PUBLIC BUILDING
GRADUATION STUDIO

26.06
2014.

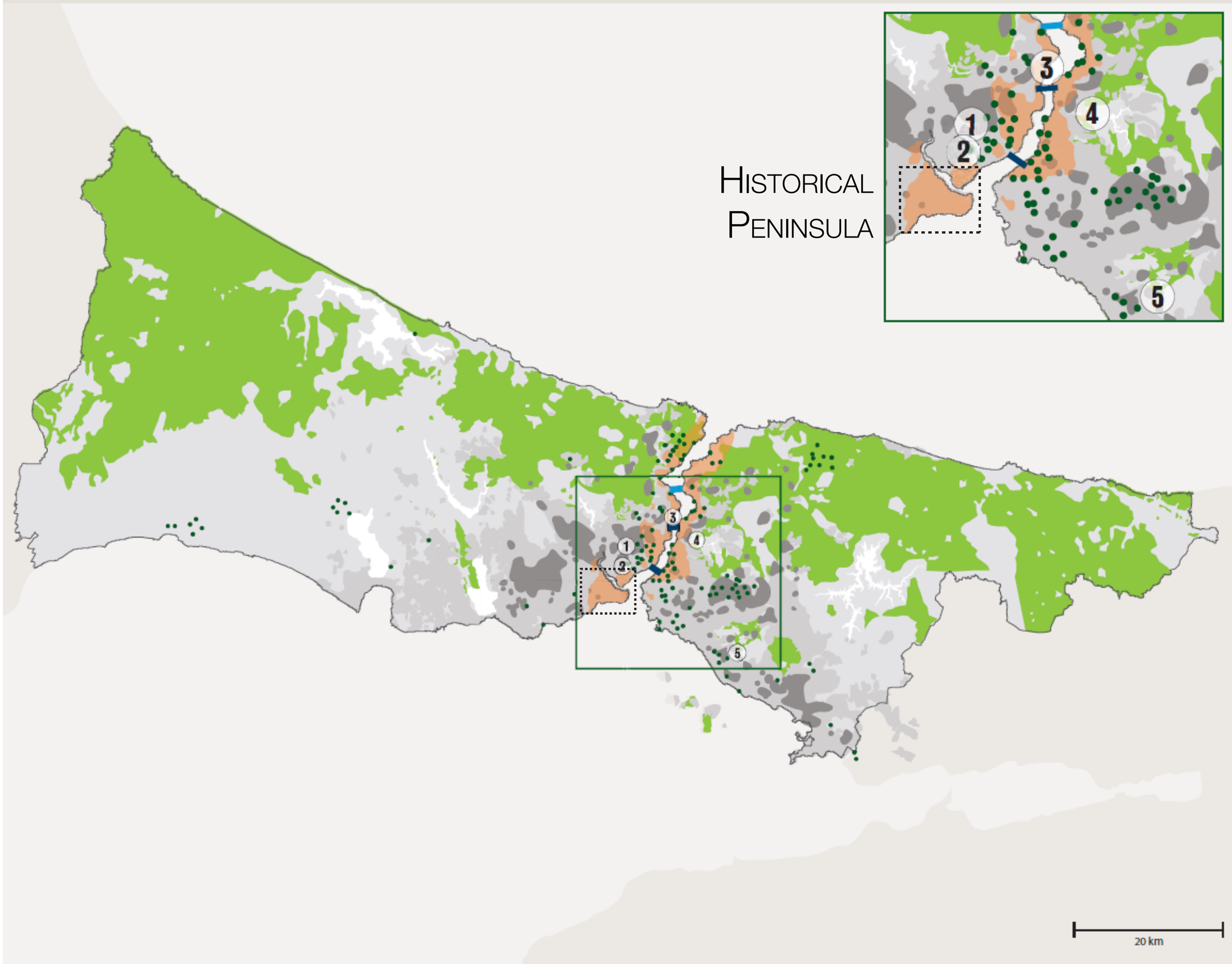
P5
PRESENTATION

STUDENT: **PETAR PEJIC** ST.NUM. **4249860**

TABLE OF CONTENT

PERSONAL FASCINATION

How to grasp / understand city of Istanbul?
How to find contextual values in city of Istanbul?


Historical
Peninsula
1
2
3
4
5
20 km

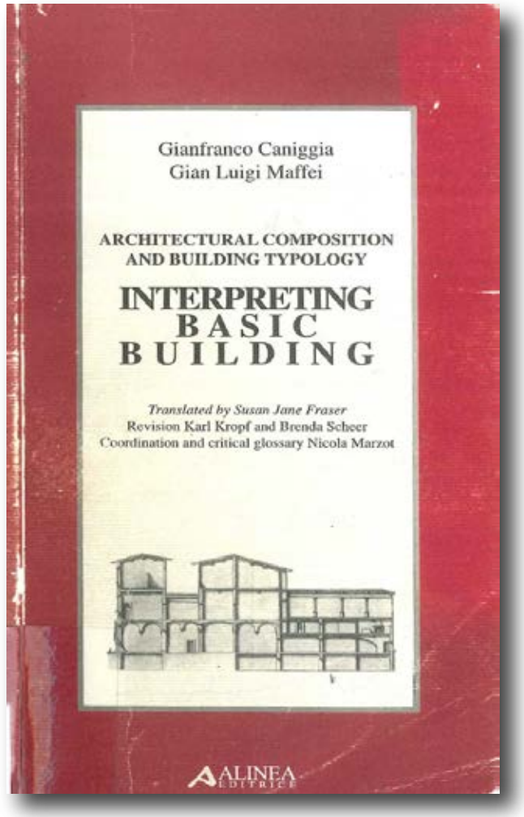
A Nature

B Residential Area

C Street netw.

D Mosque

THEORETICAL BACKGROUND



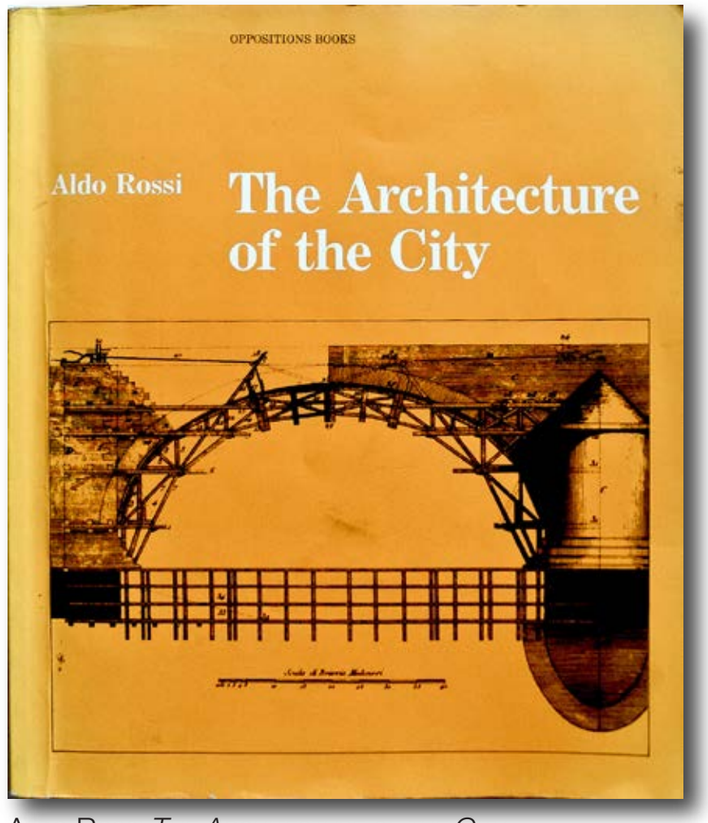
CANNIGIA & MAFFEI *INTERPRETING BASIC BUILDING*

1 NOTION OF "TYPE"

Each building could be defined as a subcategory of a Building type, where the term type should be seen as a common characteristics of any group of buildings. However, in this case, a type should be understood as something more than just an established episteme of term typology, which suggests a predefined shape building could take. The idea of type exists in our mind, it is not a physical characteristic of the building, type is not a logical fiction, but rather it is a product of past and present spontaneous consciousness

2 NOTION OF TYPOLOGICAL PROCESS

Typological process express the progressive transformation of the concept of building into a specific place. Hence, in order to understand the notion of type or the specific building phenomena, one has to investigate and decompose the whole process of creation of the specific building, to understand creation of the specific phenomena.



ALDO ROSSI *THE ARCHITECTURE OF THE CITY*

1 CITY AS "ARCHITECTURE"

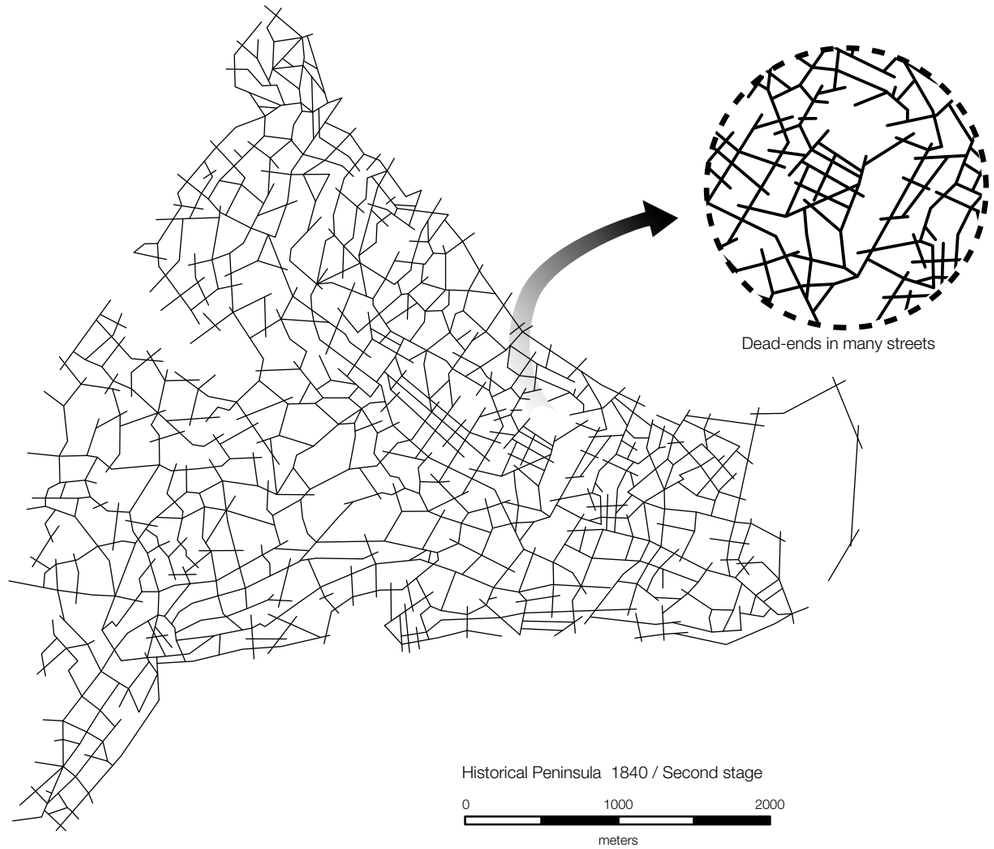
City is a spatial system. Architecture has to be recognized as a discipline which has a self determining autonomy. That would suggest that architecture can be based on architecture.

