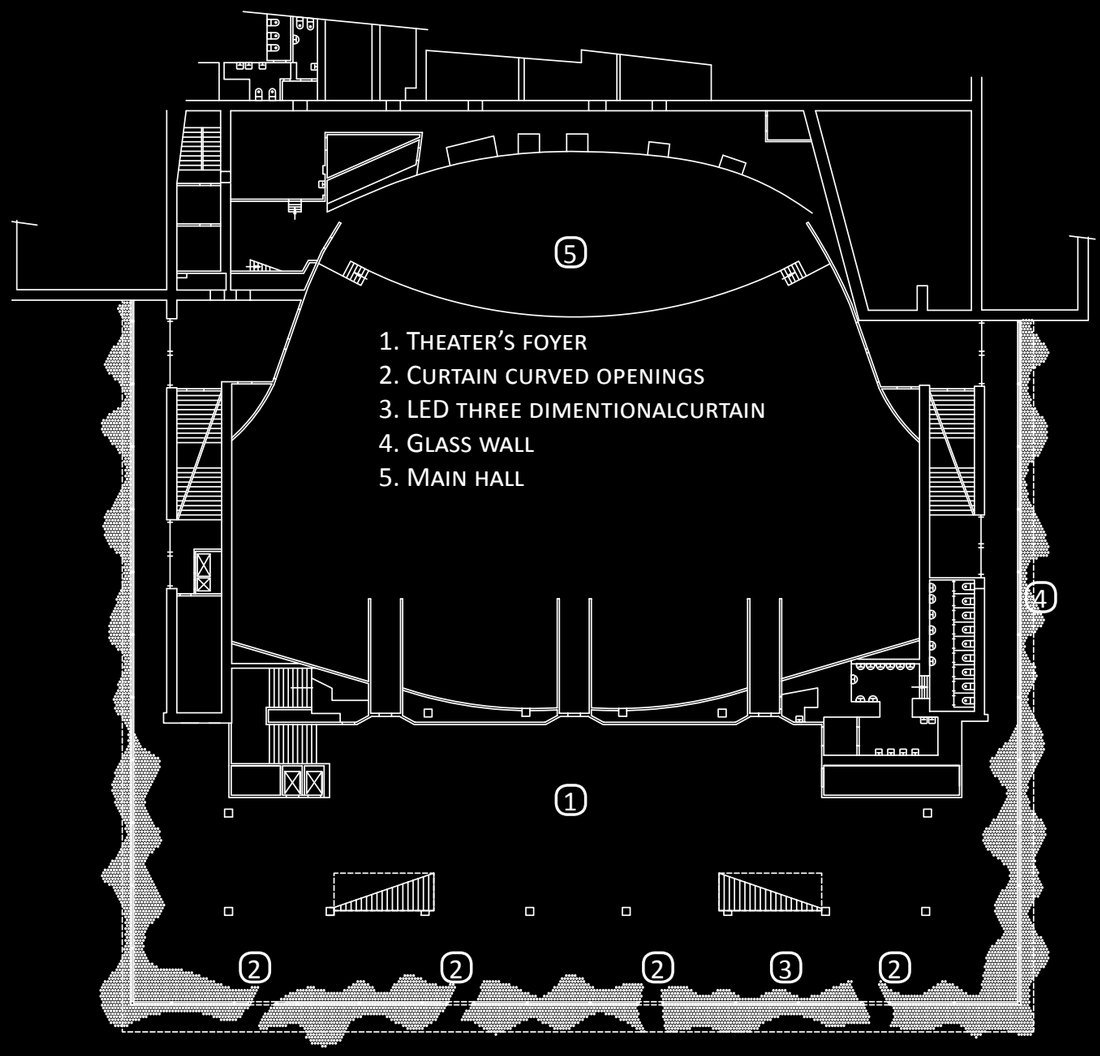
This project aims to restore Pushkinsky Cinema Hall significance while offering a unique landmark and vivid gathering point to Moscow’s inhabitants and visitors. Since its glorious days as a public cultural center, the cinema has lost its surroundings symbiosis, thus breaking the linkage between the building and its square, the interior and exterior. Using cutting edge technology and contemporary formalization, this design offers a neoteric appearance to the building facades and extends its main program, the cinema hall, to radiate to the square and encircling city. The new and re-public building will then roll back the cinema prestigious era for the future years.

CURTAIN

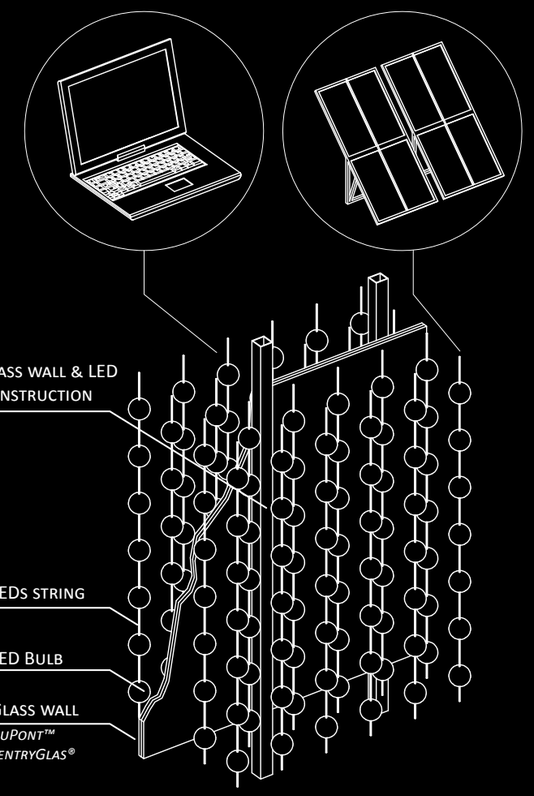
The buildings facades are replaced by a three dimensional matrix of LED light-bulbs, shaped and curved as a classic theater curtain. The LED curtain will surround the main three elevations and will perform as a live theater screen offering a limitless range of presentations and broadcasting: from Movie trailers and upcoming show schedules, to a full feature film or sport’s live broadcast. While not operated (during day times or other special dates) the LED Curtain will keep protruding as an iconic figure to its surroundings due to the topographic waves carved to the screen, thus preforming more than a flat-billboard facade. The volume created by the LED matrix will fabricate a unique effect to the ‘carved’ cinema entrances while the visual effect escorts the guests to the main foyer, as if passing through the image itself. Those slits are designed to minimize the gaps in the screen display, creating a continuous appearance to the exterior curtain.

LED CURTAIN FACADE SECTION



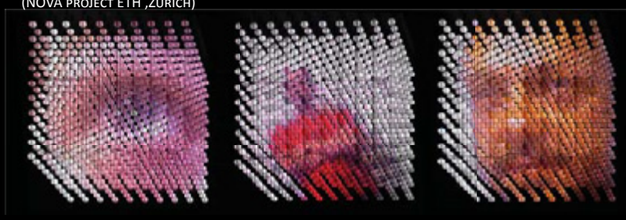


LED CURTAIN DETAIL



3D LED MATRIX DISPLAY

(NOVA project ETH ,Zurich)



TECHNOLOGY

Based on the research and technology developed by NOVA team at the Swiss Federal Institute of Technology (ETH), the LED curtain is a matrix of light-weight and low consumption LED bulbs, able to produce wide spectrum of colors and to perform under low maintenance for long period of time. The display on the LED curtain is computer controlled, enabling a flexible broadcasting and multiple setups according to the current display; as such, a movie trailer will be presented equally across the facades, while a sport broadcast will face the crowd on the Pushkinsky square. The LED curtain is divided to the inner and outer section with a glass wall situated in between, keeping the building insulation and climate and also acting as the main construction support to the LED curtain. Several other components of the building are being renovated and modified to reflect its new exterior appearance and interior atmosphere: The roof is being repaved with the help of DuPont™ Tyvek® water intrusion barriers, and then covered with solar panels; the cantilevered canopy is recoated using DuPont™ Corian® to emphasize the hinging effect of the LED curtain; The glass wall is a clear DuPont™ SentryGlas® aimed to dissolve into the curtain volume; the interior floor finish is offered a glossy-refelective layer of Corian® interior slabs, which will reflect and extend the interior curtain sensation.

SUSTAINABILITY

The vast and flat cinema roof will be covered with solar panels which during the day will produce and restore photovoltaic energy to the low voltage LED bulbs. The perforated matrix is allowing sight to and from the building, while acting as direct sun shaders to the building’s foyer.