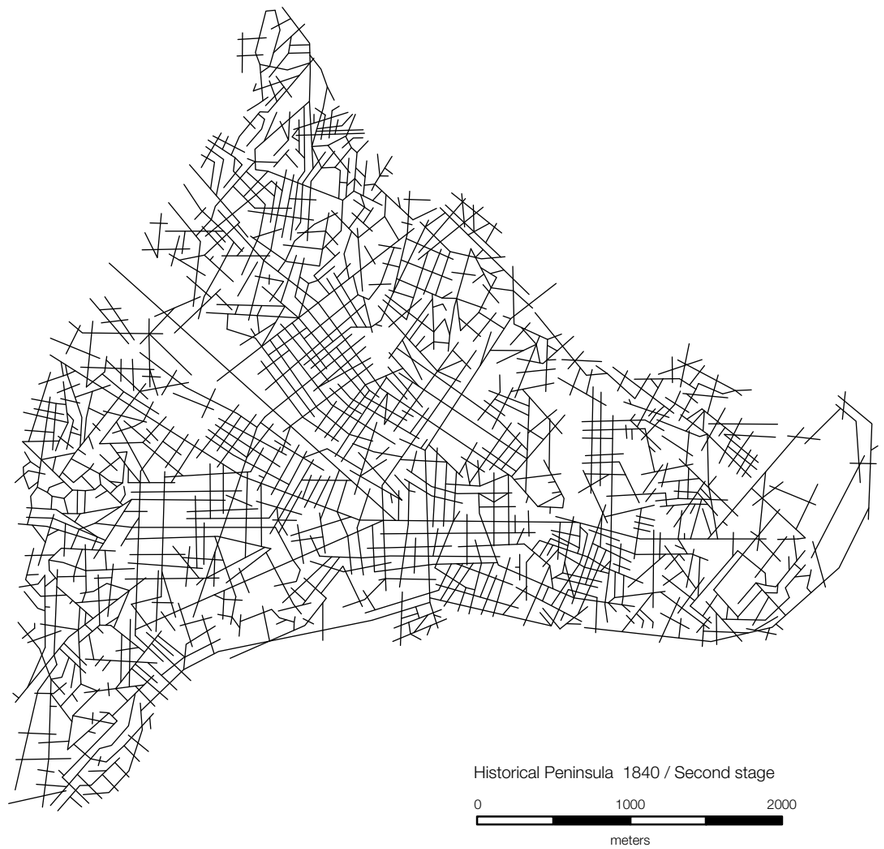
2 URBAN HISTORY

One has to find a way of investigating that "architecture". Urban history is the most useful way of studying urban structure.

3 HISTORY / MEMORY

While history is something objective, memory is highly personal perception of some place.


Dead-ends in many streets
Historical Peninsula 1840 / Second stage
0
1000
2000
meters

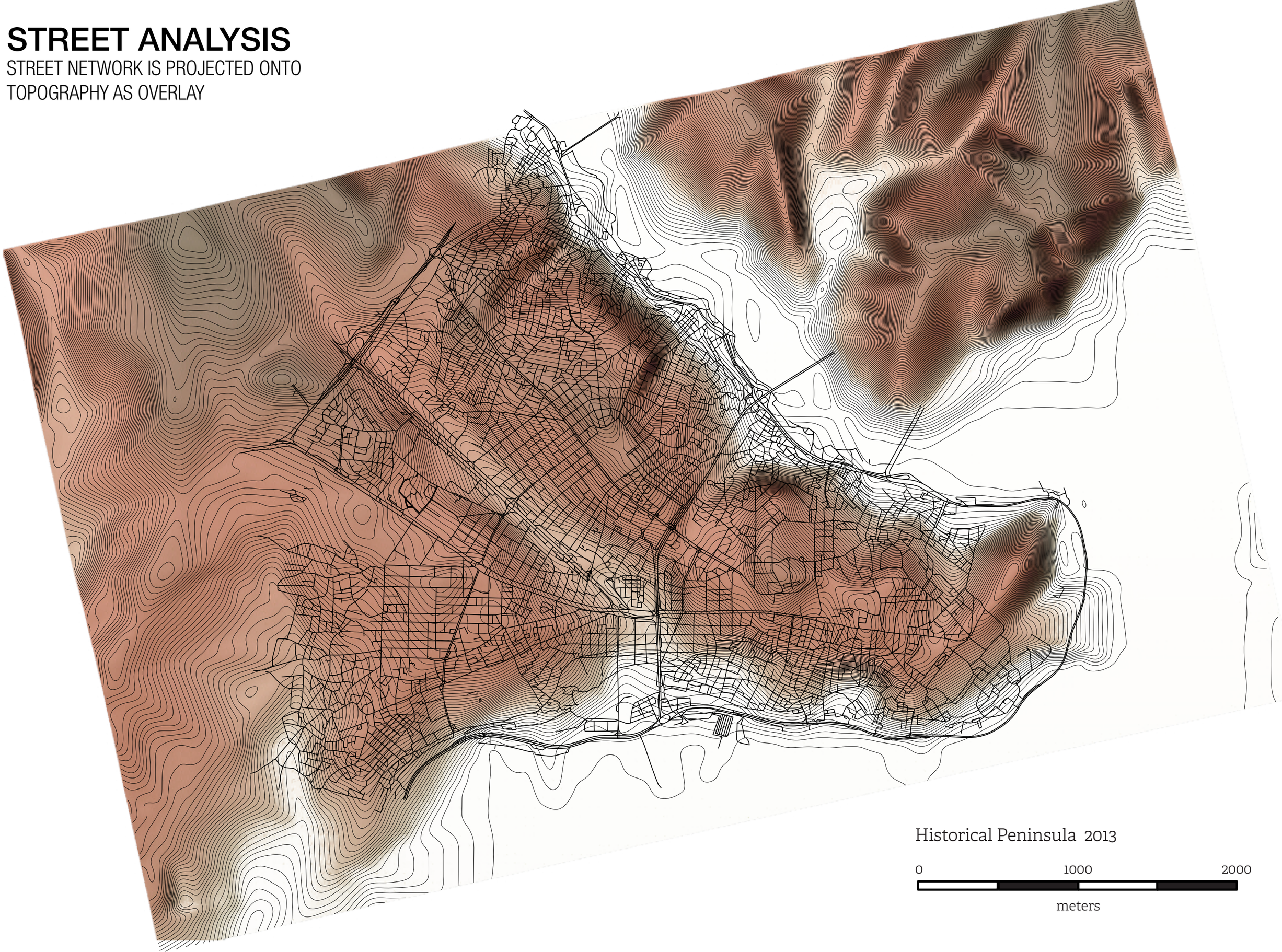

Historical Peninsula 1840 / Second stage
0
1000
2000
meters


Historical Peninsula 1840 / Second stage
0
1000
2000
meters


Historical Peninsula 1840 / Second stage
0
1000
2000
meters

STREET ANALYSIS

STREET NETWORK IS PROJECTED ONTO
TOPOGRAPHY AS OVERLAY



Historical Peninsula 2013

0 1000 2000

meters

STREET ANALYSIS

STREET NETWORK IS PROJECTED ONTO
TOPOGRAPHY AND COLOURED ACCORDINGLY

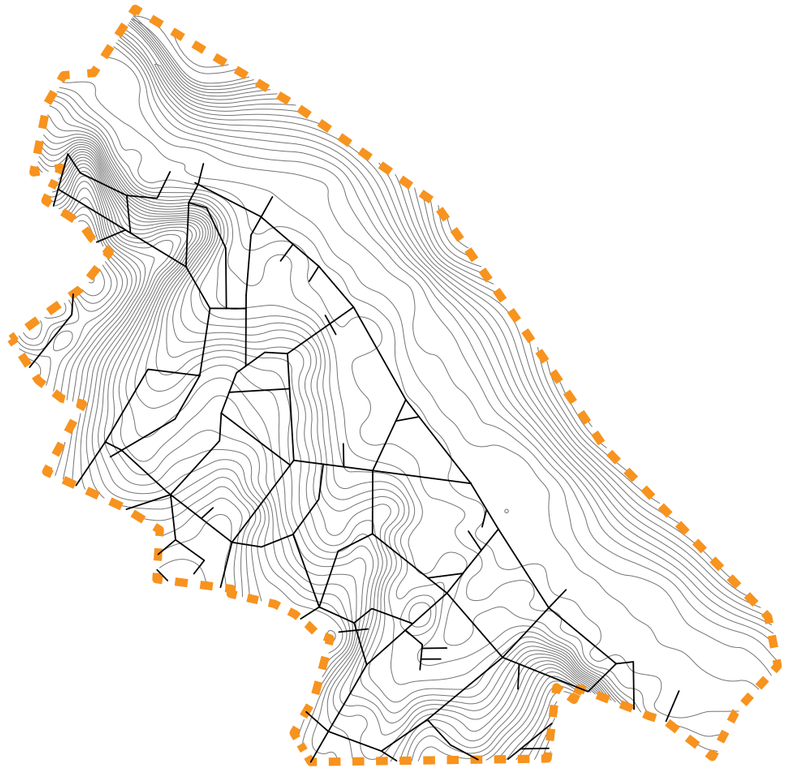
1 GRID VS. ORGANIC

Implementation of grid street network was easier intruduced in areas where topography was more constant

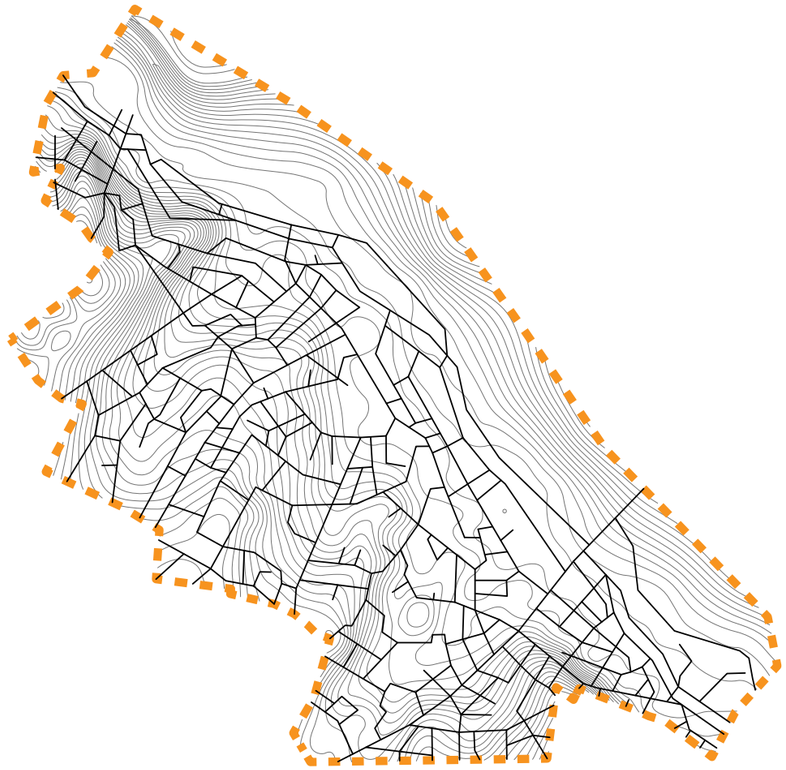
2 BORDER OF MAHALLE

Border of mahalle was based eathier on strong line of communication, or on places with big shift in topography