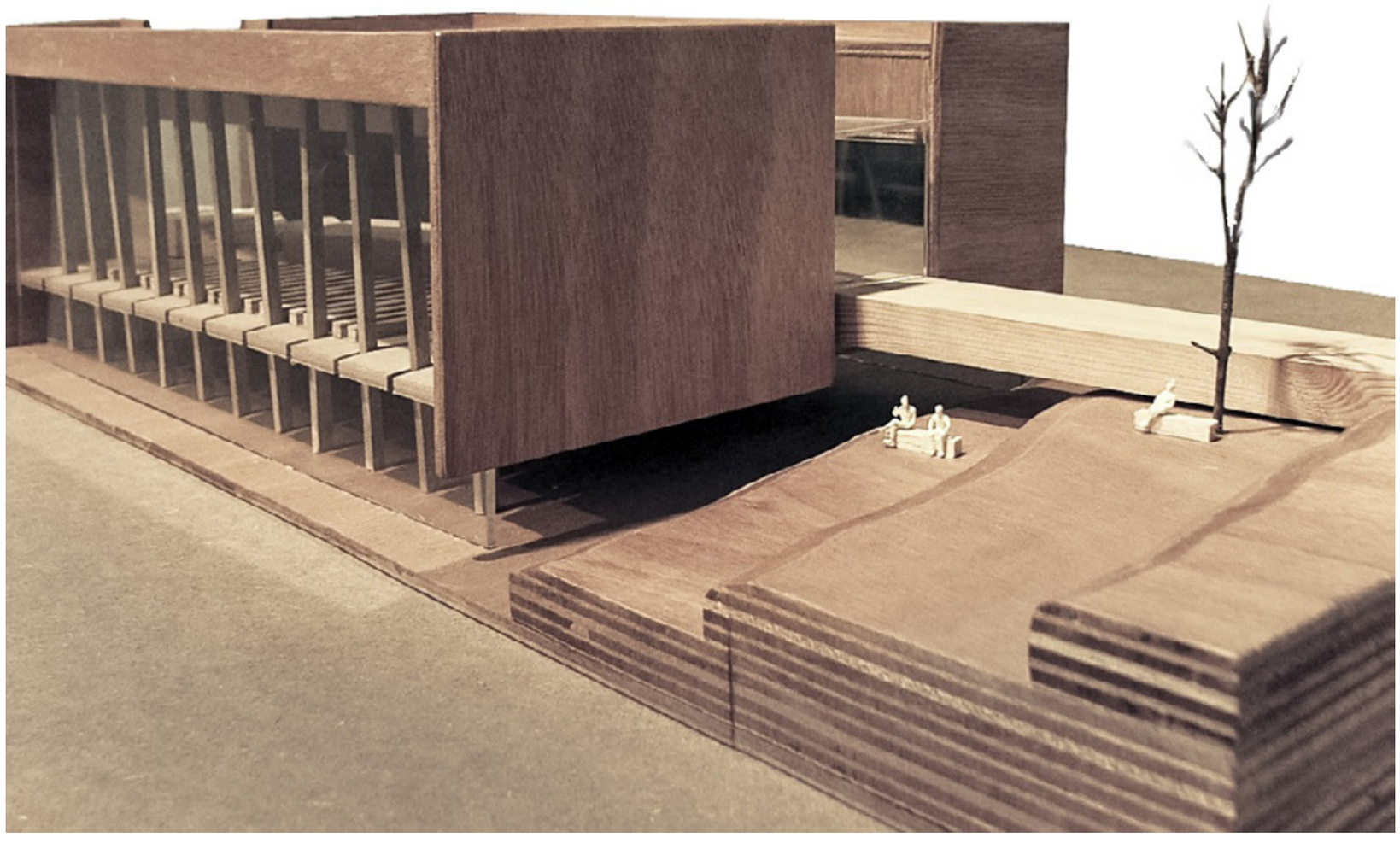
SEPTUM

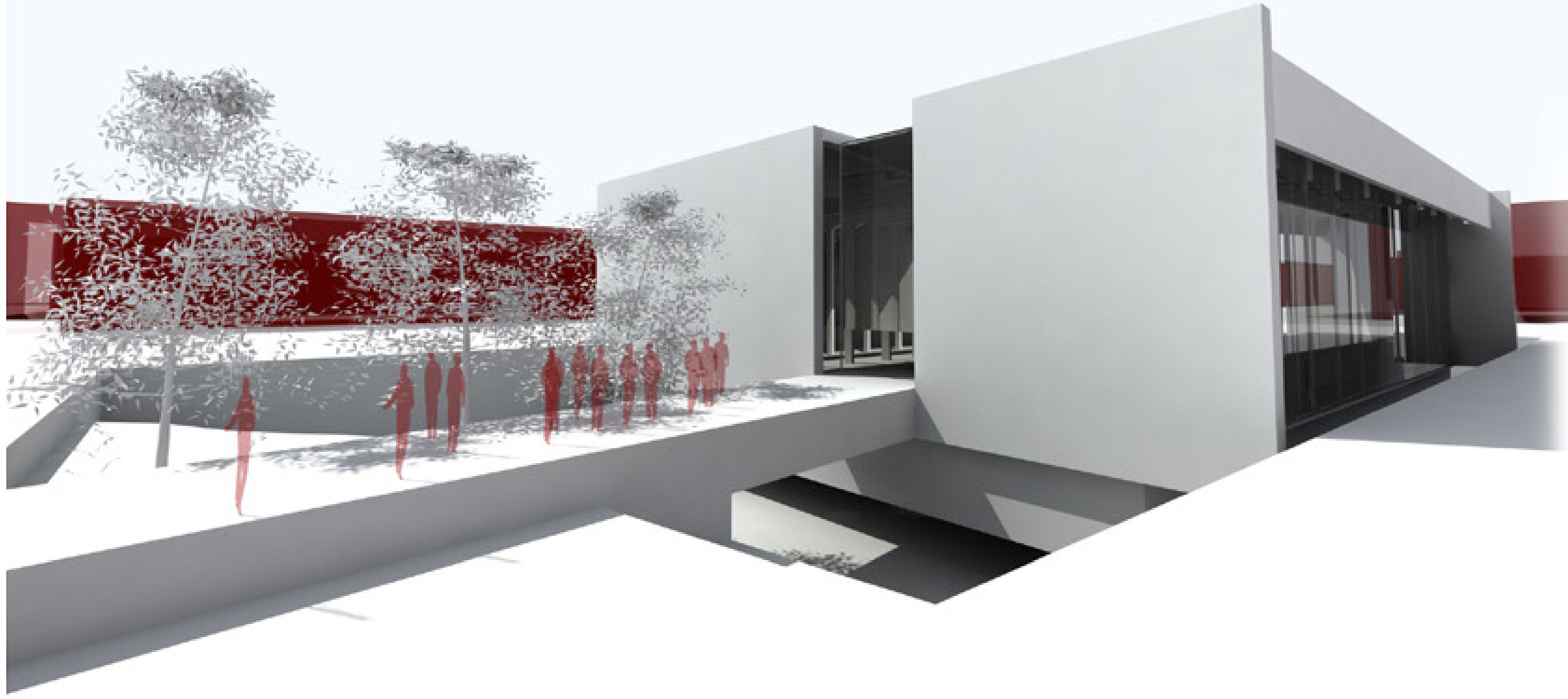
The Synagogue as a place of Equality

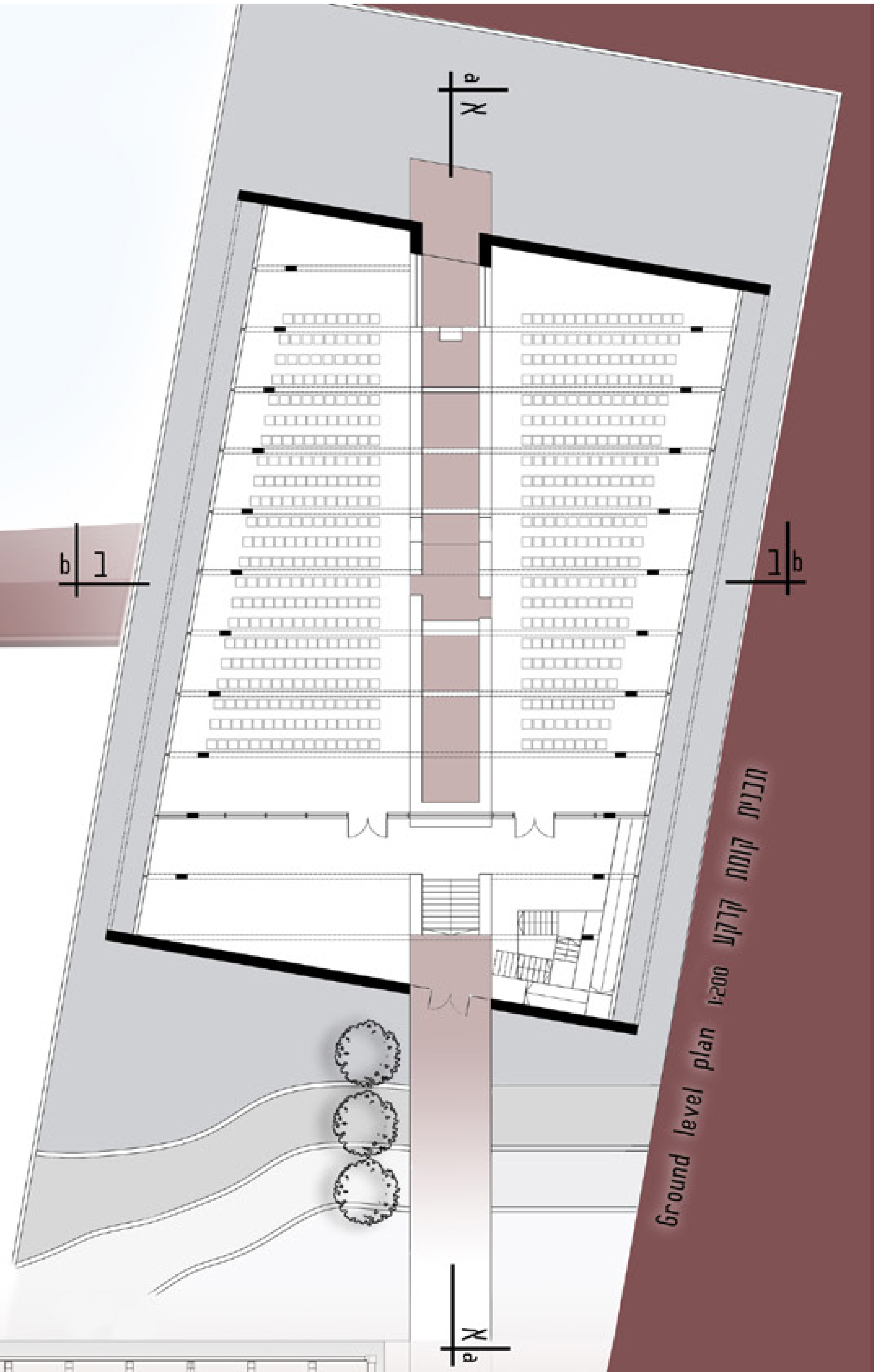
Competition - 1st Place

In traditional Jewish synagogues, a physical barrier called a “septum” historically separated spaces for men and women, reflecting theological beliefs held over centuries. This competition aimed to explore a different approach—one that promotes greater equality while respecting religious principles. The project introduced a novel perspective on the septum: instead of being a mere divider, it transformed into a functional space that fosters unity. The reimagined septum became a versatile element, fulfilling various functions like circulation, lighting, and books storage within the synagogue. As a result, it took on a more communal role during synagogue rituals while also highlighting its significance as a symbol of unity.

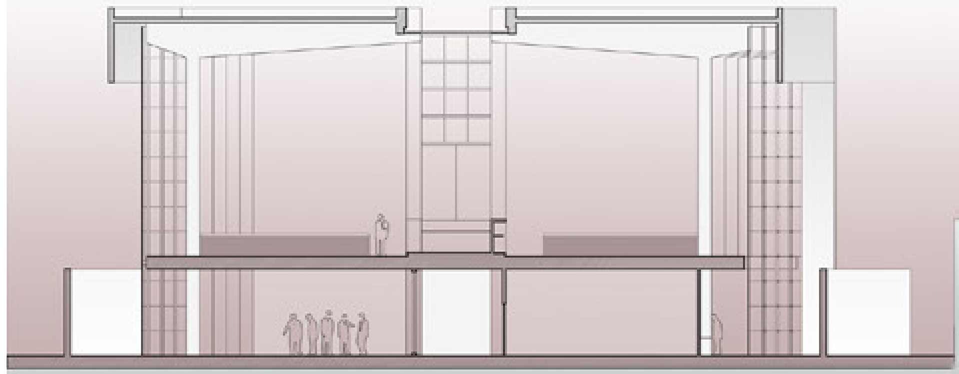
Location Tel-Aviv, Israel
Competition year 2005
Curator KOLECH



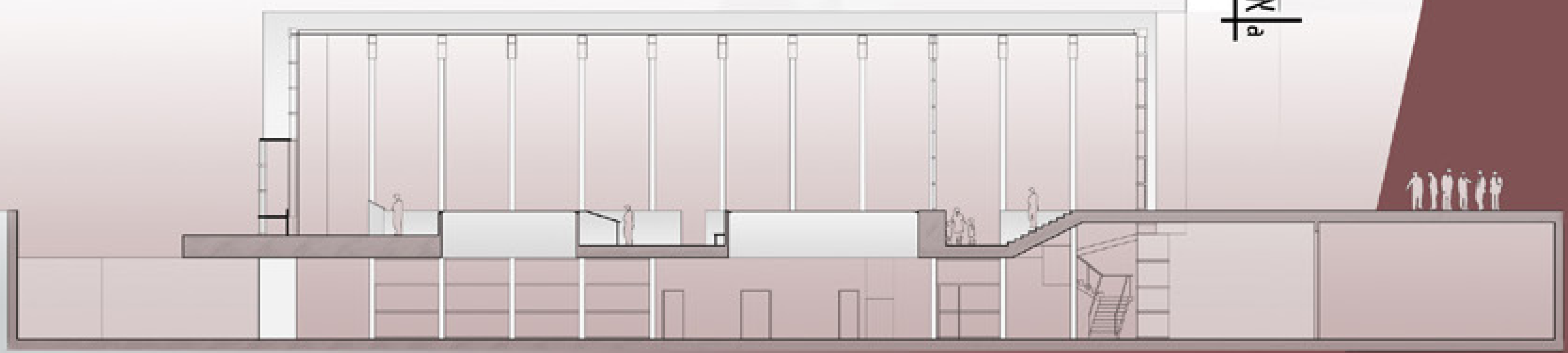




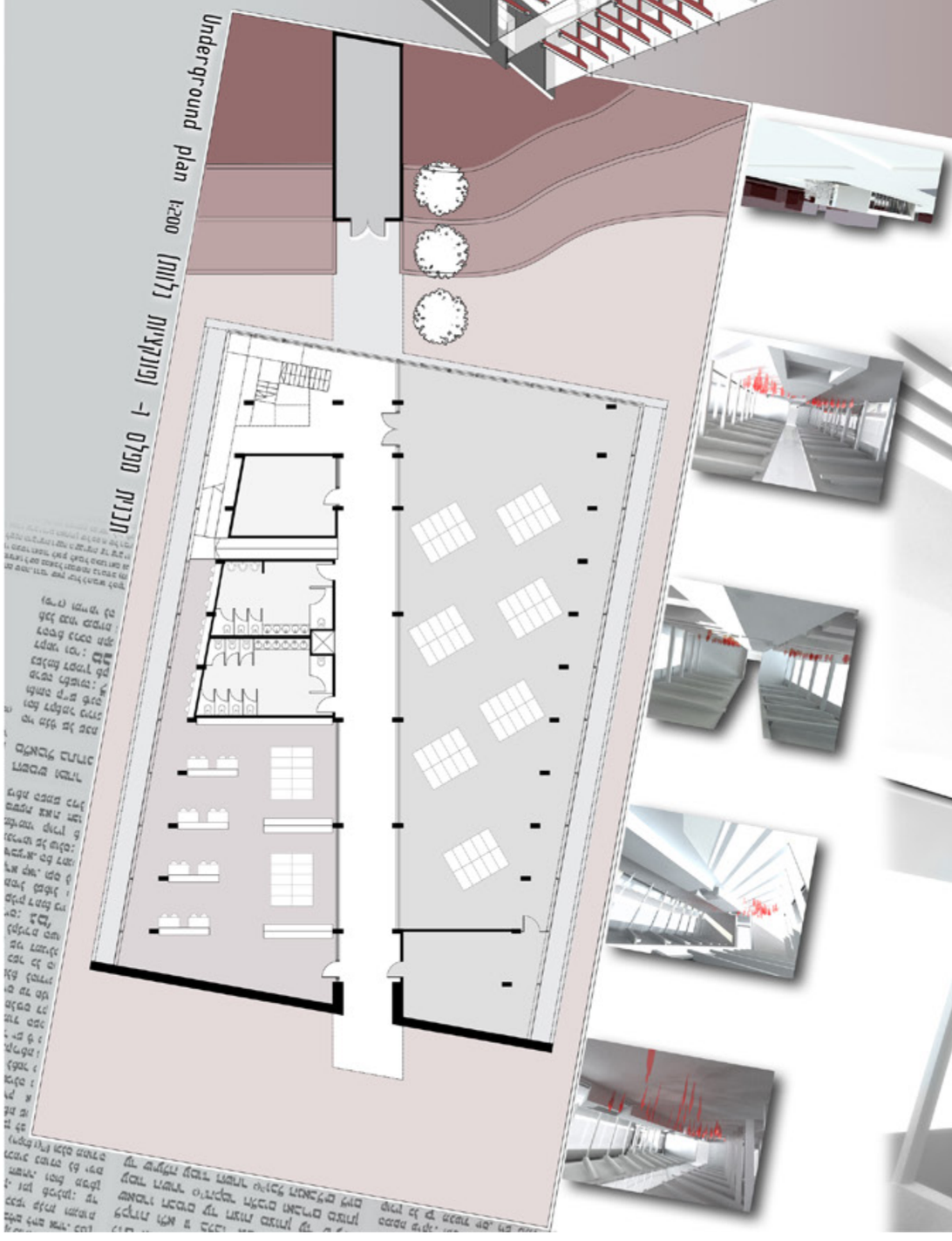
Ground level plan 1:200 תכנית קומת קרקע



Section B-B 1:200 חתך ב-ב



Section A-A 1:200 (לאורך המחיצה) חתך א-א



Underground plan 1:200 תכנית מפלס -1 (פונקציות נלוות)

מתווה המחיצה | Septum layout

סכמה סטרוקטוראלית | Structural scheme

THE 8TH SOUK

Competition - 3rd Place

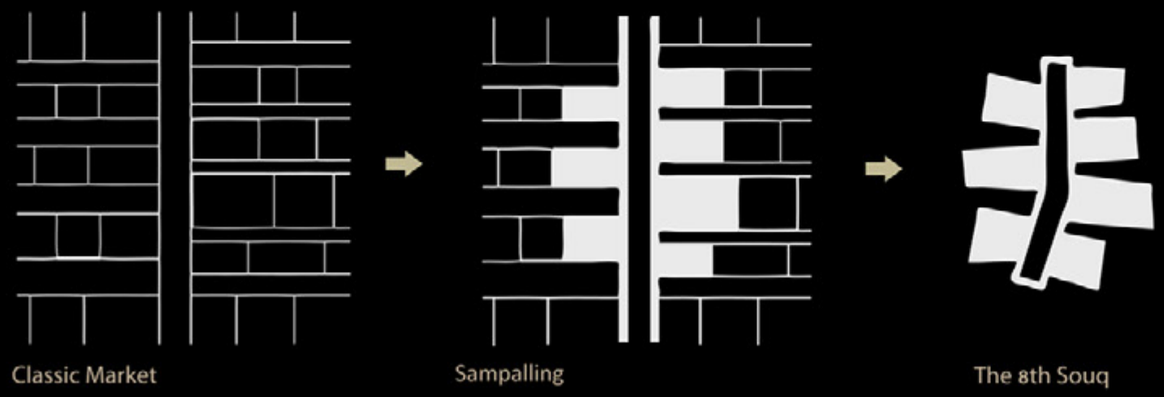
The concept for this competition proposal drew inspiration from Deriah city's seven major markets, collectively referred to as "the souks." By isolating the fundamental essence unique to each of these markets, the project design emerged from the basic unit that encapsulates the idea of a souk. The 8th souk embodies a wide range of 'commodities,' but instead of dealing in food, clothing, or spices, the 8th souk 'trades' in stories; it acts as a center for cultural exchange.

Inside this souk, a variety of spaces is offered, ranging from cozy spots for personal storytelling to large-scale events for a broader audience. Just like other market types, the 8th souk encourages a dynamic range of interactions, all driven by the visitors' own choices—whether it's a quick glance or a deep, extended exploration.

Location Dubai, UAE
Competition year 2008
Curator 2A Architecture Co.

the 8th souk

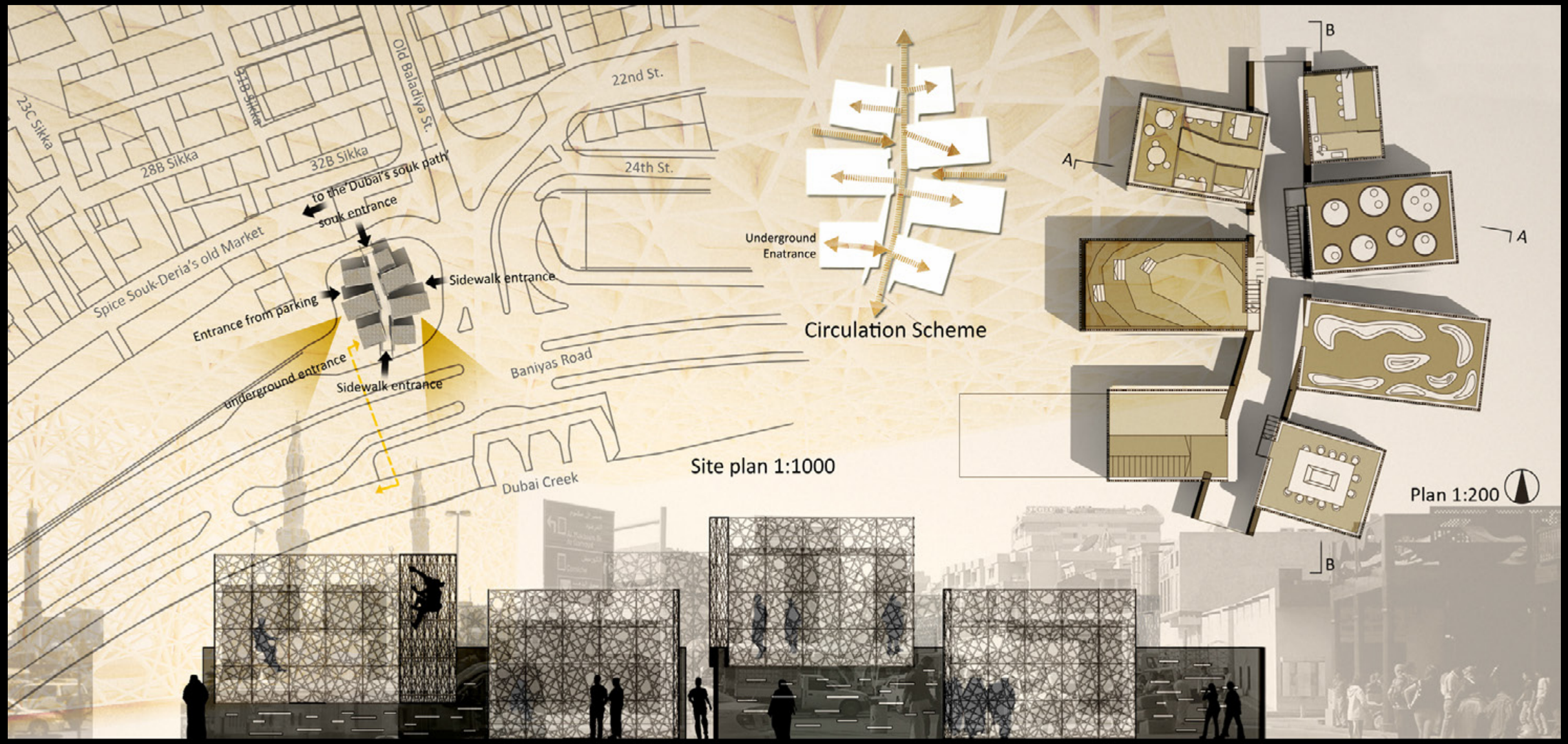
cultural market



The 8th souk seeks to create a new ground for cultural exchange – **market your story.**

Dubai's mass development in the last few decades, oppressed sub cultured and micro ethnic groups to the outskirts – both mentally and geographically. This multi cultural area was substitute by an homorganic-international - economical culture.

The 8th souk aims to revoke some of those forgotten groups, using a well known yet revised typology.