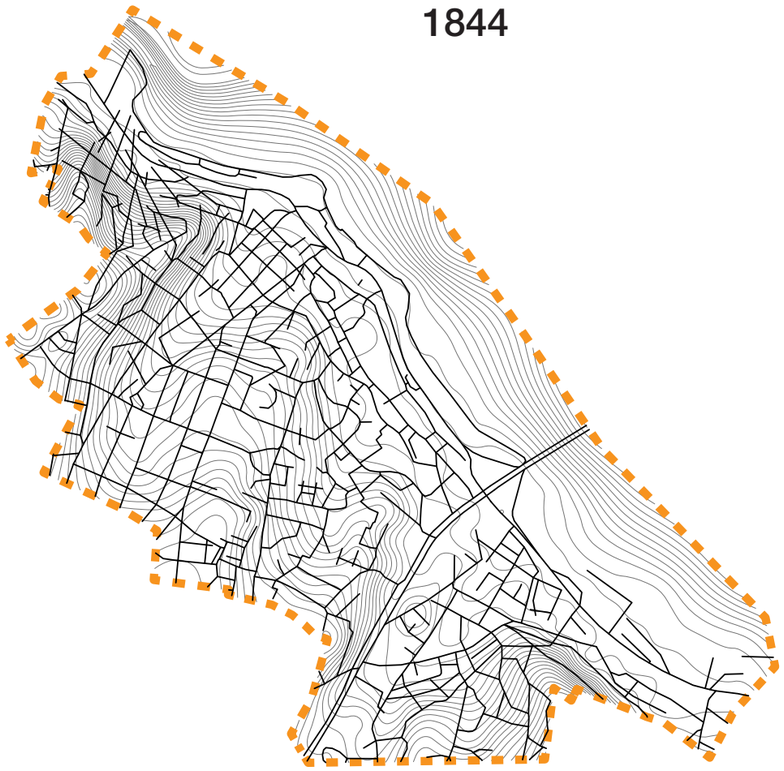
1844



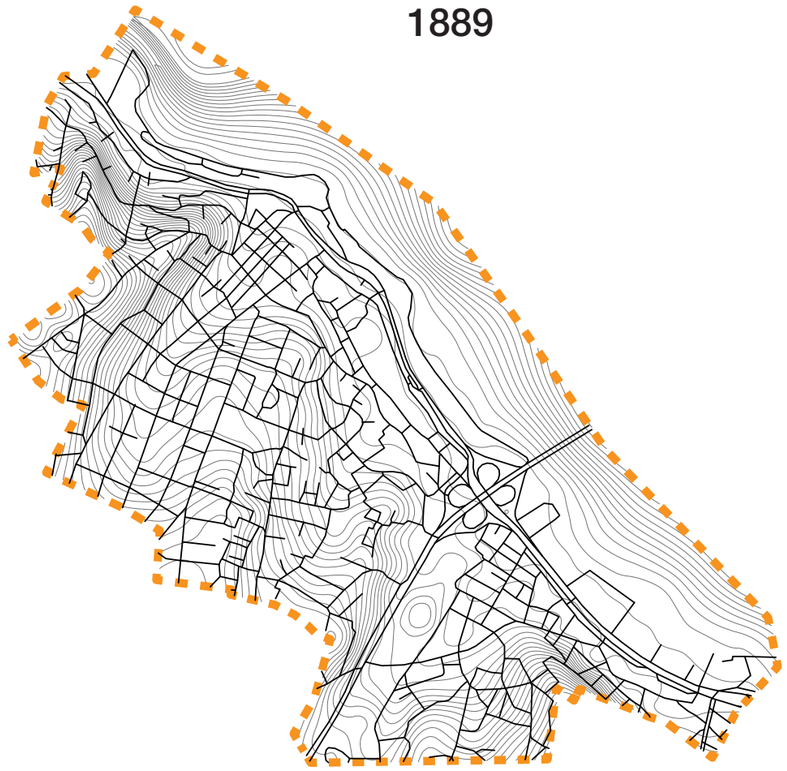
1889



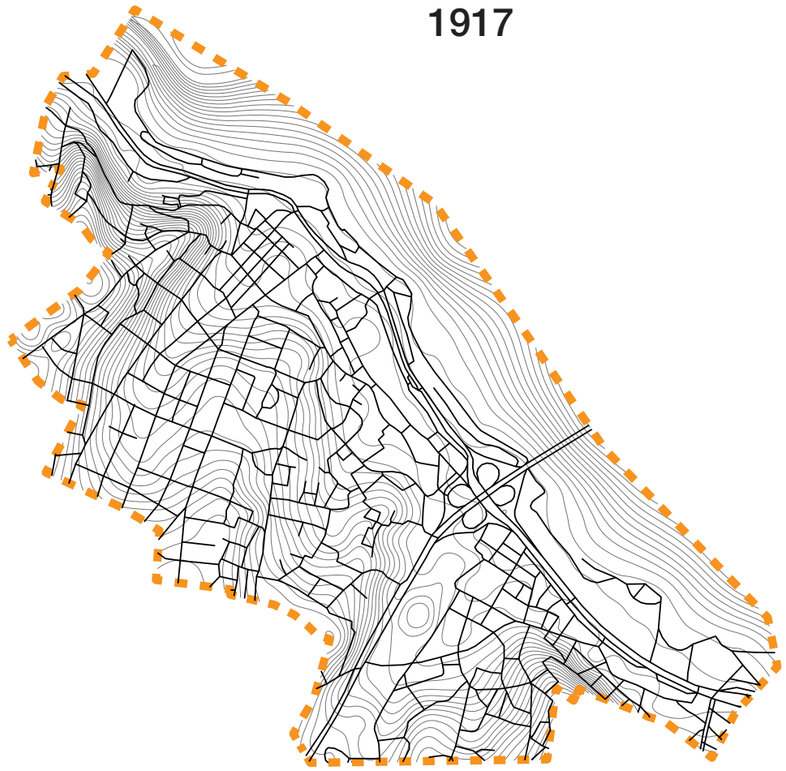
1917



1946



1966



1988/2013

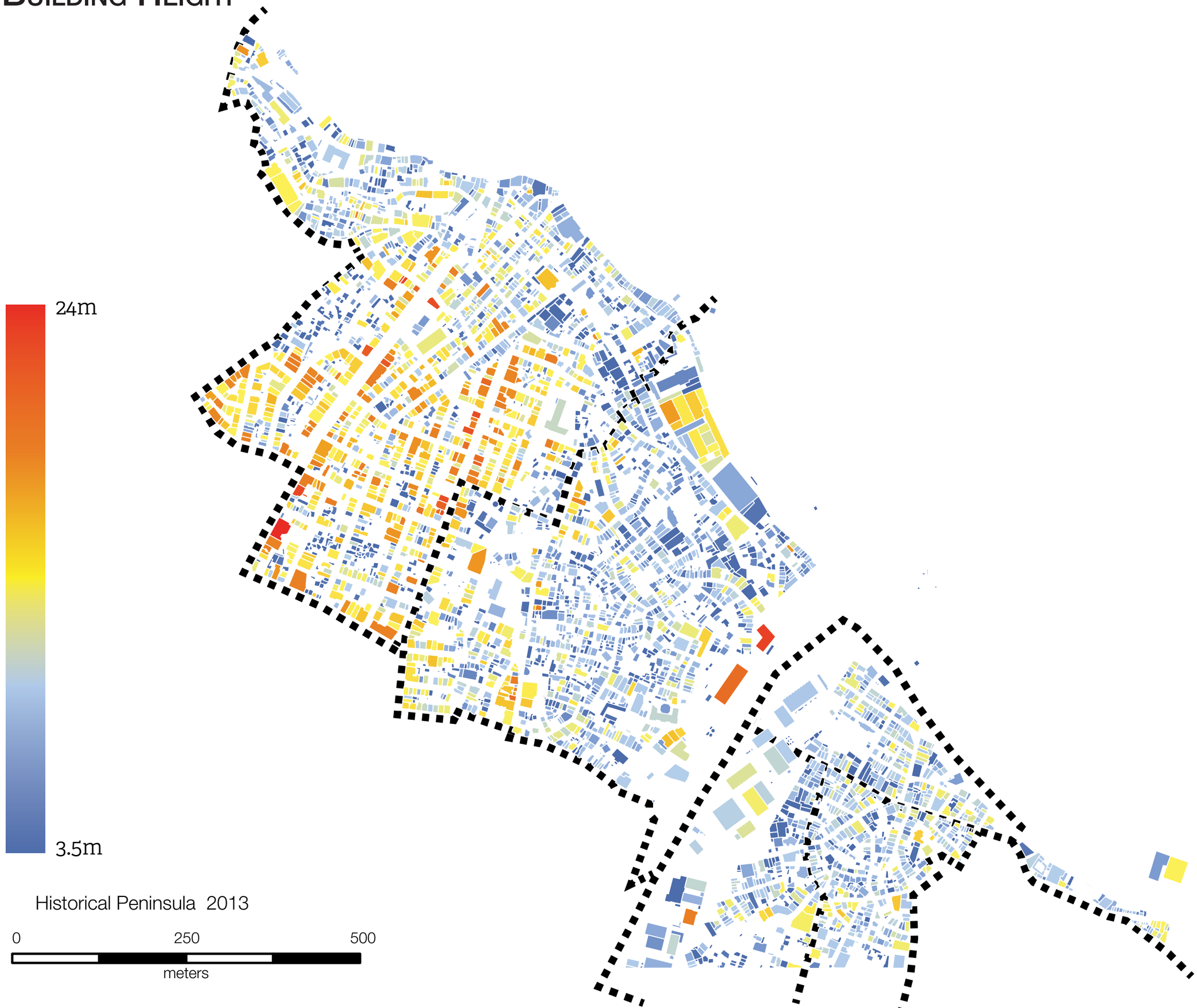
Selected Mahalles Area

0 750 1500

meters

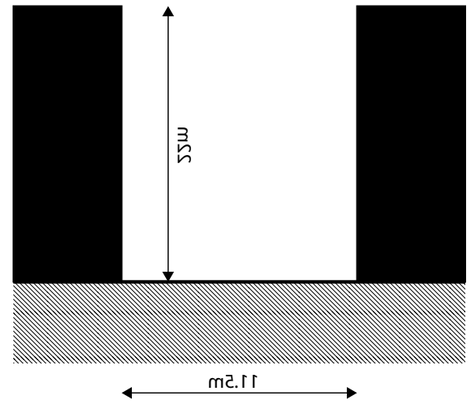
Street Width

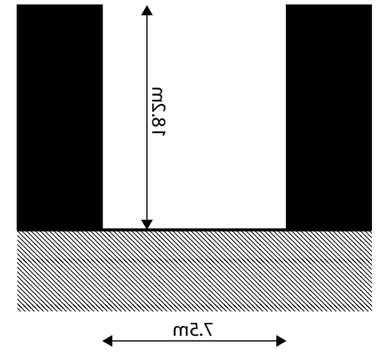
Building Height



Street Profile

Building Height / Street Width





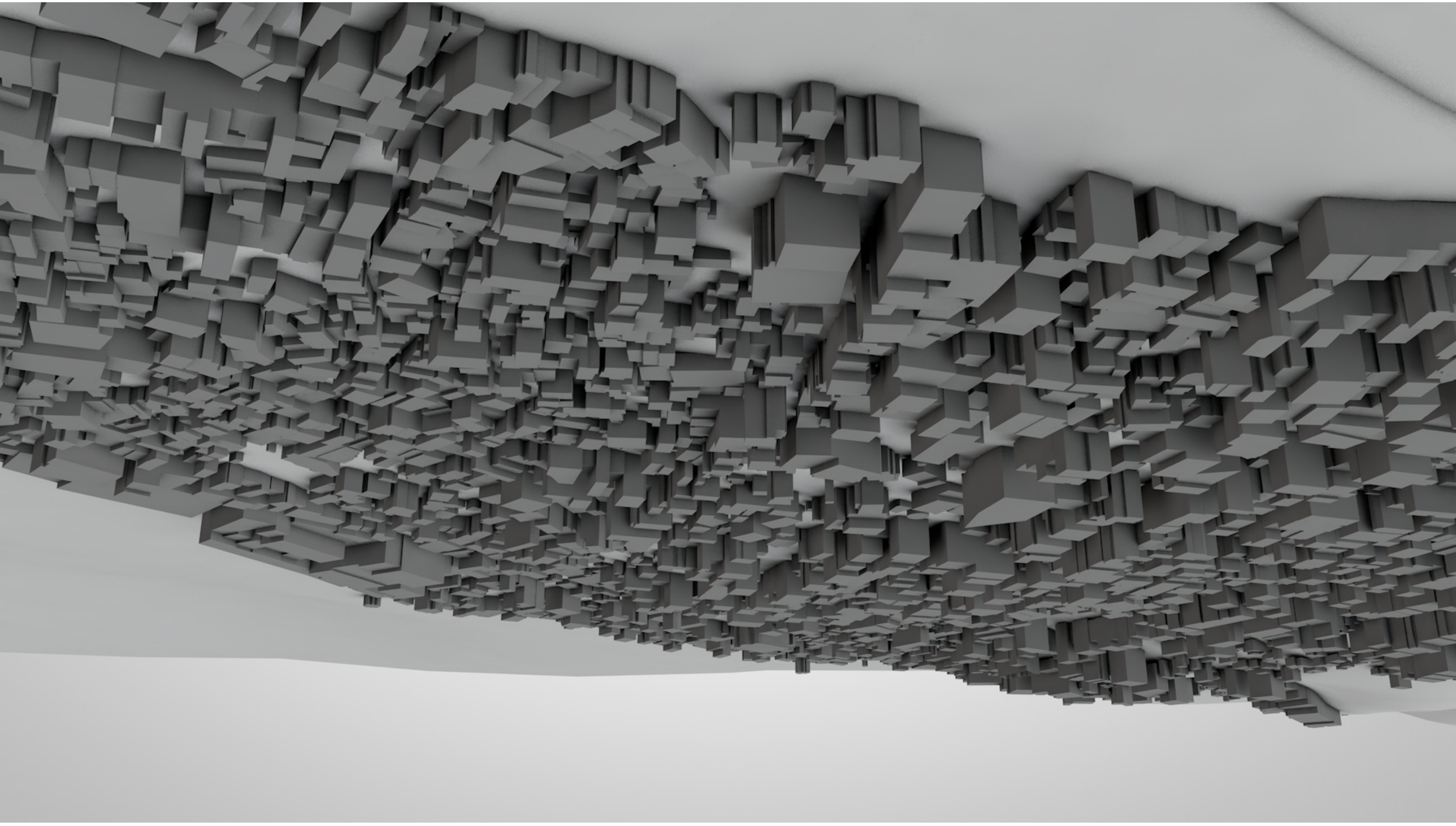
3

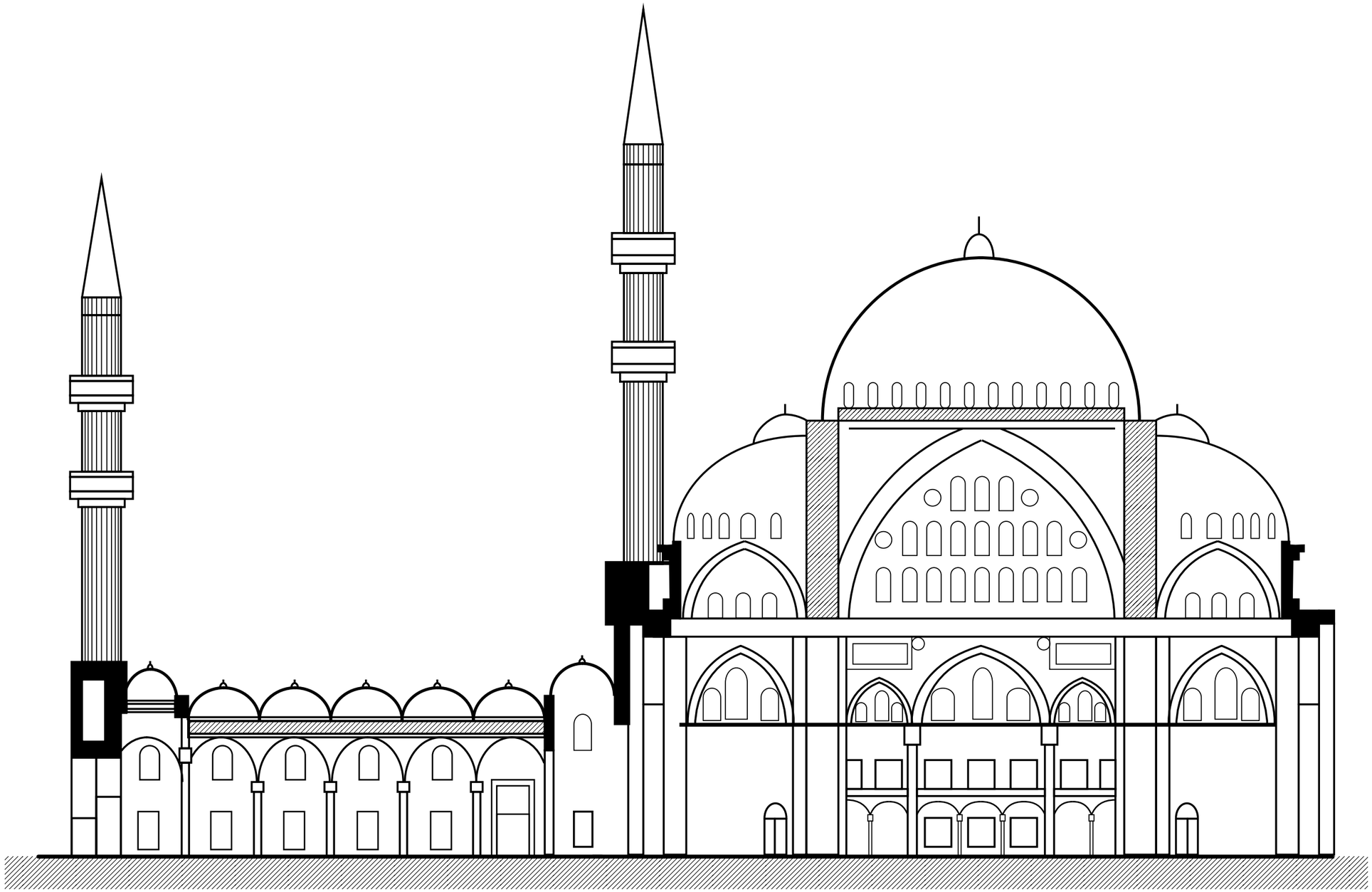
0.15

Historical Peninsula 2013

0 250 500

meters





1 Courtyard

A space which is part of the building, as well as of public sphere of the city (street)

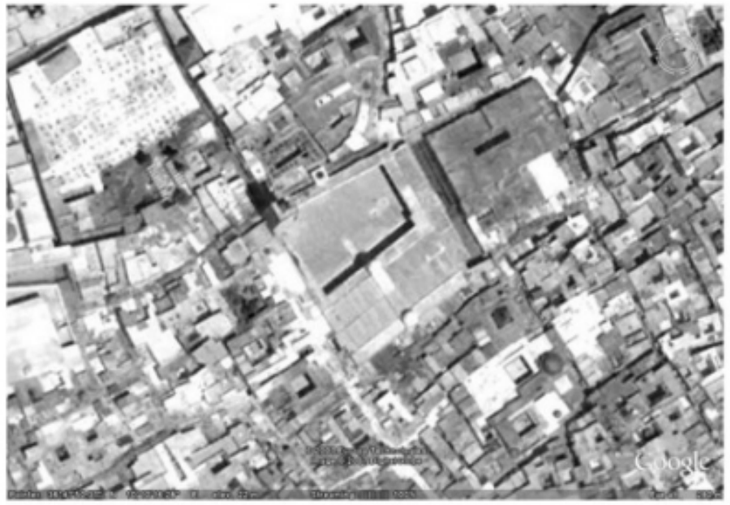
2 Program

A mosque is an ultimate mix - use building, since it has the capacity to attract all people.

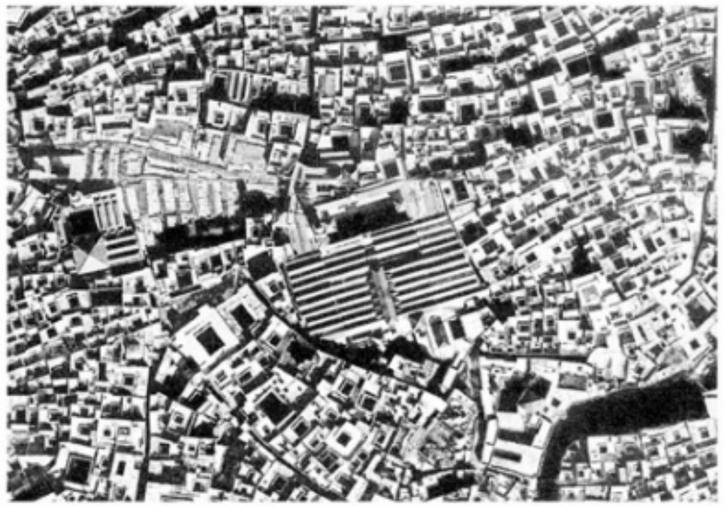
Damascus

Sanaa

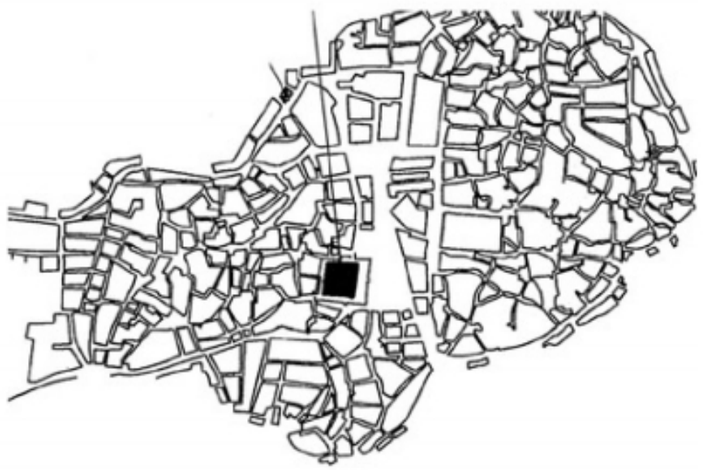
Cairo



Tunis

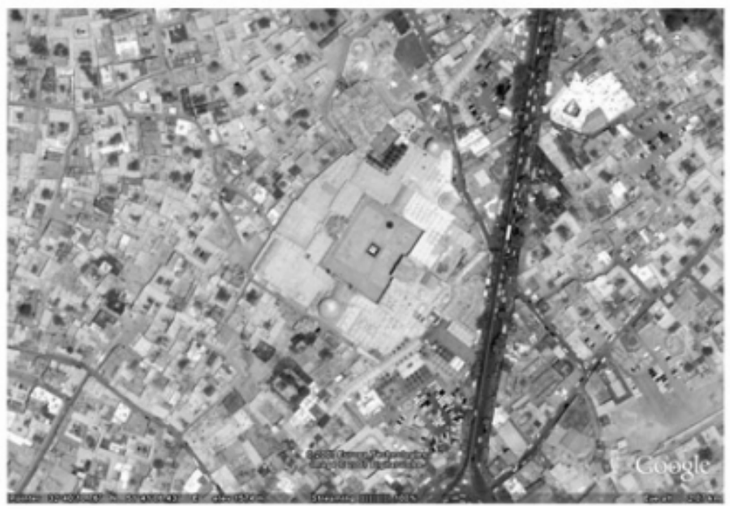


Fez



Djenne

Istanbul

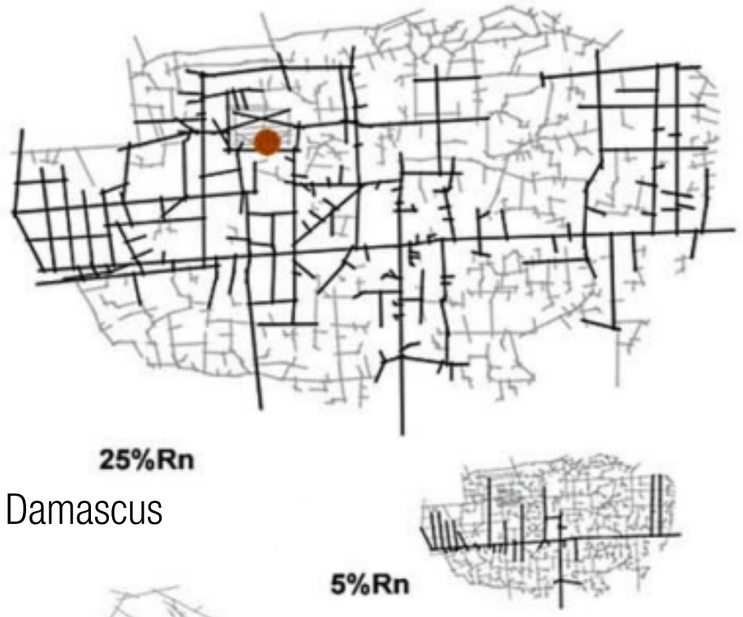


Isfahan

Bukhara

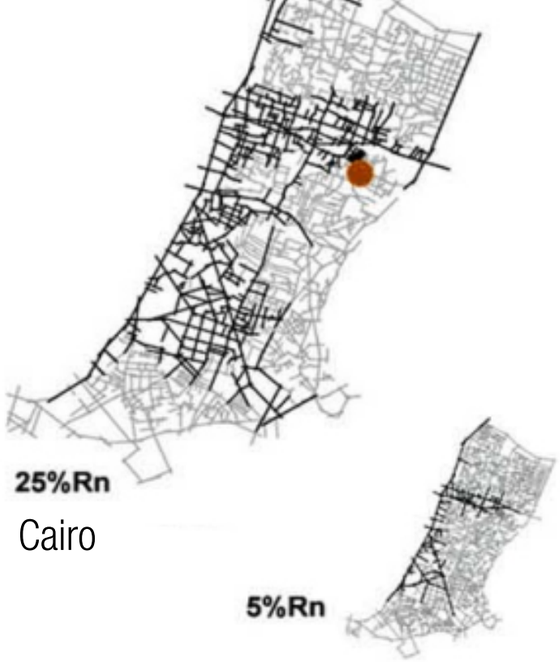
MOSQUE
Analysis

The axial lines of the 12 cities show the global integration of the 5% and 25% most integrated lines of the system