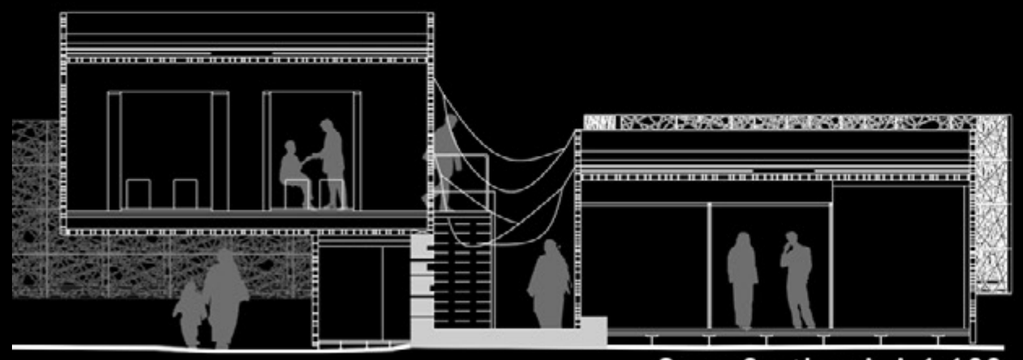


Site plan 1:1000

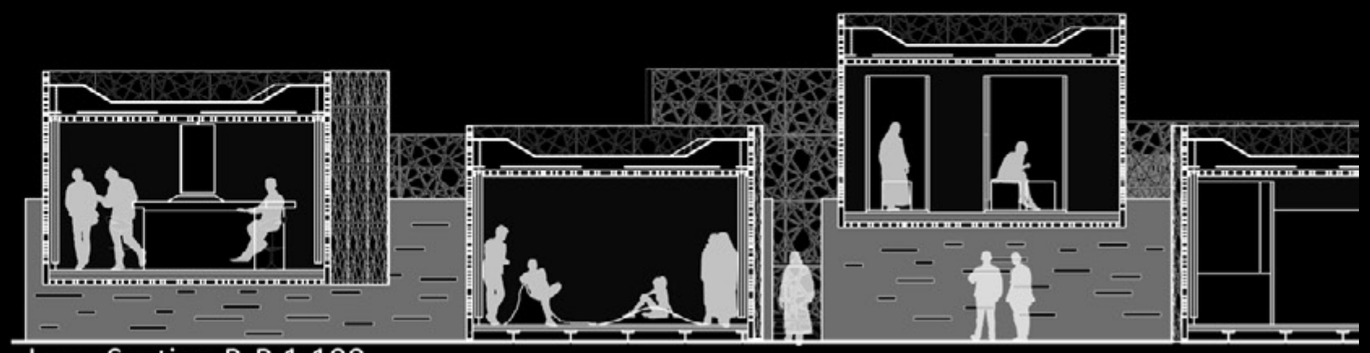
Circulation Scheme

Plan 1:200

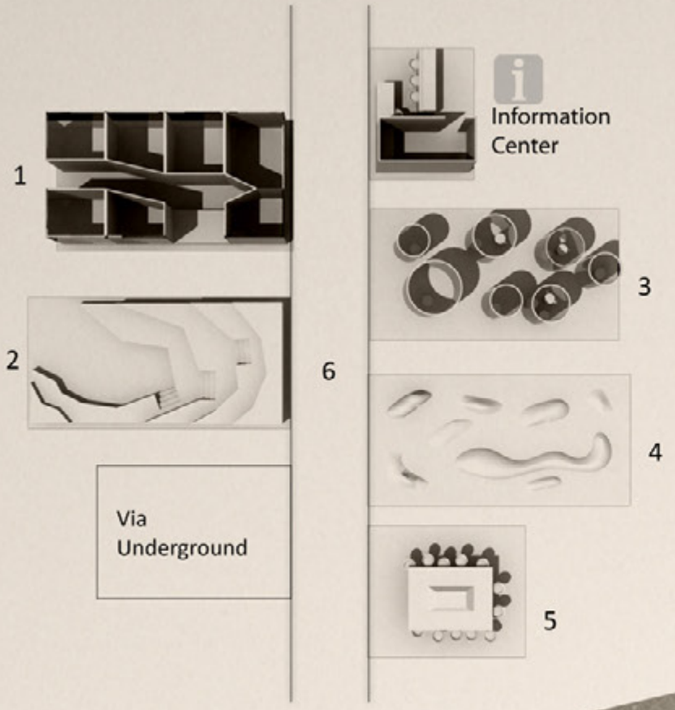
East Elevation 1:100



Cross Section A-A 1:100



Long Section B-B 1:100



1/Broadcasting Studios

Space: 45sqm
Intensity: Medium
Working Hours: 8:00pm - 22:00pm
Accesability: Media People & Special Guests
broadcast yourself world wide, through various media types: TV ,Radio, Internet.

2/Points of Exchange no. 1

Space: 50sqm
Intensity: Medium
Working Hours: 8:00pm - 20:00pm
Accesability: Storytellers & Audiance
Type of Activity: Share your story infront of a live audience.

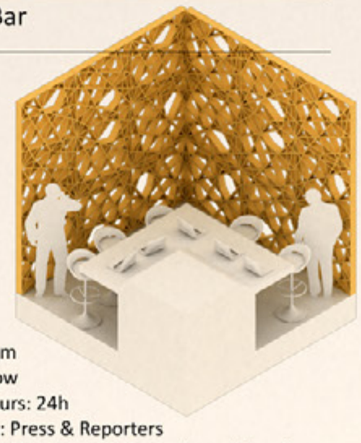
3/Points of Exchange no. 2

Space: 50sqm
Intensity: Medium
Working Hours: 24h
Accesability: Anyone
Type of Activity: Record Your story inside the tube, so that others can hear it.

4/Indoor Lounge

Space: 80sqm
Intensity: High
Working Hours: 8:00pm - 22:00pm
Accesability: Anyone
Type of Activity: Enjoy your stay, Eat , Drink, blend, meat new people.

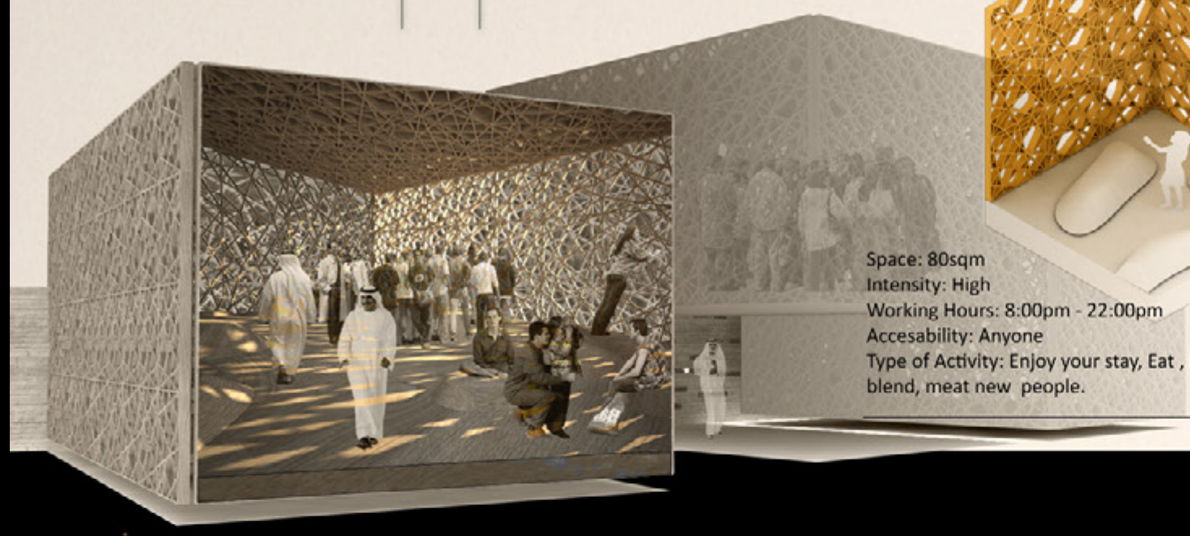
5/Press Bar



Space: 30sqm
Intensity: Low
Working Hours: 24h
Accesability: Press & Reporters
Type of Activity: Share information with other reporters in this 24h media center, stay tuned.

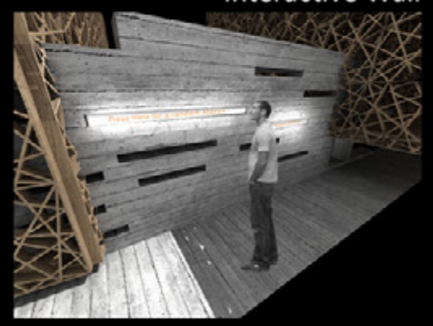
6/Outdoor Lounge

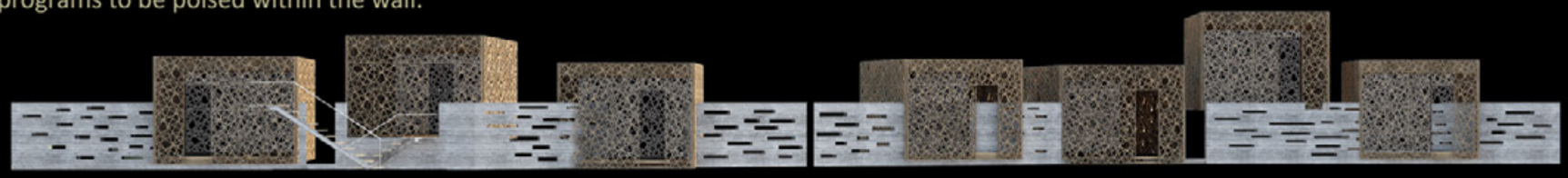
Space: Public
Intensity: High
Working Hours: 24h
Accesability: Anyone
Type of Activity: feel the area srounding the '8th souk' Atmosphere in this open lounge.

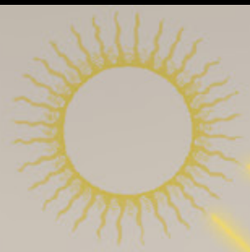


The Programs - As in other marketplaces, the 8th souk offers a wide range of 'goods'; while the others may offer food, clothes, spices, and gold, this souk 'sells' stories- it's a point for exchanging culture. The 8th souk apply to 6 major programs plus 2 service units, including points for sharing and acquiring stories, press areas , broadcast studios and multiple gathering options. Situated along the path, the programs are organized in a random looking figure, thus creating the unexpected feeling accompanying a tour to a souk.
The last and maybe the most important program, the interactive wall, is spread along the path itself. By puncturing holes along the wall, a Mashrabiya (مشربية) was created, allowing not only the classic advantage of an open-closed curtain, but making a room for a new set of programs to be poised within the wall.

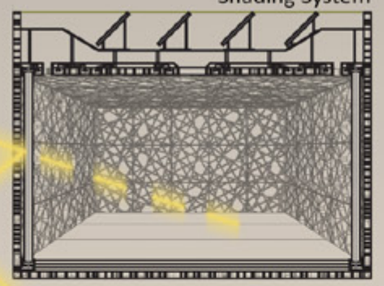
Interactive Wall



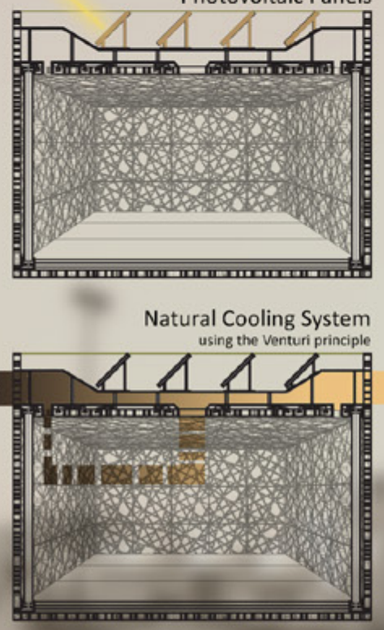




Shading System



Photovoltaic Panels



Natural Cooling System

using the Venturi principle

photovoltaic panel
sconverts solar energy into electricity

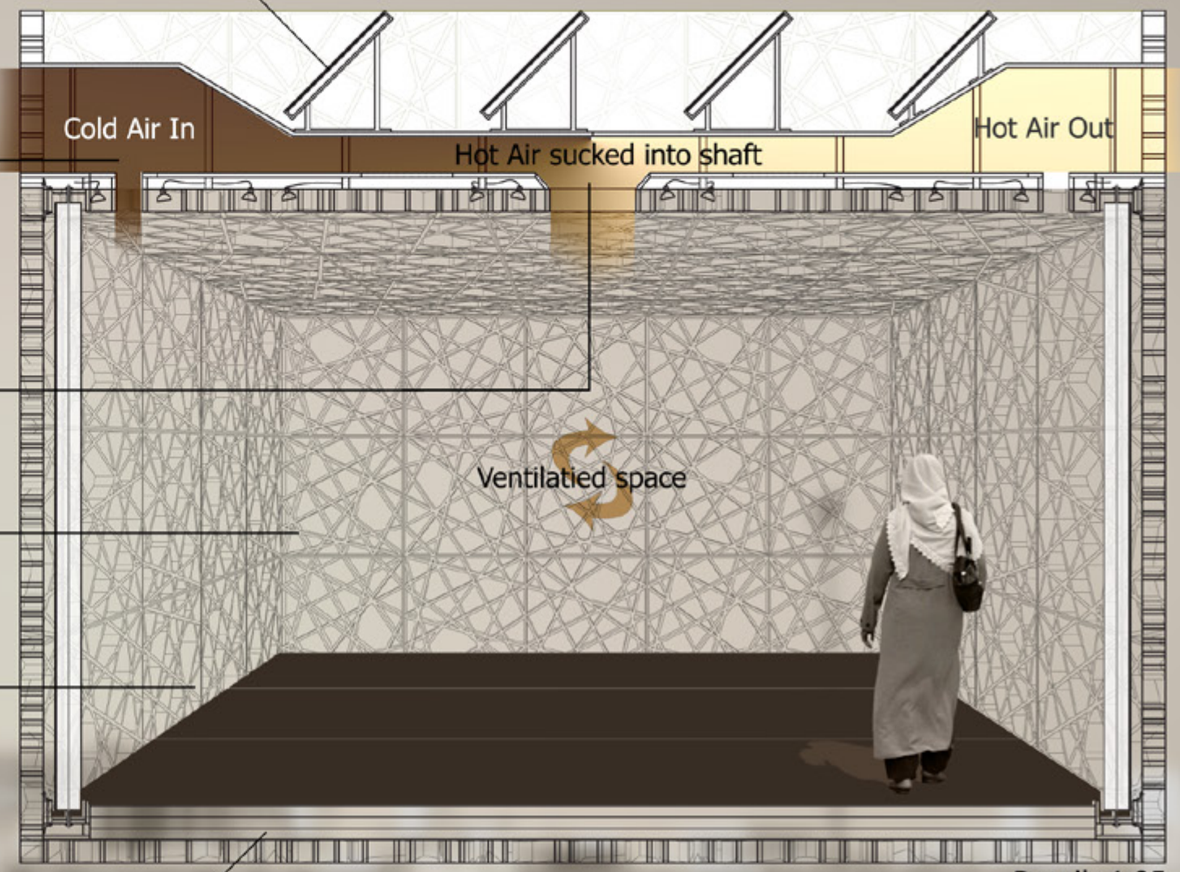
"Wind Tower" Input
Uses Wind to cool
the Chamber by
Venturi Princeplle

Venturi Effect Uses
wind to create Pressure for
cyceling air inside

Fully Vintalated
Chambre

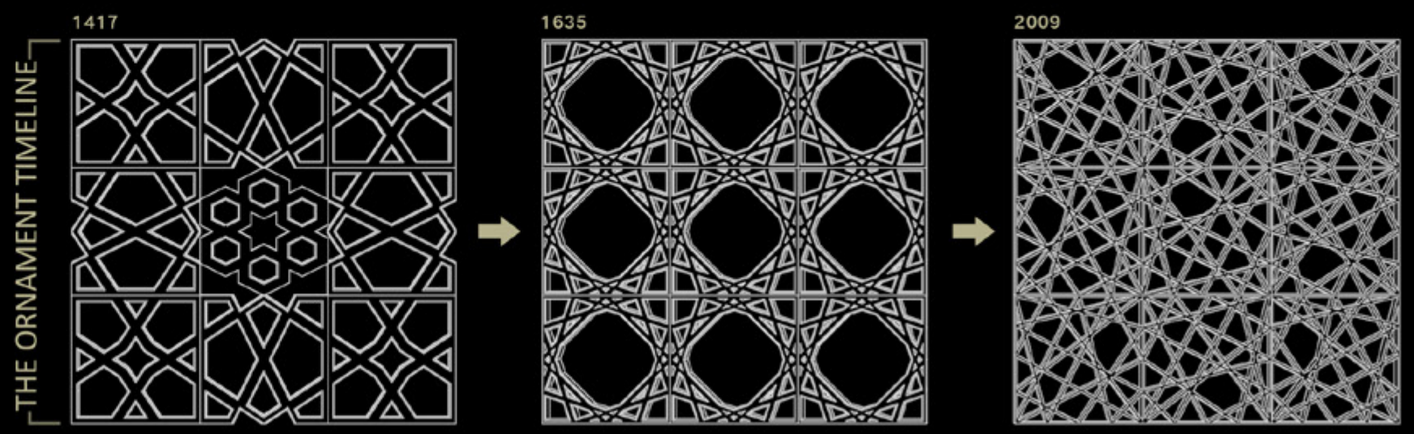
Mashrabiya wall
made by varietions
of 1X1 revised
ornament

Light Recyclable
Construction

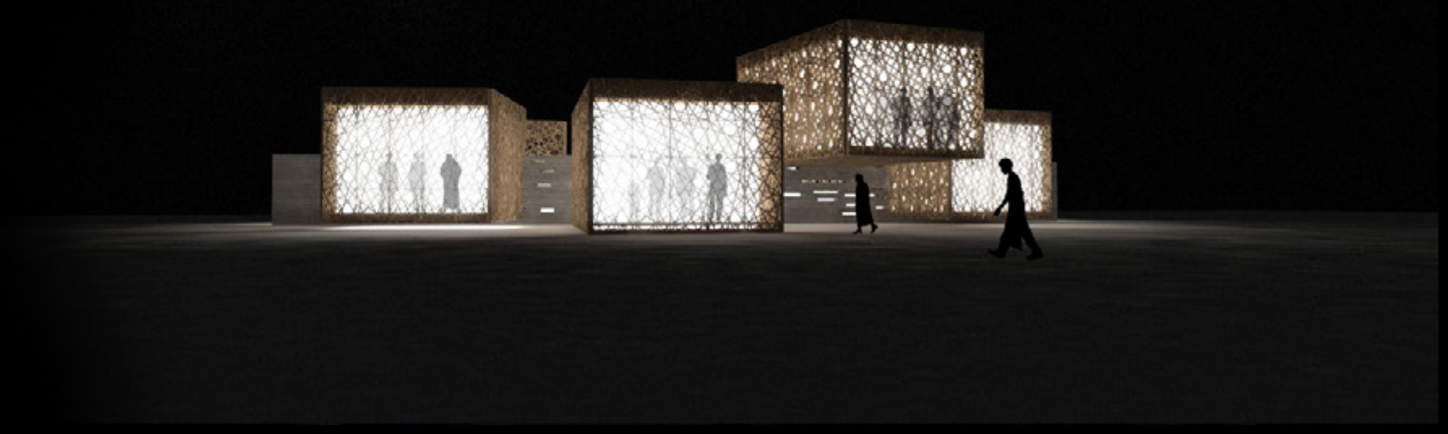


Details 1:25

Sustained Structure - Modern Dubai encountering a major issue regarding the way of treating nature values; the vast usage of natural capitals is vital to the ever growing city. The '8th souk' seeks to reuse well known, highly intelligent methods instead of competing with new shiny and glamorous 'green technologies'. This project uses three main routes to lower the environment damage: the usage of low cost recycled materials, the light and movable structure, and the use of efficient classical methods for shading and ventilating. Combining those methods creates a self sufficient project, collaborated with its surroundings.