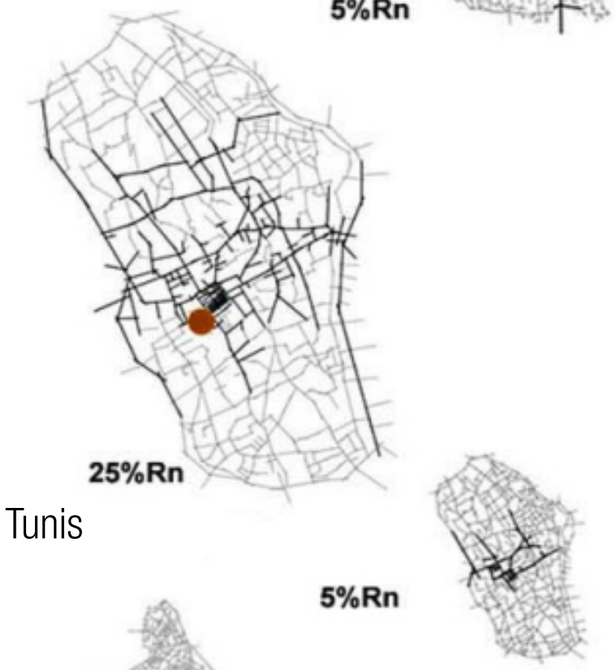


Damascus

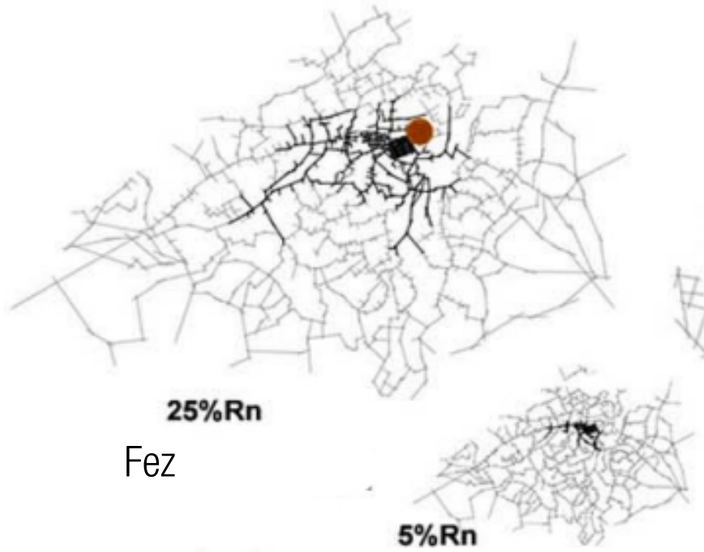
Sanaa



Cairo



Tunis



Fez

Djenne

Istanbul

Isfahan

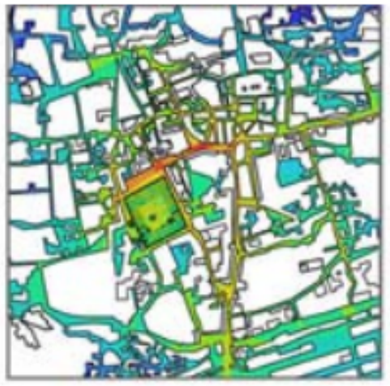
Bukhara

MOSQUE

Analysis

Interior of the mosque
as part of the
urban open spaces

Damascus

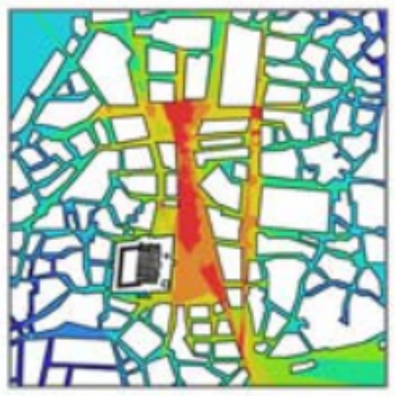


Sanaa

Cairo

Tunis

Fez



Djenne

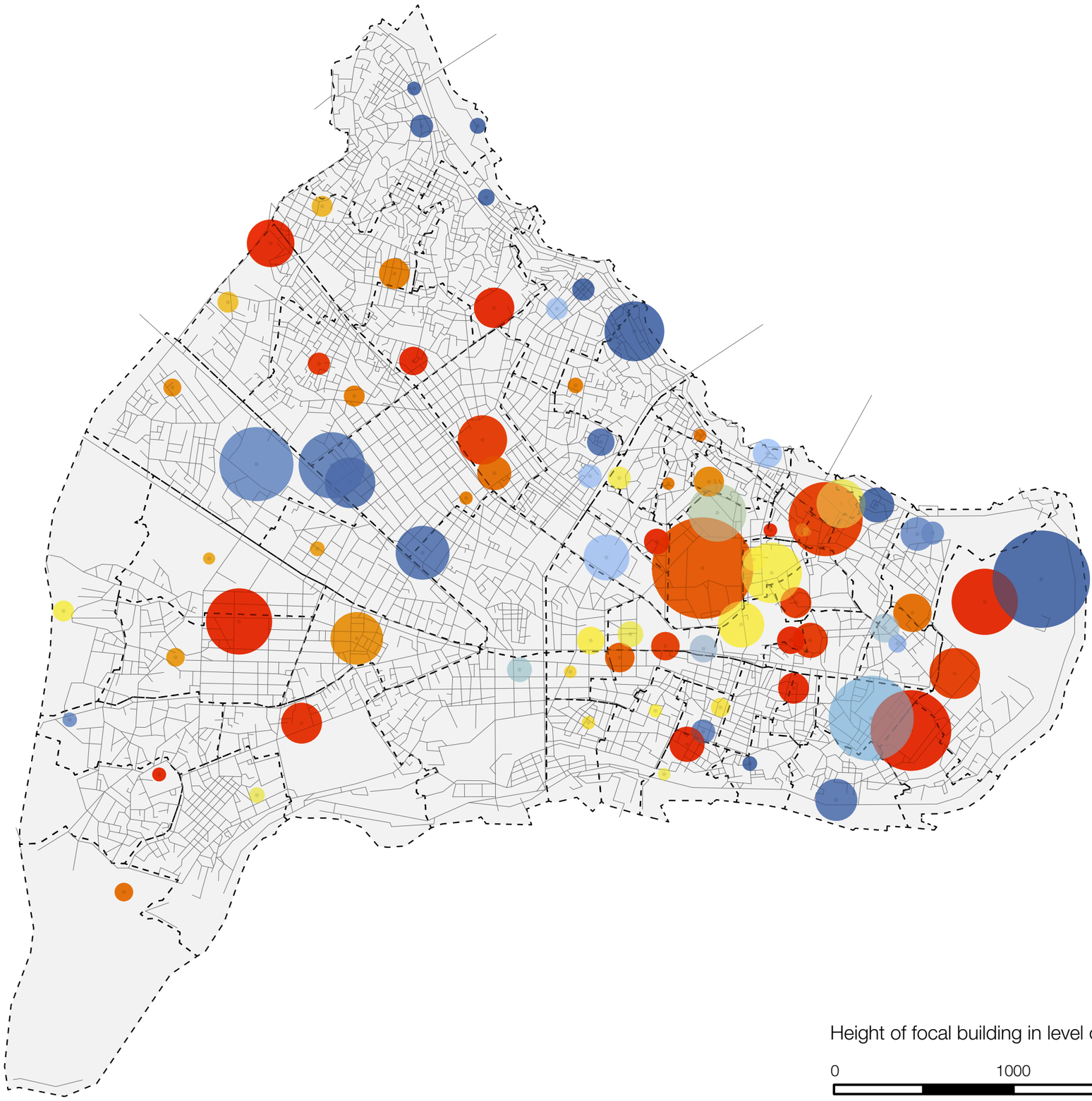
Istanbul

Isfahan

Height of focal building in level of mahalle

MIN

MAX



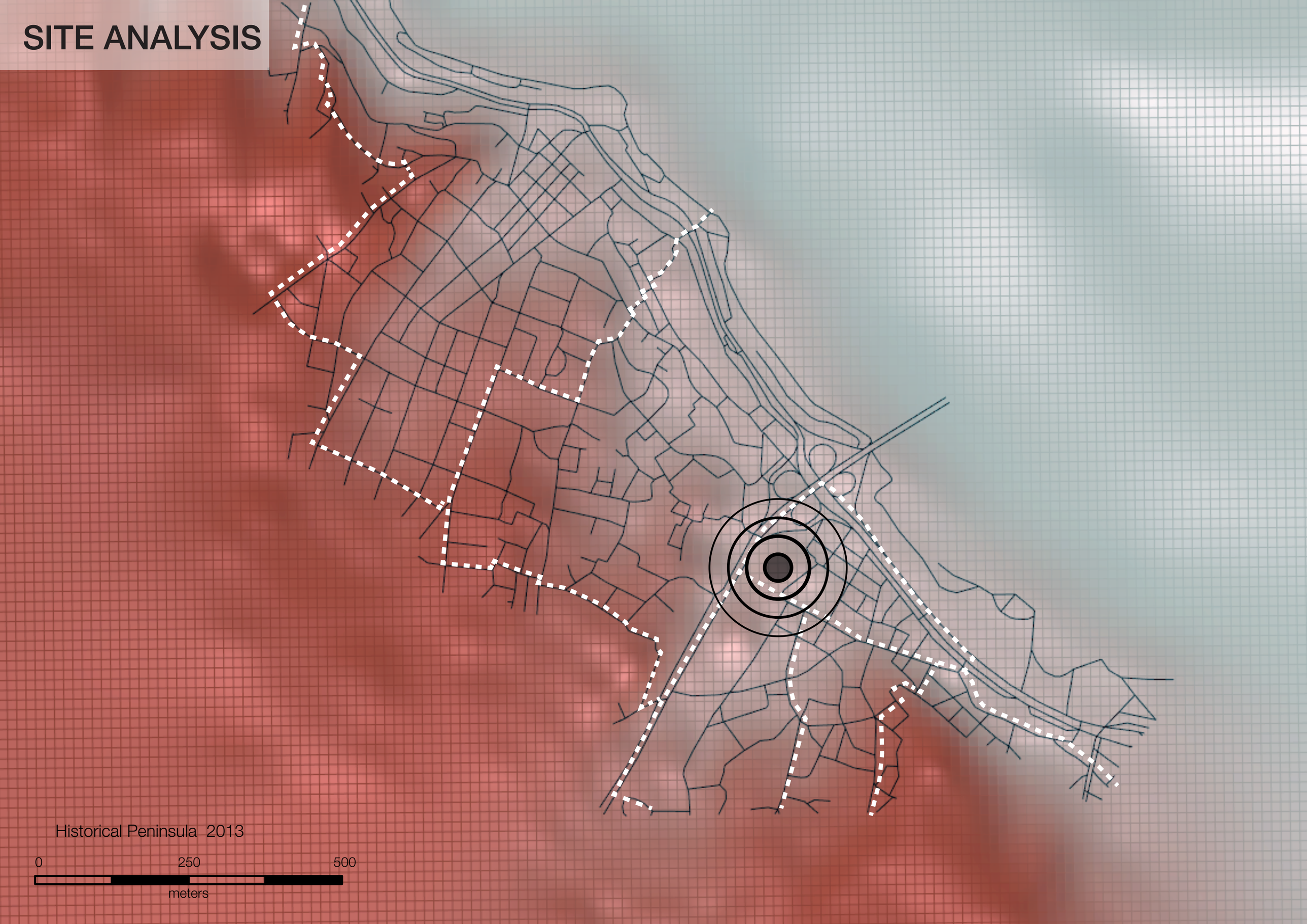
Height of focal building in level of mahalle

0 1000 2000

meters

SITE LOCATION

SITE ANALYSIS



FIRE AREAS


Small fire areas
Site Location
Historical Peninsula end of 19th century
0
1000
2000
meters

SITE ANALYSIS

Border of mahalle

Preservation site

Historical Peninsula 2013

0 500 1000

meters

SITE ANALYSIS

1 Solid Block
2 Block
3 Agregated block
4 Row houses
5 Isolated buildings

Historical Peninsula 2013

0 500 1000

meters

SITE ANALYSIS

BORDER
Upper Str. rank

ATTRACTOR
Suleymaniye Cami

BORDER
Atatuk Blv.

BUFFER
Empty zone

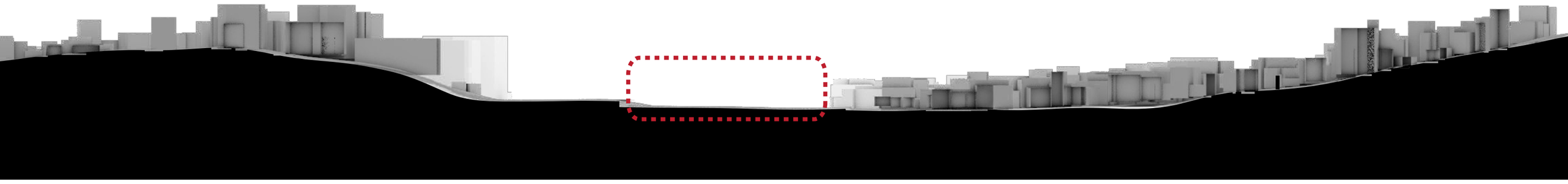
ATTRACTOR
Medipol Unv.

ATTRACTOR
Kadir Has Unv.

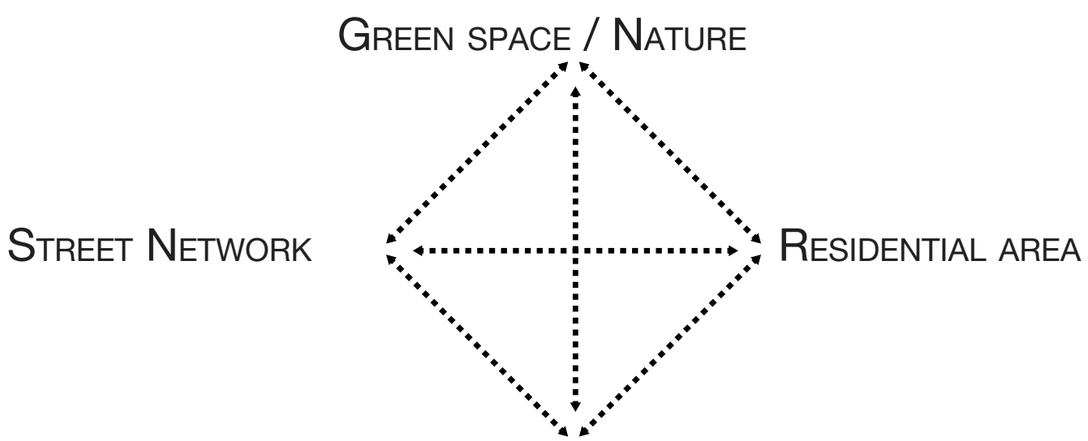
BORDER
as separation

BORDER
Upper Str. rank

BORDER
Atatuk Blv.



PAST



1 Balanced relations

City used to be a well - balanced mixture of street network, residential area, imposed public buildings and green spaces.

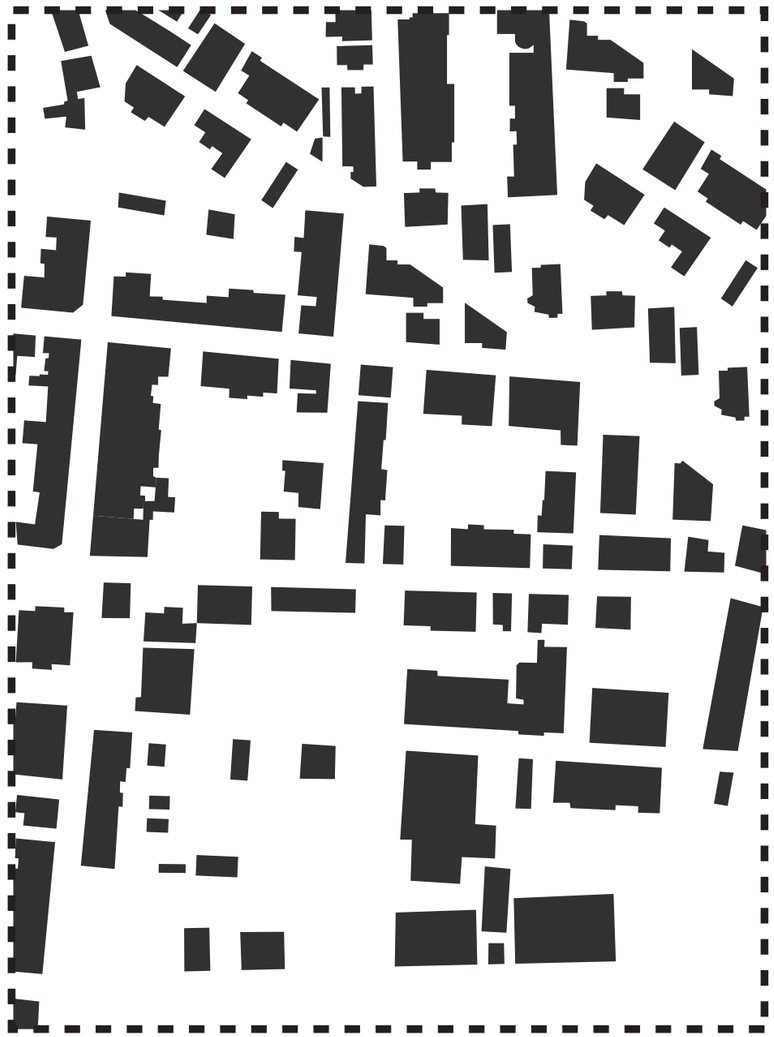
PRESENT

2 Dominant relation

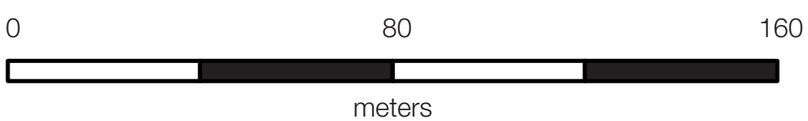
Now, because of horizontal densification of certain groups, other are pushed away from the city, leading to a loss of original qualities.