Public Sphere - created as an opened structure, the '8th souk' can be active along the day and night, driven by different types of 'customers'. The activities along the whole day may change - from a crowded atomsphere in the days, to a quiet, more private, activities at night time.



STATION NO. 5

Competition - Finalist

Over different historical eras in Israel, numerous water towers were erected. However, a significant portion of these structures now lie abandoned, visibly deteriorating. What was once a symbol of vitality has unfortunately become a regretful reminder, often adorned with cellular antennas and advertising signs. Only a few municipalities have recognized their historical and cultural importance, choosing to repurpose these towers.

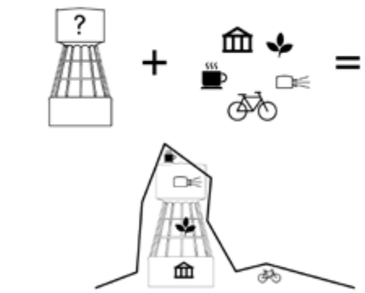
This competition aimed to reimagine the traditional Israeli water tower design as a whole, while also proposing a specific redesign for a chosen tower. This design approach acknowledges the communal value of these water towers and strives to reintegrate them into contemporary life as public spaces. This is achieved while safeguarding their historical significance and heritage, while renovating their looks and urban purpose.

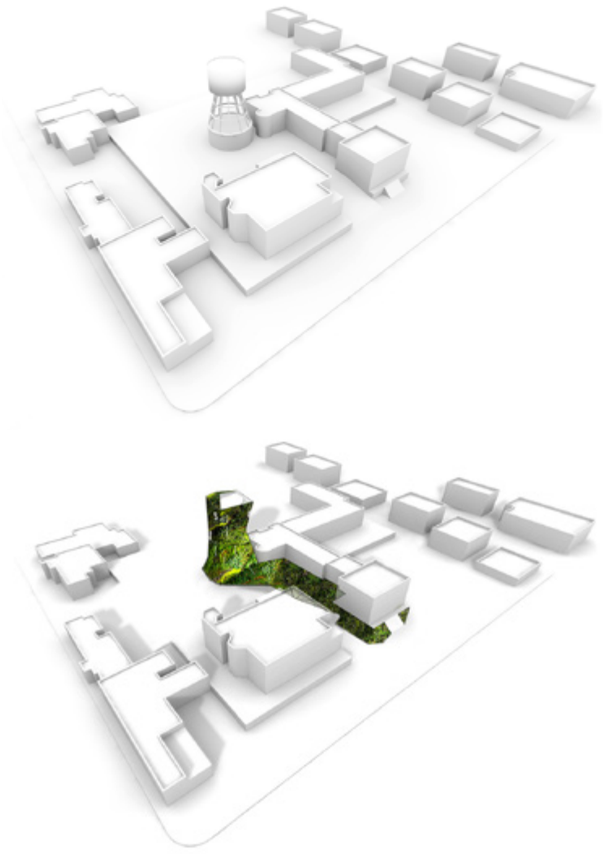
Location Raanana ,Israel
Competition year 2010
Curator Berkeley University and the Society for Preservation of Israel Heritage Sites (SPIHS)

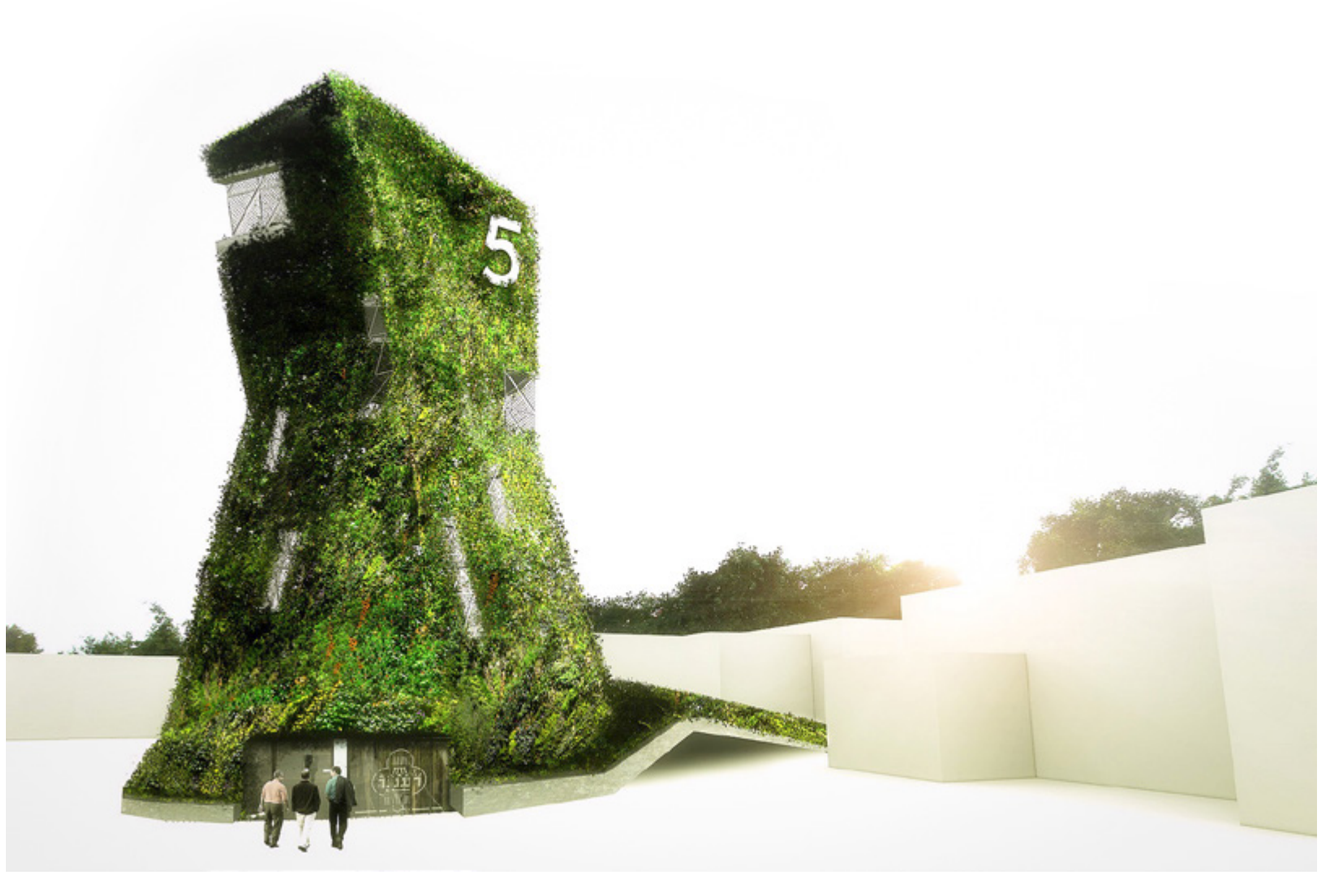
ICON

"...The icon is an expression of the tree shipping its fruits to the different directions, as a symbol of industrial enterprise branches. It demonstrates the economic foundation, growth and development of the town in recent years."
[A press release describing the city symbol design, 1960's]

Lacking any natural icons and environmental references, the young town absorbed its highest building to act as the main element in their official symbol, while decorating it with the1960's town products: orange trees and industrial factories. Today, the fields of oranges became a prosperous real estate landscapes, and the industrial sites were replaced with a clean semiconductors parks. Those concrete sentries who were a source of pride shrouded with modernistic symbolism, are now left neglected on top of towns hills, hardly justifying their existence by supplying water to the built environment. Yet it seems that the symbolic choices of the logo designer, passes the test of time; though the city grown and expanded, the old water tower is still among the highest and most prominent building in the city, viewed from nearly any point.







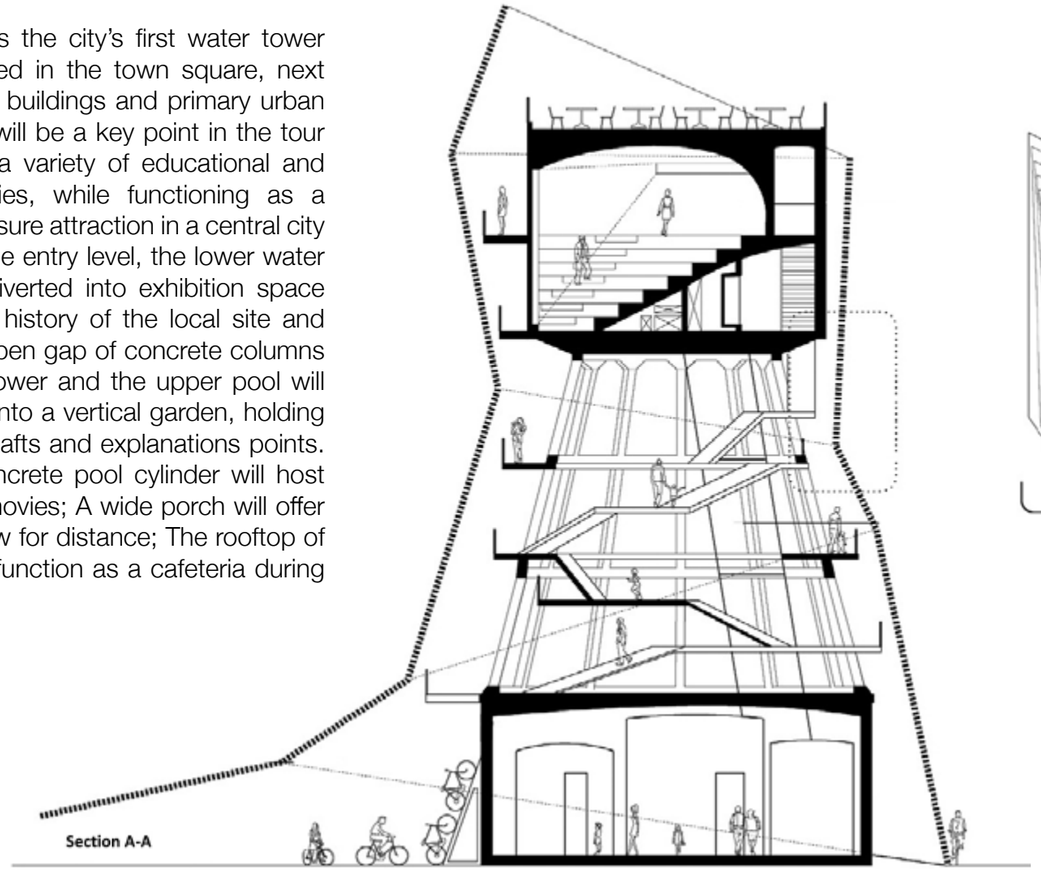
SEVEN STATIONS

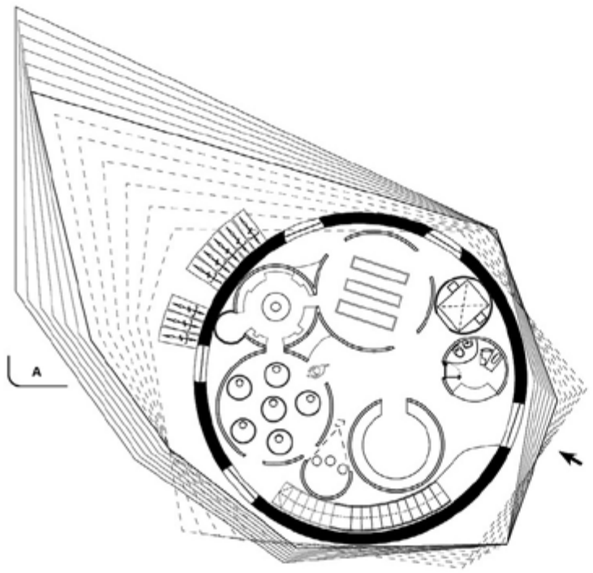
Within the urban scale, ‘Station 5’ seeks to spread a history museum program across seven municipal water facilities - some currently abandoned and others were replaced by modern systems. Every station will store different layer of the city story and documentation, according to the station placement. Hence, an abandoned accumulation pool situated at an orchards field will be converted to the city agricultural station; a water tower within a residential area will serve as a record of the city population growth and as a database for its habitants. A marked bike route, already partly existing, will serve the traffic between those stations, and bicycle pairs would be loaned to serve the travellers.

city 7 stations plan

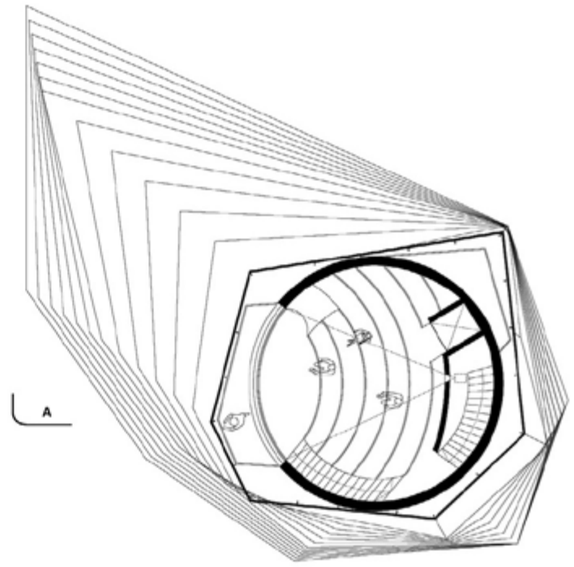
STATION 5

Station No.5 is the city's first water tower (1920's) situated in the town square, next to municipality buildings and primary urban institutions. It will be a key point in the tour and will offer a variety of educational and cultural activities, while functioning as a lookout and leisure attraction in a central city location. On the entry level, the lower water pool will be diverted into exhibition space displaying the history of the local site and the city. The open gap of concrete columns between the lower and the upper pool will be converted into a vertical garden, holding observation shafts and explanations points. The upper concrete pool cylinder will host lectures and movies; A wide porch will offer panoramic view for distance; The rooftop of the tower will function as a cafeteria during day and night.

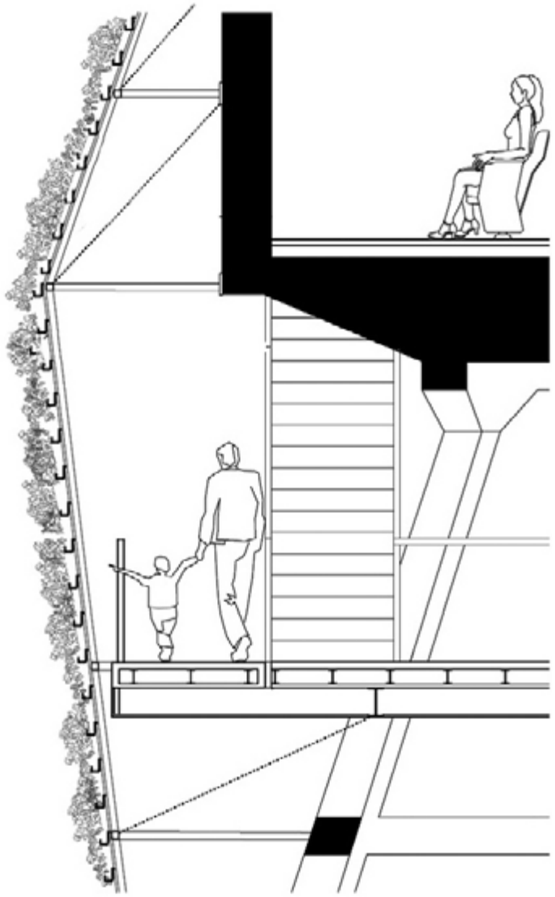




Lower pool plan



Upper pool plan



SUSTAINED ENVELOPE

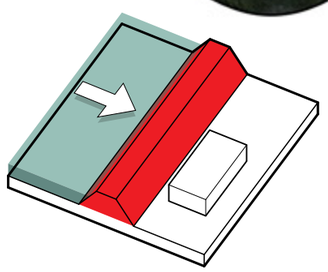
Throughout the years, the concrete facades of this tower became a carrier for network infrastructure and electricity systems and a huge canvas for urban vandalism experiments. Along with the programmatic revival of the tower, the project offers a new outfit the city's old servant; A light skin made of metal nets stretched across the tower facade. The net will be rapidly covered with climbing vegetation creating controled climate to the building torso. The new facade will maintain the historical symbol of the city as an urban landmark while arousing a fresh and modern appearance to it.

URBANISM

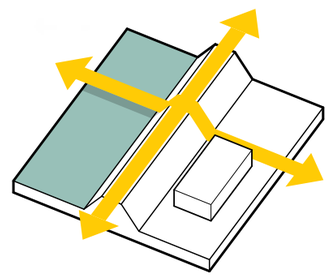
THE NEW MEADOWLANDS

This project transforms the Meadowlands basin to address a wide spectrum of risks, while providing civic amenities and creating opportunities for redevelopment: ***protect, connect, grow***. A large natural reserve made accessible to the public will offer flood protection. Called ‘the Meadowpark’, it connects and expands marshland restoration efforts by the New Jersey Meadowlands Commission, and makes them accessible. A system of berms and marshes is proposes Around and across the Meadowpark, to protect against ocean surges, and collect rainfall, reducing sewer overflows in adjacent towns. The Meadowpark adds value to surrounding development through its views and recreational offerings. The Meadowband defines the edge of the Meadowpark. A civic amenity, it consists of a street, Bus Rapid Transit line, a series of public spaces, recreation zones, and access points to Meadowpark. The Meadowband brings together different systems (such as transport, ecology, and development) and different scales (from local to regional).The park and the band protect existing development areas. In order to be worthy of federal investment, it is imperative to use land more intensively, by shifting from suburban-style development to more urban typologies.

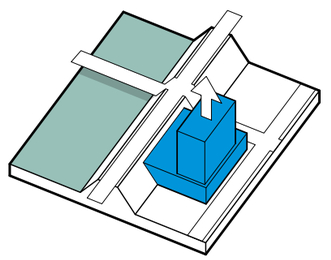
Commissioned by Rebuild by Design
An Initiative of the President’s
Hurricane Sandy Rebuilding Taskforce
Architects MIT+ZUS+URBANISTEN
Location Meadowlands, New-Jersey
Project area 8400 acres
Project year 2014
Role Team architect, Client & Community outreach, Planning & design, Parametric Analysis & GIS, 3D modelling and rendering, CAM & physical models, 2D drawing & presentations



PROTECT
Berm & ‘Meadow Park’



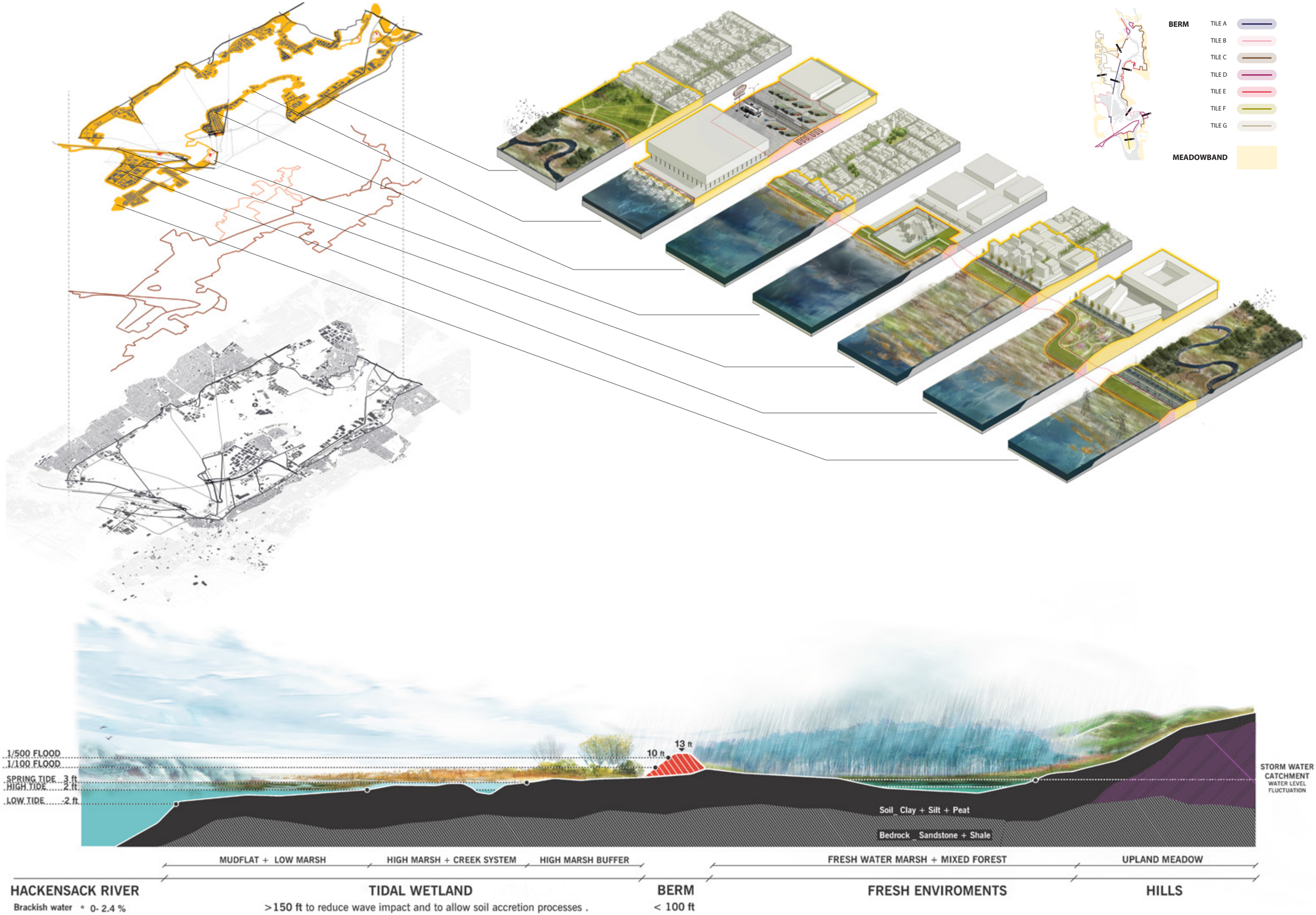
CONNECT
‘Meadowband’

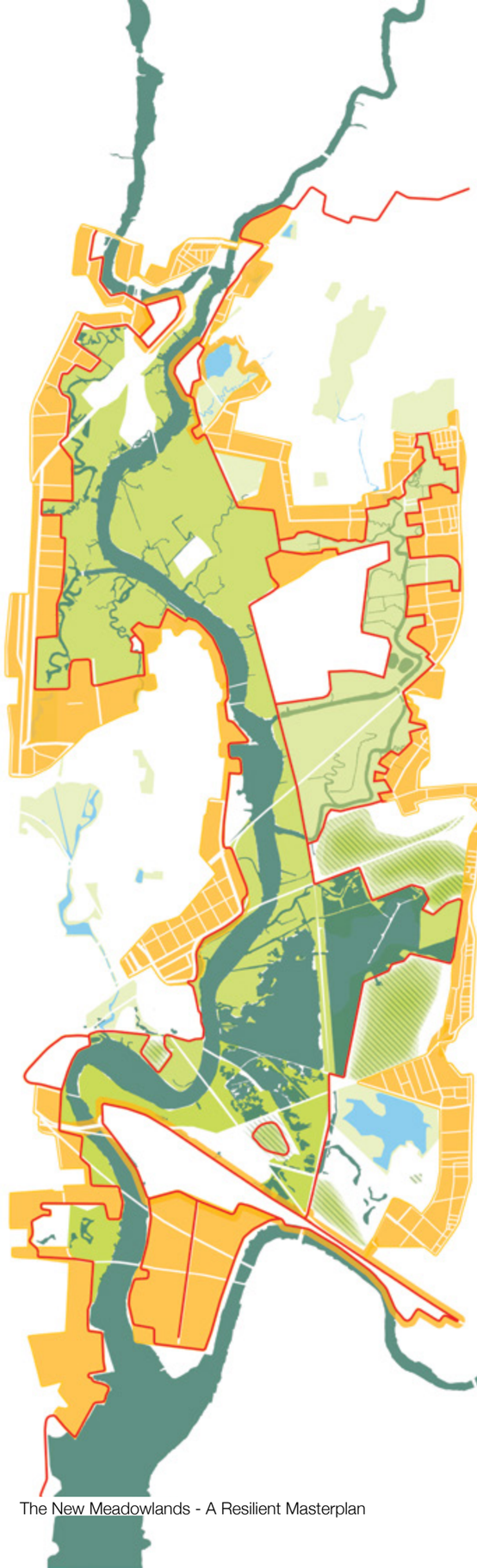


GROW!

THE PROPOSAL FOR THE ‘NEW MEADOWLANDS’ RESTS ON TWO KEY CONCEPTS: THE MEADOWPARK AND THE MEADOWBAND. BOTH TERMS ARE INTERLINKED BY INTRICATE SYSTEMS OF HIGHER AND LOWER BERMS, DEFINING BOTH MARSHES AND FRESHWATER BASINS.

The team’s proposal involves constructing a protective berm encircling the developed area in the Meadowlands for the safety of the community. This flood protection berm is designed to link up with higher ground, enclosing the lower-lying regions to shield them from ocean surges. Different segments of the berm are tailored according to the availability of sediment, drawing inspiration from the Dutch dike system. However, unlike the traditional approach of relying solely on rigid engineering structures, the team takes inspiration from the innovative Dutch third-generation methodology. This approach places a strong emphasis on nature-based concepts, adaptability, and long-lasting resilience. The concept of the Meadowband is introduced as a medium-scale connection. This feature serves as public space, enhancing connectivity and enhancing the overall value among different parts of the Meadowlands. It not only encourages access to the park but also promotes connectivity and potential developments. The Meadowband functions as a catalyst for mixed-use zones, the harvesting of energy, and the establishment of urban patterns that diverge from the current suburban development trend. With significant federal investment, this proposal has the potential to transform the Meadowlands into a densely populated, multifunctional urban design, creating a thriving and resilient community.

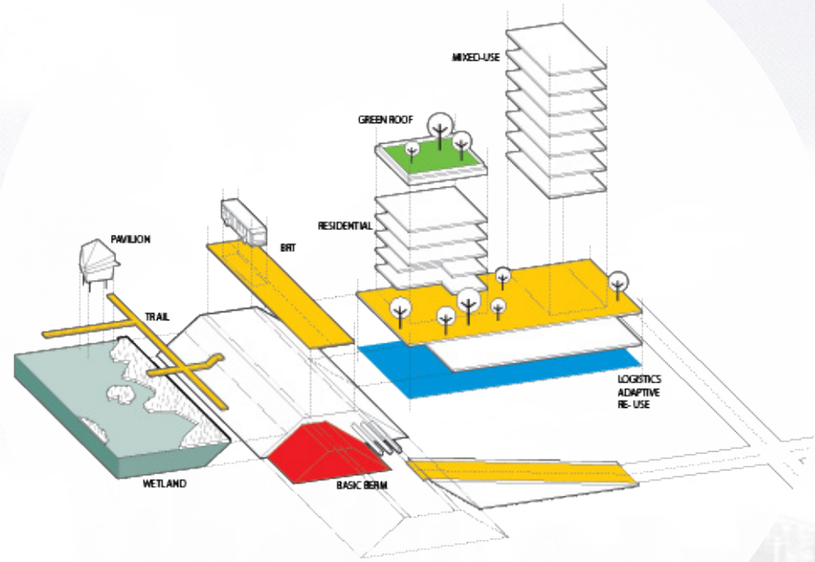

BERM
TILE A
TILE B
TILE C
TILE D
TILE E
TILE F
TILE G
MEADOWBAND
1/500 FLOOD
1/100 FLOOD
SPRING TIDE 3 ft
HIGH TIDE 2 ft
LOW TIDE -2 ft
10 ft
13 ft
STORM WATER CATCHMENT
WATER LEVEL FLUCTUATION
Soil_ Clay + Silt + Peat
Bedrock_ Sandstone + Shale
MUDFLAT + LOW MARSH
HIGH MARSH + CREEK SYSTEM
HIGH MARSH BUFFER
FRESH WATER MARSH + MIXED FOREST
UPLAND MEADOW
HACKENSACK RIVER
Brackish water * 0- 2.4 %
TIDAL WETLAND
>150 ft to reduce wave impact and to allow soil accretion processes .
BERM
< 100 ft
FRESH ENVIROMENTS
HILLS



The New Meadowlands - A Resilient Masterplan

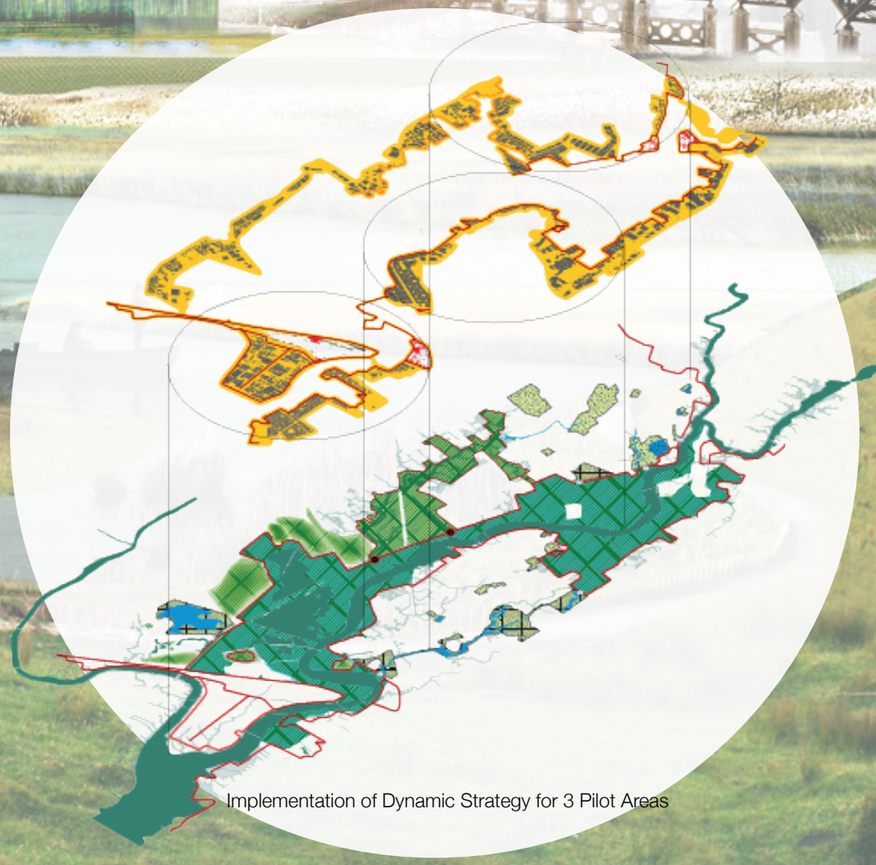
Our efforts have encompassed more than just designing the protective berms and the wildlife park. They also involve suggestions for increasing zoning density, redefining future parcel sizes, and introducing public transportation options like a Bus Rapid Transit (BRT) line. This grand bargain concept has been greeted with positive reception. If it is meticulously cultivated with an ongoing dedication to achieving consensus and garnering support, it has the potential to reshape the dynamics of the social and civic fabric of the Meadowlands. Rather than being characterized by opposing interests blocking each other, it could transform into a landscape where joint opportunities are sought after.

(bottom) While acknowledging a history of internal conflicts stemming from differing interests, the team saw enthusiasm and backing for the proposal, even from those with contrasting viewpoints. Every public presentation has featured what can be termed a “grand bargain”: an agreement that in exchange for investing in the safeguarding of developed regions, the development within those areas should evolve into a more densely populated and compact settlement pattern.



Pilot Area Composition Scheme

Stakeholders and Community Meetings



Implementation of Dynamic Strategy for 3 Pilot Areas

RE/INDUSTRIAL

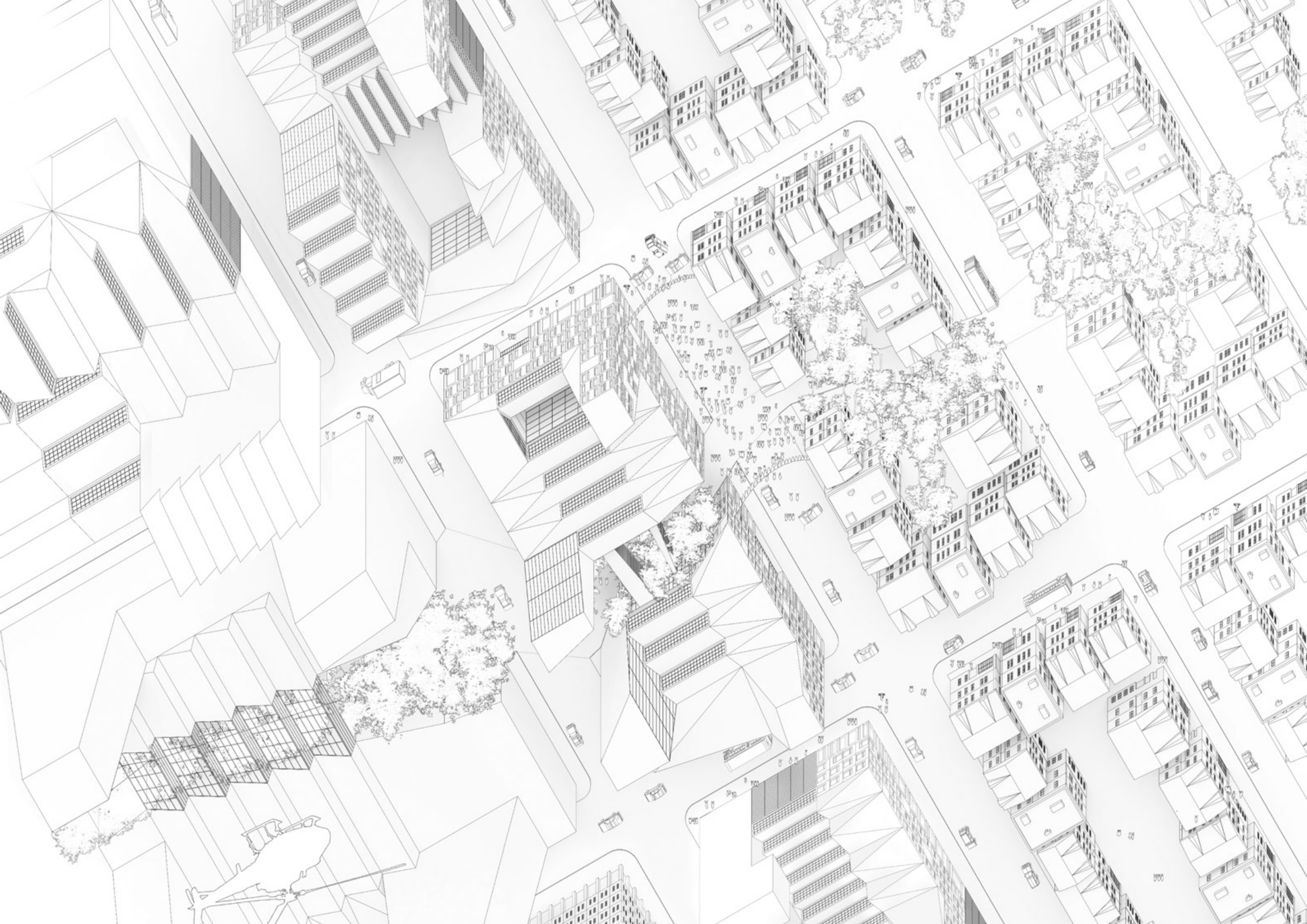
MIT SmarchS studio

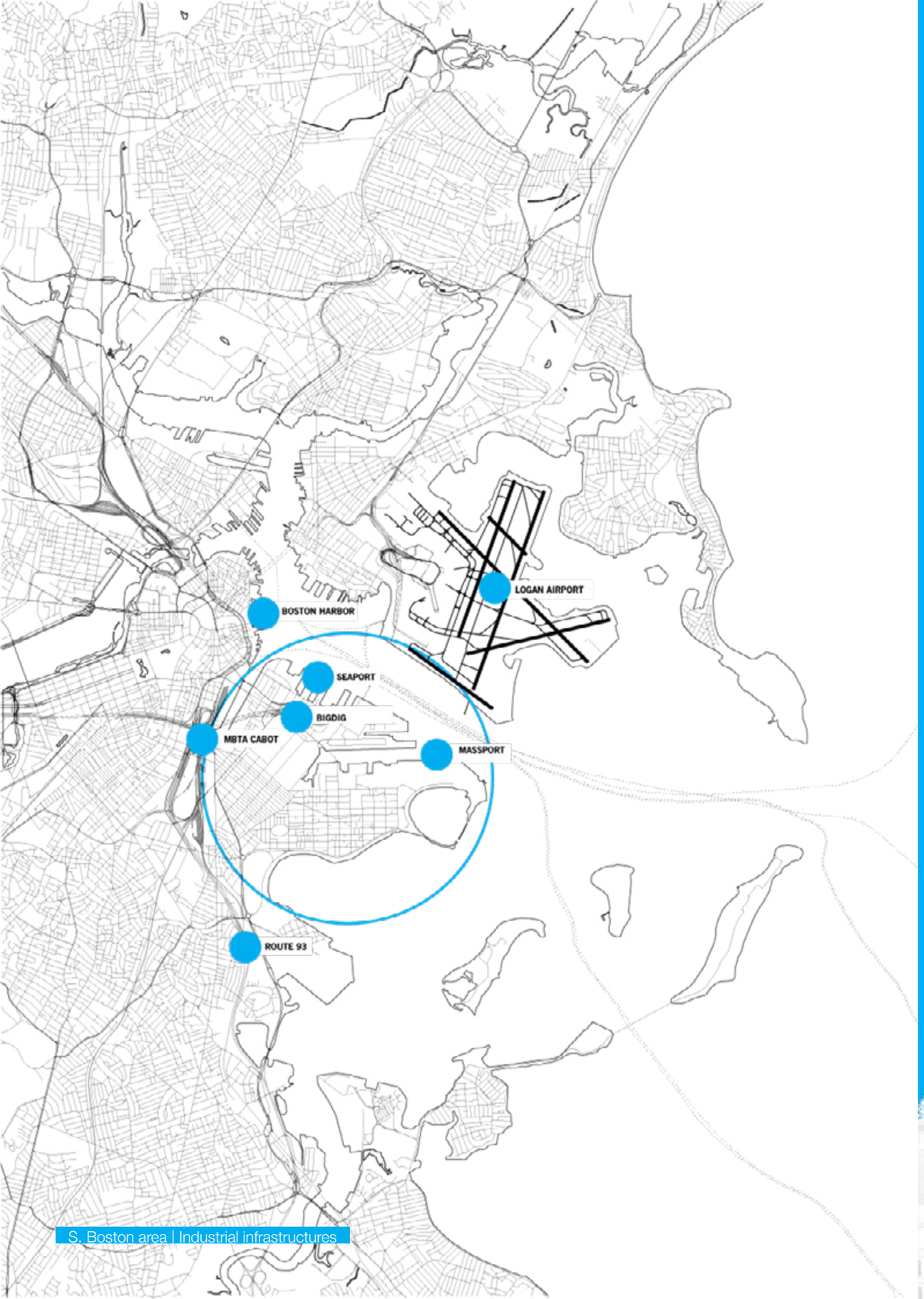
For many years, the South Boston area played a crucial role as a hub for industrial activities, manufacturing, and transportation in the Northeast. Its strategic location near the harbor, airport, and national train lines significantly contributed to its significance. However, the shift towards a service-oriented economy resulted in disjointed development that altered the original 1805 ‘Great American Grid.’ Recent economic shifts have breathed new life into manufacturing and light industries in urban areas, bringing back often overlooked urban design styles.

Through a comprehensive analysis of the site using parametric techniques and advanced flood risk assessment tools, this project aims to redefine the urban guidelines. It seeks to address important questions: How can we ensure vibrant street life despite industrial facades that often present blank, impenetrable structures? What strategies can encourage developers to incorporate manufacturing facilities on their valuable land? Can we successfully reimagine South Boston as a dynamic and practical mix of industrial and residential spaces?

The project seeks to blend the historical industrial character of the area with modern needs and economic trends. By embracing innovative design and planning strategies, it aspires to create a more harmonious and productive urban environment that balances industrial heritage and contemporary urban life.

Location Boston, MA
Project year 2014
Advisor Prof. Miho Mazereeuw





S. Boston area | Industrial infrastructures

Flood Analysis and Drainage Corridor system

Parametric Program Analysis

Parametric analysis of site

Chance of flood within 20-100 years

Floodplains are areas of land susceptible to inundation by flood-waters. Special Flood Hazard Areas are floodplains that adjoin a river, stream, or other inland or coastal waterway that are inundated by water during the 1% annual chance flood (100-year flood). The 1% annual chance flood is a flood event having a 1% chance of being equalled or exceeded in magnitude in any given year. (of Bedford)

Elevated streets and layered infrastructure

Accessibility to Big Dig
Accessible to Railway
Accessible to Highways
Accessible to Major City Roads

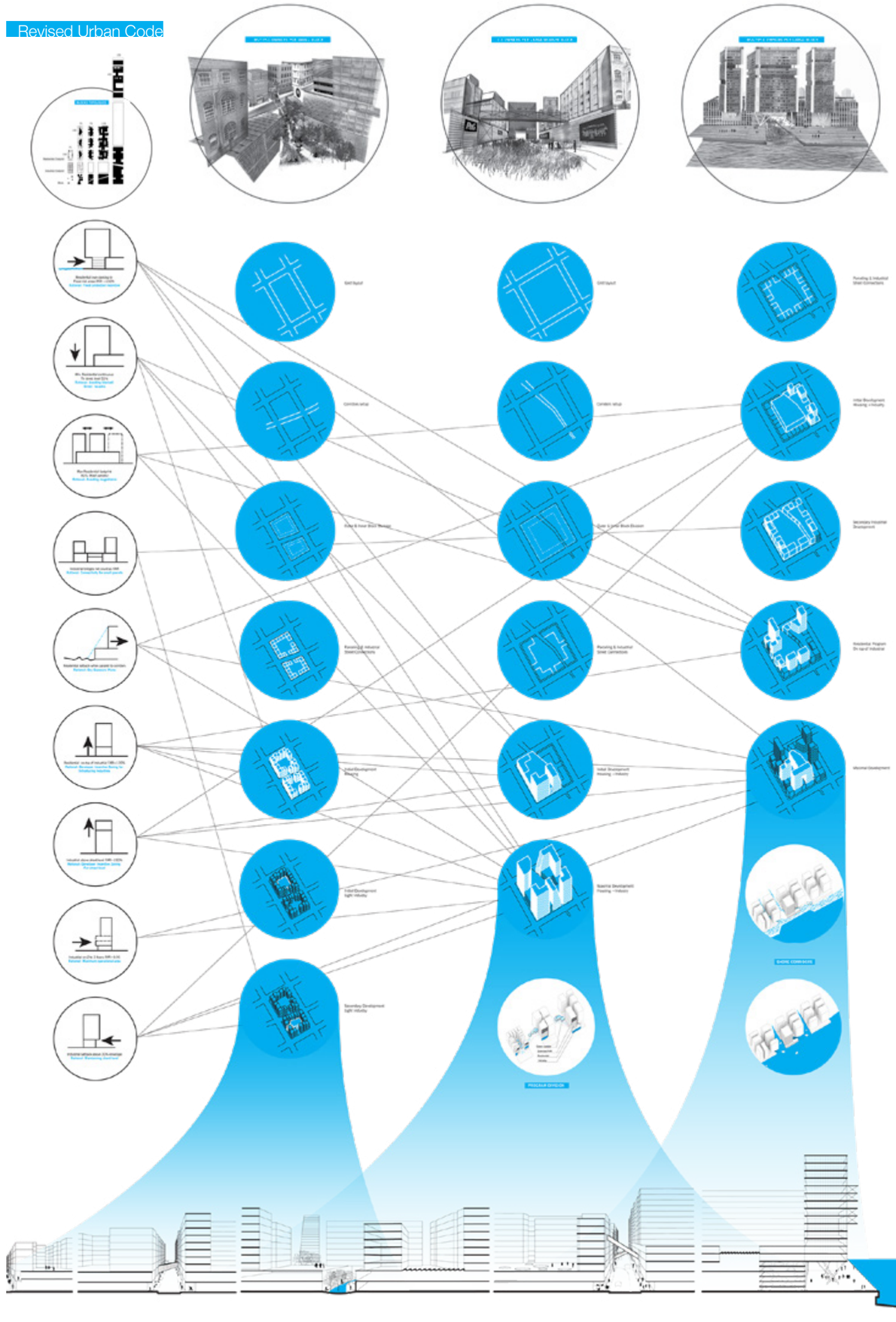
Fitness for Industrial Development

Global Shipping
Regional Shipping
Local Production
Water Depth sufficient for freighters
Existing Dock
Accessible to Ocean
Accessibility to Big Dig
Accessible to Railway
Accessible to Highways
Accessible to Major City Roads
Cheaper Land

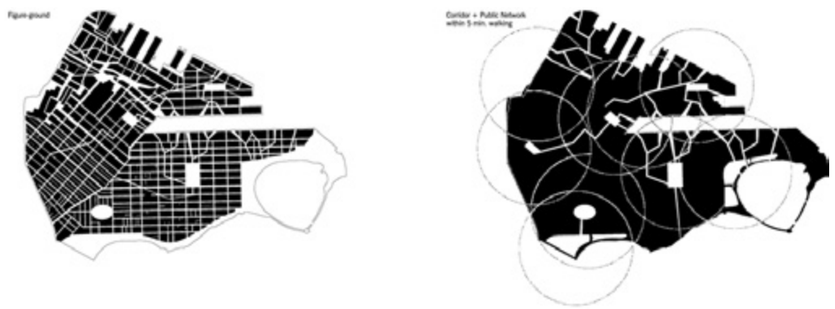
Fitness for Residential Development

Proximity to Transportation
Proximity to Recreation
Proximity to Public Facilities
Land Value
Proximity to Bus Stops
Proximity to Hubway Bikes
Proximity to T Stops
Proximity to Boat Docks
Proximity to Beach
Proximity to Urban Parks
Proximity to Federal Parks
Proximity to Municipal Parks

Revised Urban Code



Re/Industrial - Site Plan



Plan Analysis

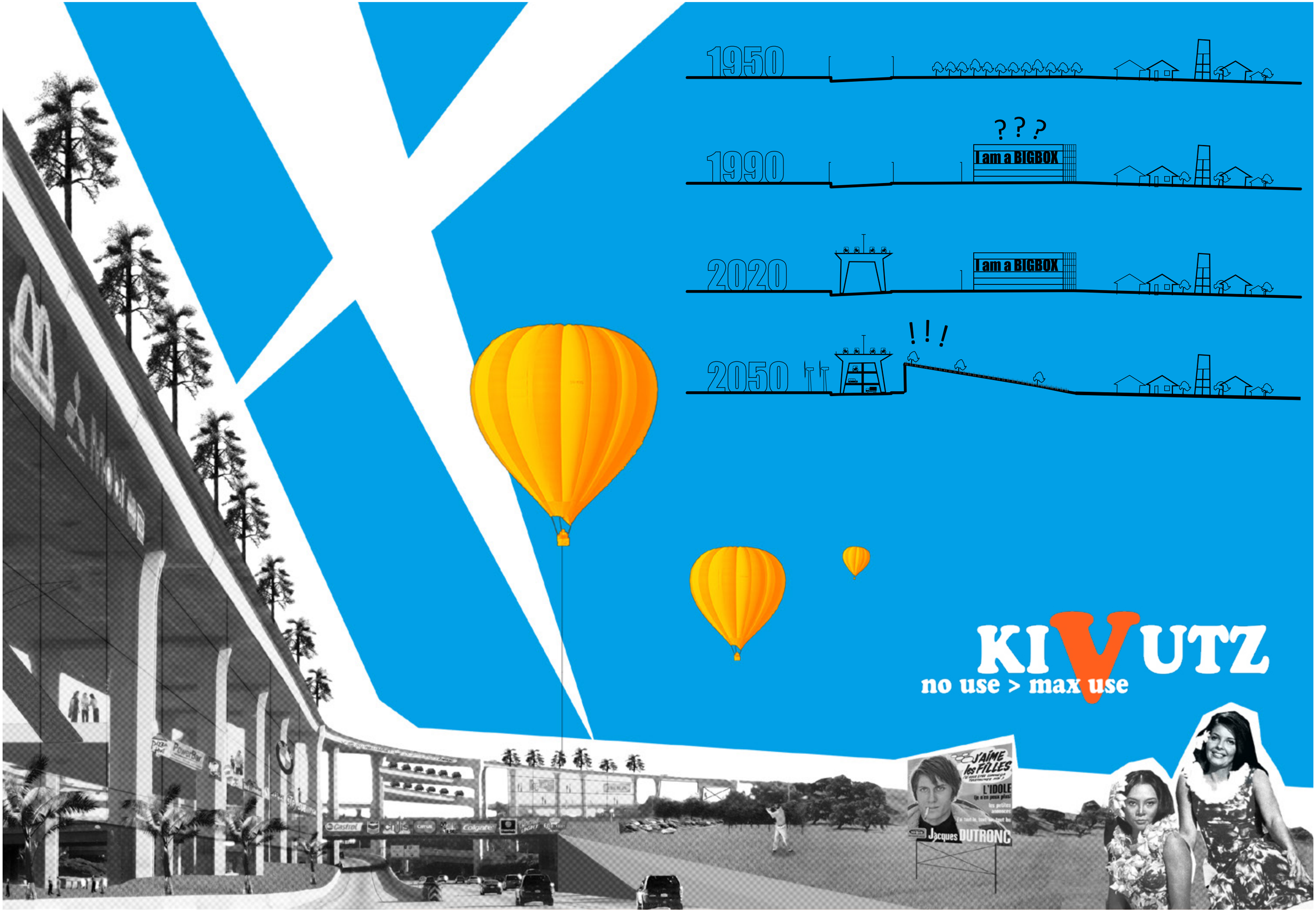
Grid+Corridor View

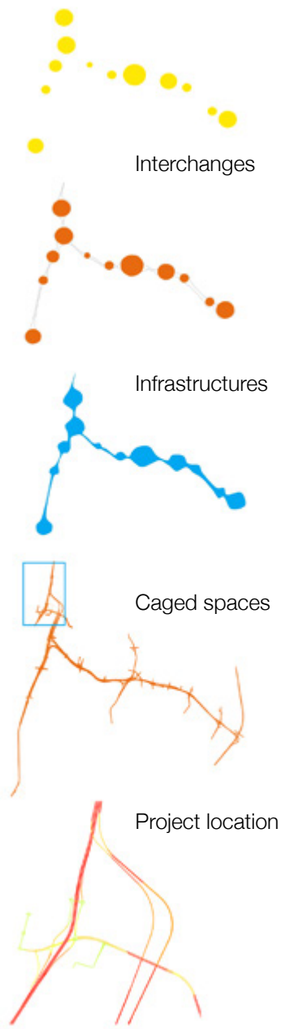
KIVUTZ (SHRINKAGE)

City/State unit, Bezalel

A kibbutz is a collective community in Israel that was traditionally based on agriculture. Today, farming has been mostly replaced by other economic branches, including industrial and high-tech enterprises. Those new economic branches created a Big-Box typology on the kibbutz outskirts, effecting the open agricultural landscape, and shrinking the open sceneries along the roads. This project offered a relocation for those new programs, using the unused areas along highways and interchanges surrounding the Kibbutz. Based on newly planned infrastructures and their unused plots (‘caged spaces’) the commercial and industrial programs will be located based on urban proximity, effect on view and sight, ease of access and estimated value of the proposed landscapes.

Location kibbutz Gaash, Israel
Project year 2007
Tutors Yuval Yasky, Dan Handel, Yonatan Cohen


1950
???
1990
I am a BIGBOX
2020
I am a BIGBOX
!!!
2050
KIVUTZ
no use > max use
J'AIME les FILLES
L'IDOLE
Jacques DUTRONC



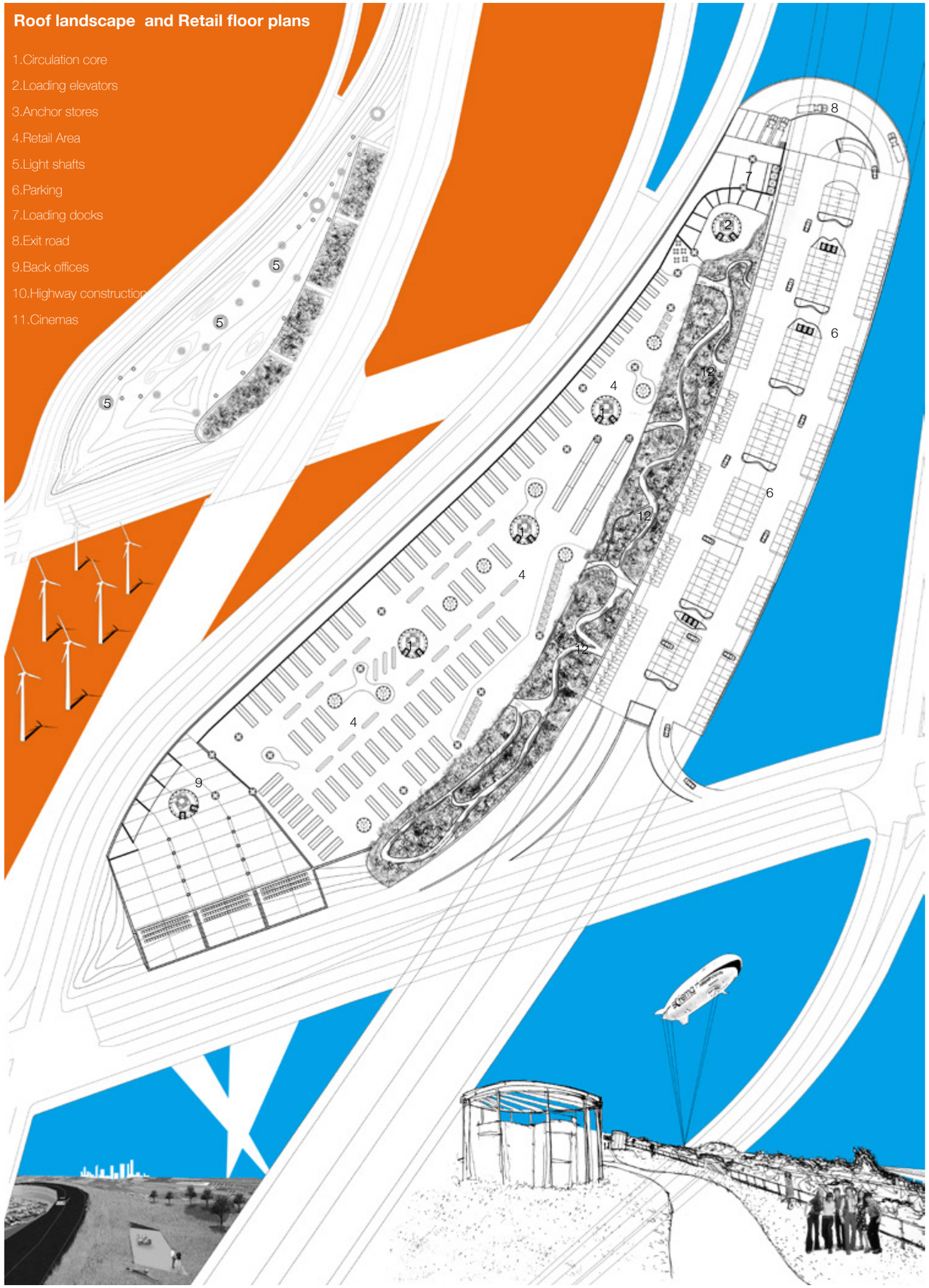
Caged Programs - parametric distribution of programs

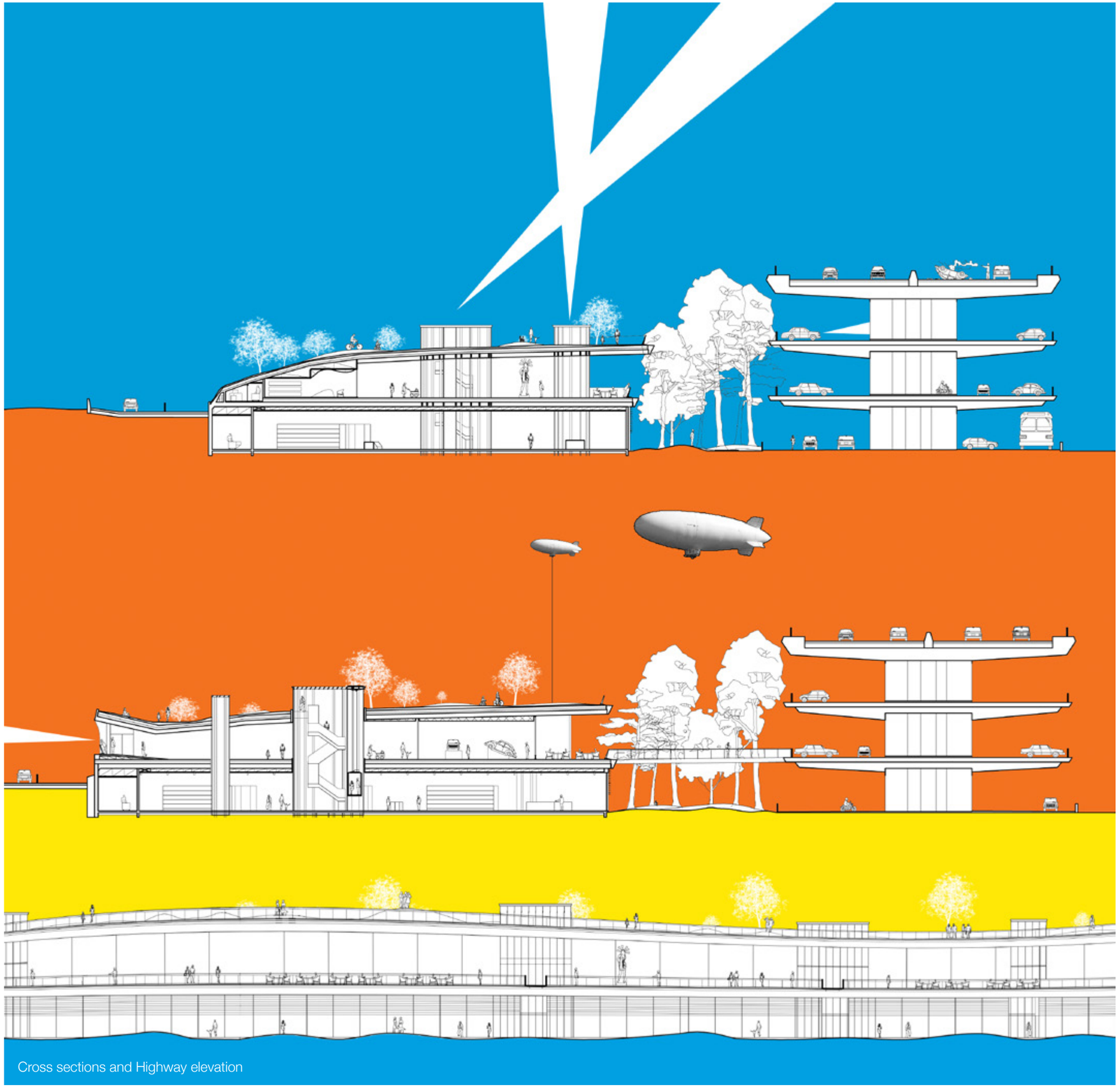
RETAIL VS. LANDSCAPE

Adjacent to the growing city, the Kibbutz has suffered from a visual deformation to its landscape. The rural atmosphere was substituted with big boxes, offering retail goods in a competitive market. Mapping the existing and planned infrastructures, reviled massive amounts of unused land. Those retail programs will then be relocated to those areas, along with several other programs. Four means of measurements were chosen to dictate which and where each program will be located.

Roof landscape and Retail floor plans

1.Circulation core
2.Loading elevators
3.Anchor stores
4.Retail Area
5.Light shafts
6.Parking
7.Loading docks
8.Exit road
9.Back offices
10.Highway construction
11.Cinemas

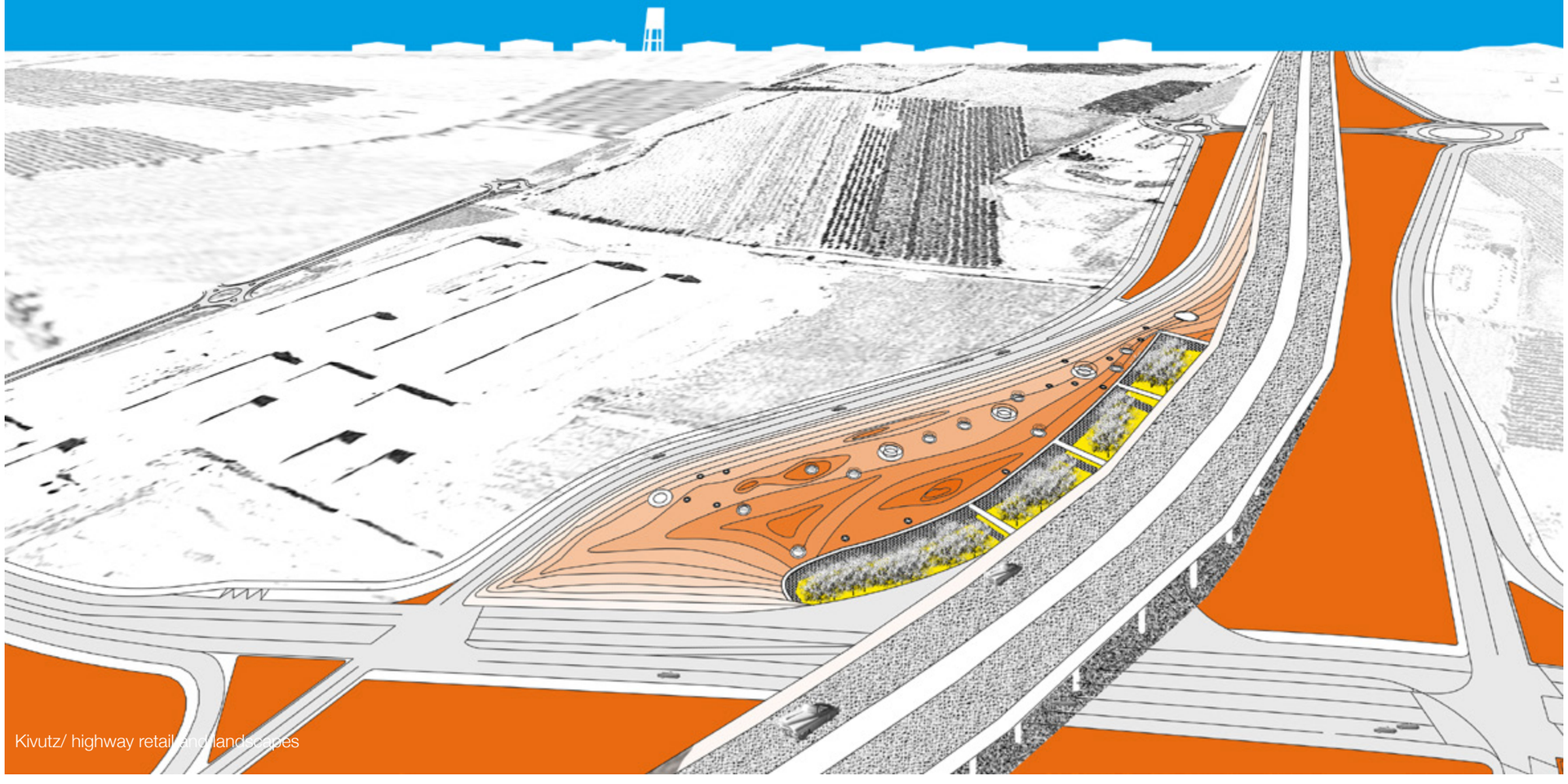




Cross sections and Highway elevation

BIGBOX TO LANDMALL

One caged space was examined to incorporate several retail and leisure big boxes near the Kibbutz. The current infrastructure was used as parking lots, offering rapid connection to the city. The building was planned with a green roof, continuing the rural landscape and maintaining the Kibbutz's appearance.



Kivutz/ highway retail and landscapes

WHAT CAN WE LEARN FROM CHINA?

MovingCities, Beijing

Looking at the Chinese city and quoting freely about the four functions of the city (Housing, landscapes, creative industries and central business districts), we have defined the relevant urban interventions which can be referred to in the Israeli case. We then attempted to manifest these functions and recreate the model for new urban development patterns. When projecting these interventions in another context, we were immediately faced with questions of adaptation and localization. At that point China and Israel suddenly became very close: How are they to produce unique architectural statements in an age of global trends and star architects that drop homogeneous "masterpieces" all over the globe?

Project year 2008
Conductors Bert de Muynck, Mónica Carriço, Dan Handel, Yonatan Cohen
Team Eran Abramovitz, Lior Ayalon, Ofer Bilik, Roy Carpman, Netta Gaash, Noa Joelson, Yaniv Lenman, Tom Sperber, Maayan Strauss, Yaniv Turgeman, Rena Malka Wasser, Ariel Noyman
Role CBD team leader, research & planning, schemes & graphic design, presentations, booklet co-editing

Sale!

What can we learn from China? was published as the LEVIATHAN unit annual booklet) and followed by an exhibition and lecture series at the Zezeze Architecture gallery in Tel-Aviv. MovingCities has presented the project worldwide, including Pachakucha Beijing, Madrid and Belgium

WHAT CAN LEARN FROM

9,326,410 sq.km

X 462

20,770 sq.km

THE 4 FUNCTIONS

The Chinese city was decomposed out of its 4 main fragments; CBD's, Creative industries, Landscape and Housing. Each fragment was learned based on Beijing as a role model for a contemporary megalopolis. When each of those founding elements was defined by its clear characteristics, the process advanced to merge it with any of the other 3 groups,thus exposing the relationships which created on the urban edges . The final phase was the implementation of that mixture into a given rural landscapes, situated to the north of Tel Aviv. After overlaying the four functions, emerged a beautiful yet scary vision of another Israel. The exaggerated and hyper-busy outcome is a product of a rapid-in-purpose planning process, rationalizing familiar problems to their extremity in order to make fresh statements about urbanization today. It also tested our own boundaries as architects and planners, and the influence we might have on the built environment.

Israel is X 2.25 more dense

1,321,851,888

X 205

6,426,679

1. Central Business Districts

[Defines the main possible sites for CBD's in Israel and works on a concept of transition from agriculture to high tech production.]

- Closed compounds
- Private investments in infrastructure
- Multi-program structures

2. Creative Industries

[Creative industry clusters can usually upgrade the value of surrounding real estate.]

- Creative people tend to cluster and share facilities
- It makes a reuse of existing structures
- Could Also Lead to large scale operations

3. Landscape

[Extreme vision of the principles defined for landscape operations might produce dense environment.]

- Fractal Scales of Openness
- Pedestrian Systems
- Thematization

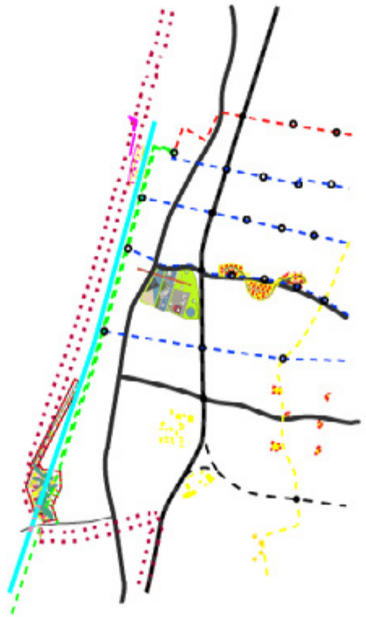
4. Housing

[Deferent types of housing densities were introduced. Over-scaled hybrids of familiar Israeli typologies began to emerge.]

- Fixed density per Km^2
- Different typologies close to one another
- Proximity to Infrastructure as a positive attribute

Infrastructure/CBD/Creative-Industries

Landscape



Housing

Tel Aviv city / China Town overview

Tel Aviv city / China Town: plan

TEL,AVIV
HA'MEDINA SQUARE HILL

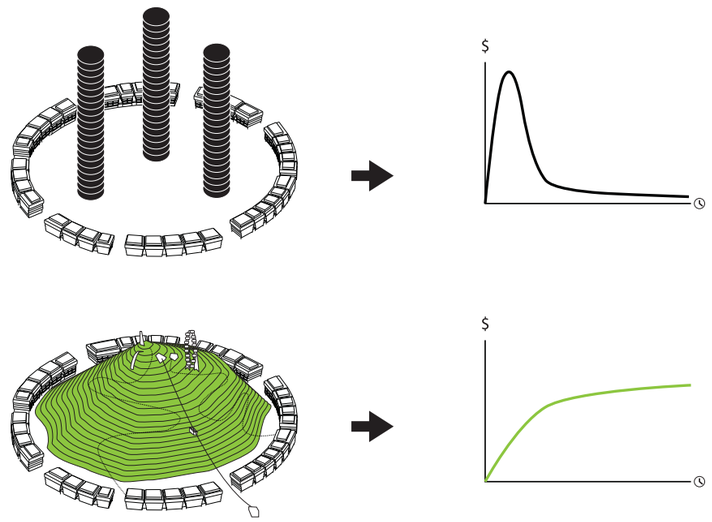
Urbanica Research Group
exhibition and competition - 2nd place

Tel,Aviv (Tel is the Hebrew word for a hill, and the first word in the city's name) is an offer for a extreme nature acting as the ultimate seizing tool. A flat and perfect circle, 'Hanedina Square' became the object of affectation for many planners and developers. Objective to its surroundings, almost autistic to the location in the heart of the city, the square is the perfect *tabula rasa*, a real - estate dream. *Tel,Aviv* is an attempt to create the initial barrier to the upcoming development interests: a topographic, natural stopper. As with the Montmartre hill in Paris or the Montjuic of Barcelona, where urban planner realized their spatial importance and skipped those picturesque landmarks by relinquishing the modernist urge of landscape conquest.

project year 2008
exhibition Shalom Tower gallery
curator Urbanica-il

Tel,Aviv (“the Spring Hill”, a word play on the city’s name), deliberately seeks to add the landscape over the built. The recent economic boom has fueled the proliferation of urban landmarks across the city. While varying in size and form, many of these structures have become iconic representations of the city—whether through intentional planning or the absence thereof. Regrettably, a significant portion of these landmarks cater to only a small fraction of the city’s populace due to restricted access and limited public utilization. Tel,Aviv stands apart by presenting itself as a distinct, inherently anti-urban emblem. Similar to several other cities that have successfully integrated natural symbolism, Tel,Aviv has the potential to expand its domain as accessible and communal terrain—an incubator of nature within the confines of the concrete jungle.

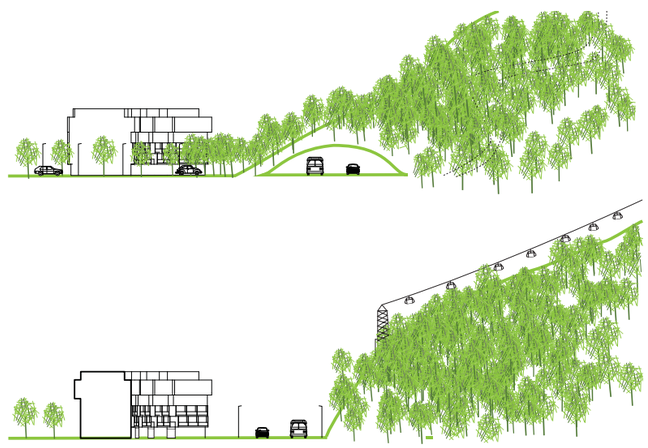
Tel Aviv City logo - before and after



new construction Vs. urban landscape - the value for money of time

Hamedina Square - plan

Boulevard green continuation onto the hill plan



Section green areas towards the surroundings streets

GATED COMMUNITIES, FICTIONAL LANDSCAPES

Thesis, City/State Unit

TMM 3/21, (Israel's Central Regional Plan No. 3/21), designates the final seven metropolitan open landscapes for development in the coming decades as Metropolitan Leisure Areas (MLA). The primary objective of this plan is to employ these regions as spatial boundaries, effectively delineating distinct districts within Israel's largest urban area. This undertaking has addressed a multitude of inquiries pertaining to the development of such expansive landscapes and the resulting consequences: How can we address the absence of specific recreational programs? Can we effectively navigate the economic and political pressures advocating for the extensive urbanization of these zones? Is it possible to devise a flexible system that accommodates incremental planning? In the most densely populated area of Israel, how can we ensure the preservation of a verdant 'outpost'? And, above all, what might the future appearance of these leisure areas entail?

Location HaSharon, Israel
Project year Thesis, 2008
Advisors Yuval Yaski, Dr. Dan Handel, Yonatan Cohen

Commodification of Nature?

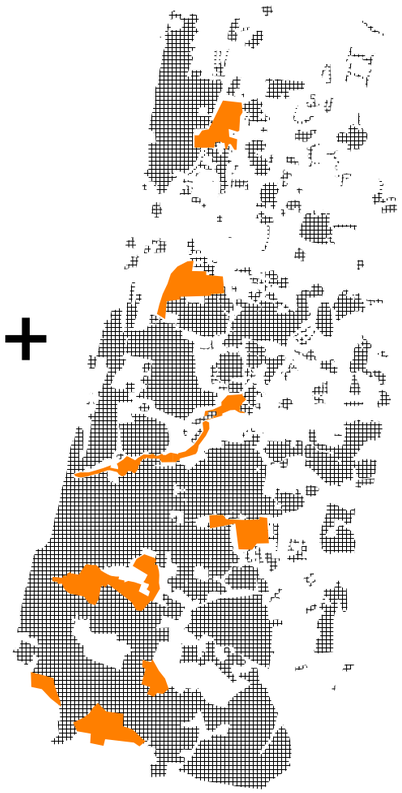
THE SITE,THE PROGRAM, THE PROBLEM

'Metropolitan leisure areas' are newly defined entities aimed at reservation of existing large scale open spaces in between the expanding urban areas. These areas include mixed development of intensive new construction and public program as well as sports and leisure areas and open green spaces. A mix of dozens of programs was given, and many others will be implemented in the future. The M.L.A Ha'sharon is located to the north of a Tel-Aviv satellite town named Ra'anana. The site, as well as other areas surrounding this town are mostly open, used for agriculture and with no urban bridge to Tel-Aviv. The site is about 1730 acres, and divided between several adjacent authorities and municipalities. As an incentive, the 2003 TMM plan set 17% of the site to be divided between the land owners and municipalities, that will be developed as real-estate within the MLA compound. Although meant to act as a natural barrier, the extensive and contradicting programs, massive optional construction as well as the problematic division of land, may fail the MLA's initial concept, thus causing unwanted urban scenarios.

Leisure Programs (described by plan 3/21)

SPORT
FACILITIES
ATV RIDING TRAILS
MOTORCYCLE CAMPING
GROUNDS NATURE RESERVES
EVENTS GARDENS ZOOS TRAILS
AMFITIATRONIM BOTANICAL
GARDENS RESTAURANTS CAFE
GALLERIES HORSE FARM PICNIC
FACILITIES BOTANICAL GARDENS
PLAYGROUNDS WATER PARK
AREAS STREET PERFORMANCES
HISTORICAL BUILDINGS SITES
RESTORE FOREST THEME PARK
INFRASTRUCTURE FACILITIES
DECLINE ARTS WORKSHOPS
BIRDING AREAS MUSEUMS
COURTS AGRICULTURE
SATISFIED CYCLING
ROUTES

+



The seven Metropolitan Leisure Areas (MLA)

=

What if ?

MLA'S PLANNING TOOLS AND PHASING

Addressing the MLA planning solution demanded a set of tools and progressive procedures able to incorporate multiple inputs spanning beyond average planning time frame. Two main phases are correlating in the process:

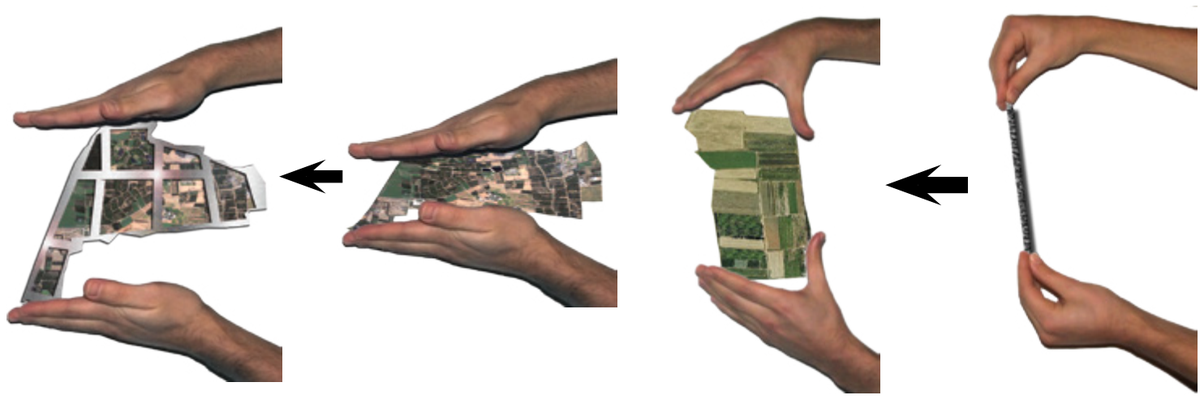
1. Bands+Cells this act will rapidly define the land by its most basic fragments (typology, geography, preservation, value etc.) A set of bands, will than gather those findings, thus creating a definition to areas with preservation value, and those who can be used in future development. The importance of rapidly planning those areas, lays with the notion that intensive urbanization is slowly consuming the MLA's. Since announced in 2003, more than 7% of the site has already been covered by authorized and illegal construction.

2. Anti/city volumetric scenery maker **-** After setting the bands within a relatively short period of time, the defined cells can gradually implement programs. The cells will follow a simple volumetric rule for constructed interventions. In such system, the program type is no longer the dominant factor for the actual built volume of each land use. Inverted from volumetric division of city plots, it allows less built volume as the given plot is bigger. The land is being divided on a volumetric bases, which - in most cases - resolve with paralleled programs. Here, the ratios of plot size vs. the allowed construction volume are reversed; A large plot will allow only very low rise construction while for a tiny plot, a higher mass would be allowed. This system allows the site planners a non-leaner volumetric assessment, avoiding strict composition of present and future leisure programs. The tool is based on a single adaptable role, simplified to face the complexity of this design process. While small plots will be built gradually, the mass landscape will be left open and rural. The anti/city allows multiple outputs for unknown programmatic evolution. In that sense, the system does not impose certain set of contemporary usages and random assumptions, rather it suggests a visual solution. This process will not create a common plan but it can force visualized approach for the site design.

Schematic model of bands and cells intersection

BANDS + CELLS

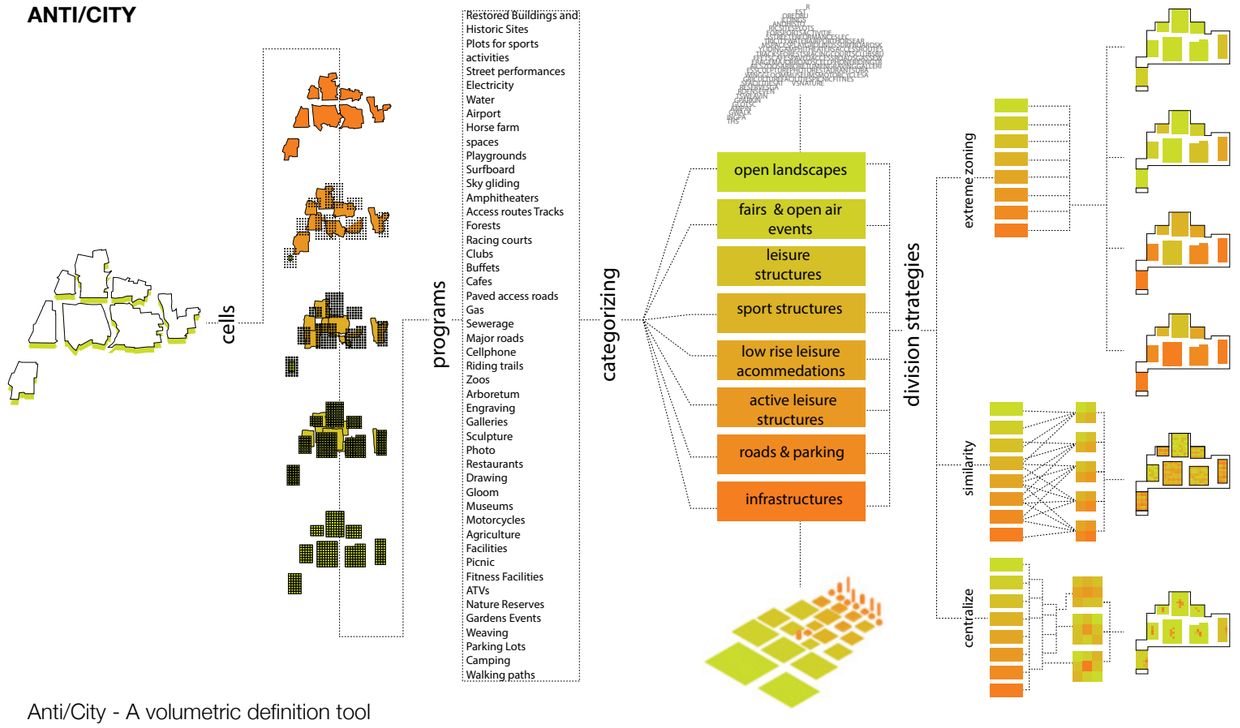
Bands and cells as following phases in the area development



Sprawl protection infrastructure of bands and cells

Spatial bands instead of physical boarders

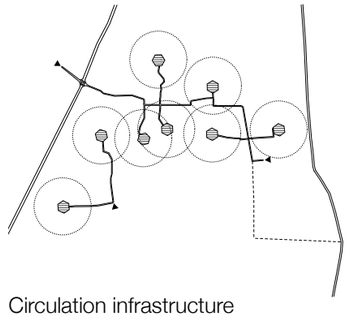
ANTI/CITY



Anti/City - A volumetric definition tool

PLAN | BANDS+CELLS

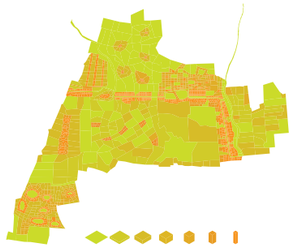
ANALYSIS



Circulation infrastructure

Planned bands parcels

Intervantions footprint



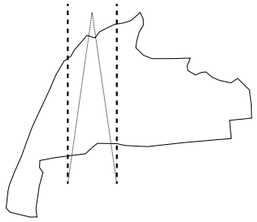
Built volume Vs. landscape

Cells and bands parcels

PROGRAMS APPEARANCE BY CELLS

M.L.A HA'SHARON AREA
PROPOSED VISION

This MLA will be assimilated eventually into the growing urban fabric. The different cells will perform as separated units with individual systems, and with links to the major built band as the main infrastructure hub. The built band will gather the 17% of approved building regulation, as it appears in the TMM 3/21 plan. The planned road 20 (west to the MLA) will serve the more active and built cells, and will reduce the pressure on Raanana city's current infrastructure.



Green Band

Agricaltural presarvation Cell

Built Band

Old Waste Mountain

Expo Cell

Ha'sharon River Band

Sports Cell

PORTFOLIO

Ariel Noyman, PhD

Research Scientist, City Science Group, MIT Media Lab | noyman [at] mit [dot] edu | https://www.media.mit.edu/people/noyman/| ArielNoyman.com