1 Grid street network
from 2013

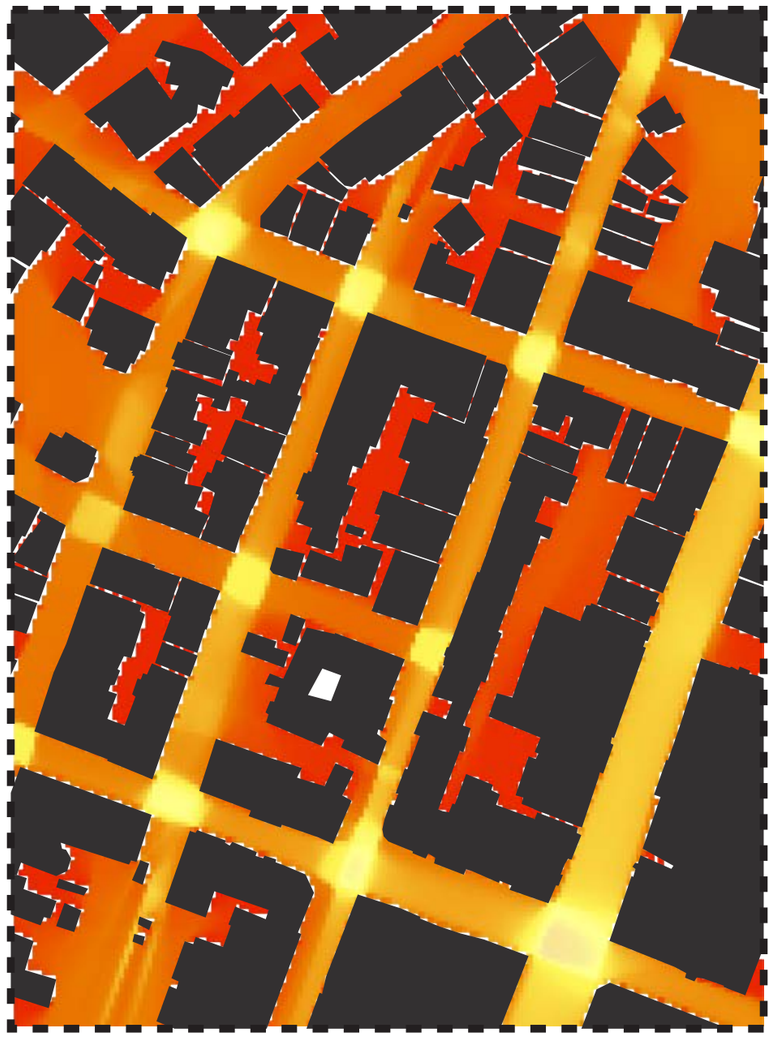
2 Organic street network
from 2013



3 Fire Protection street network
from 1906



Visibility graph



1 Grid street network
from 2013

2 Organic street network
from 2013

3 Fire Protection street network
from 1906

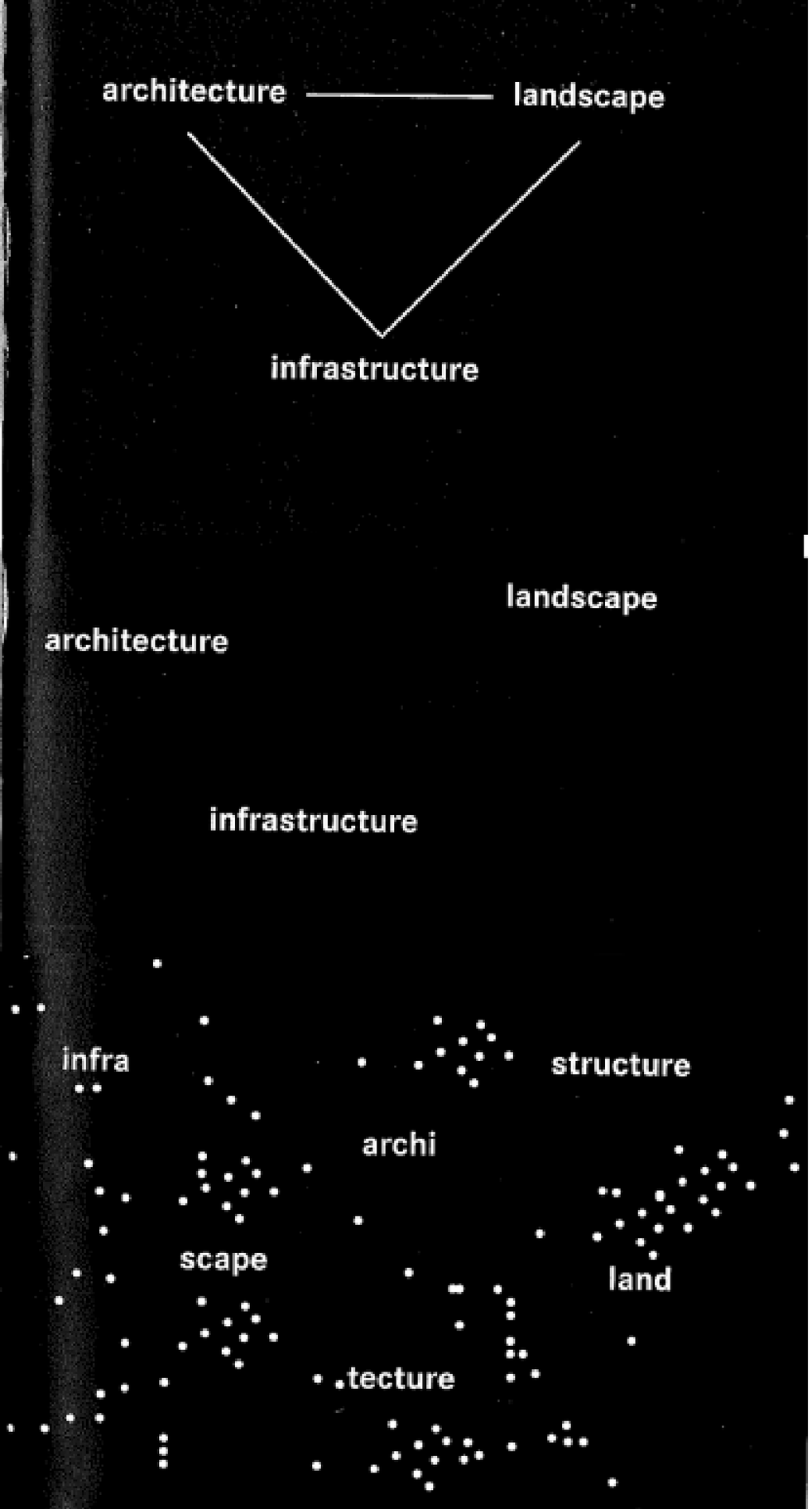
0 80 160

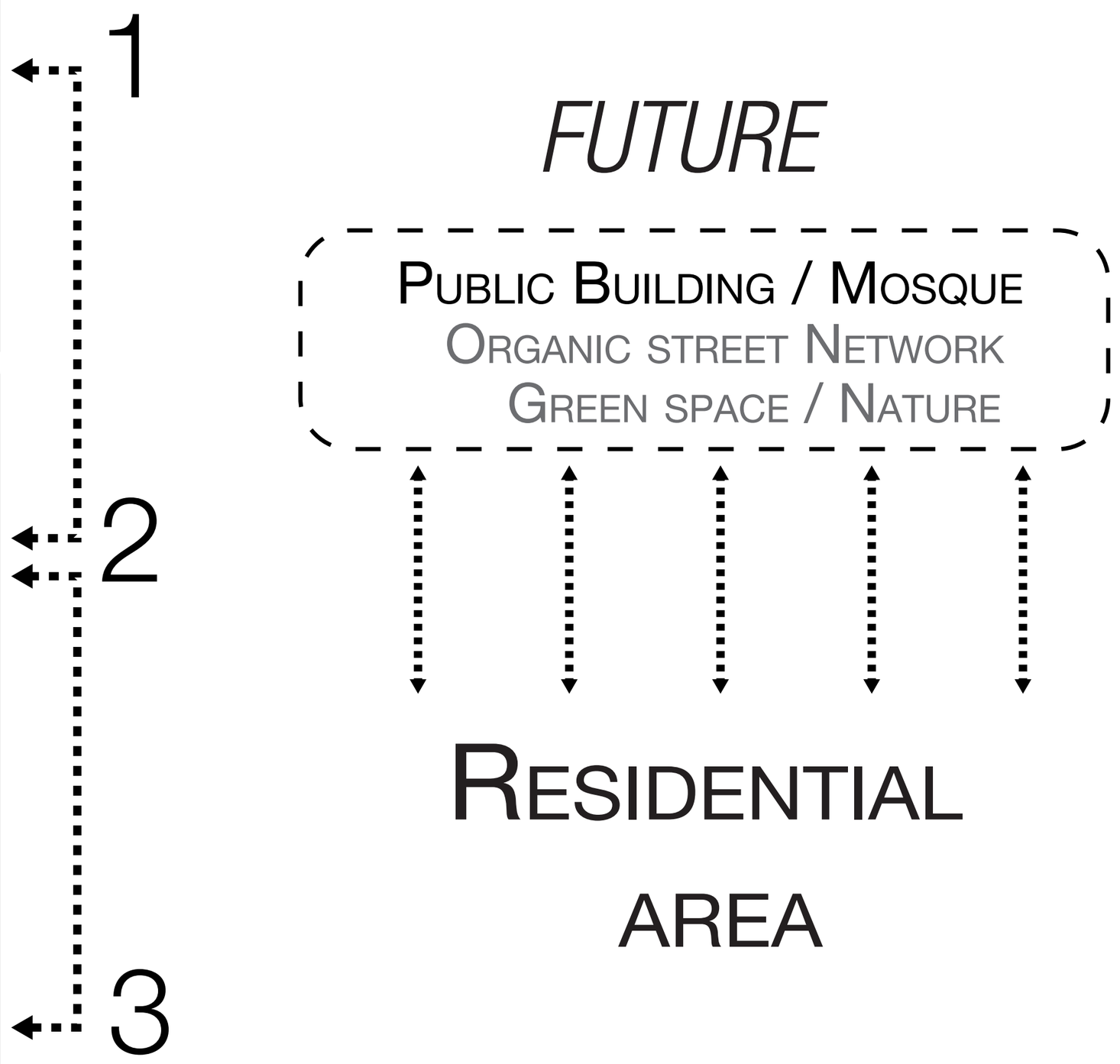
meters

1. PANGALTI

2. TARLABASI

3. FATIH





ROSALIND KRAUSS
DEVELOPMENT OF THE DIAGRAMS BY CONCERNING THE RELATIONSHIP BETWEEN ARCHITECTURE, INFRASTRUCTURE AND LANDSCAPE.

URBAN AGENDA

URBAN AGENDA

Urban Agenda

1

2

3

Patching Mahalles

Connection between two mahalles should be subtle and efficient. It should respect notion of border of each mahalle, simultaniosly introducing a new quality of spatian integration. It should not be linear, but rather a sequence of different public spaces. Also, it is embeded into a city tissue.

Urban Agenda

Green patching can become a strategy applicable to bigger scale.

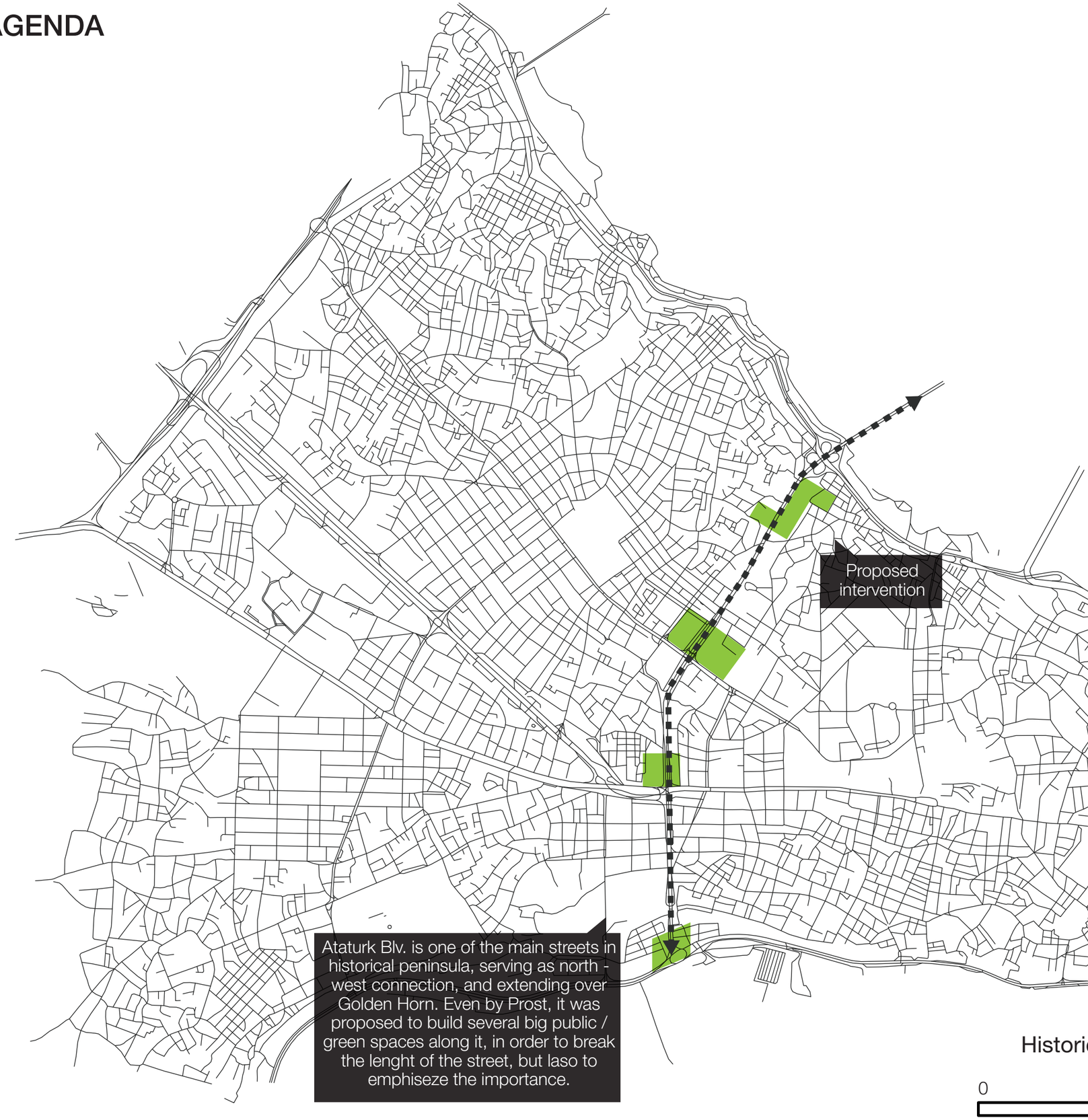
Those patches could result in inflitration of new network in Istanbul, network of green spaces.

Mahalle Division

0 500 1000

meters

Urban Agenda

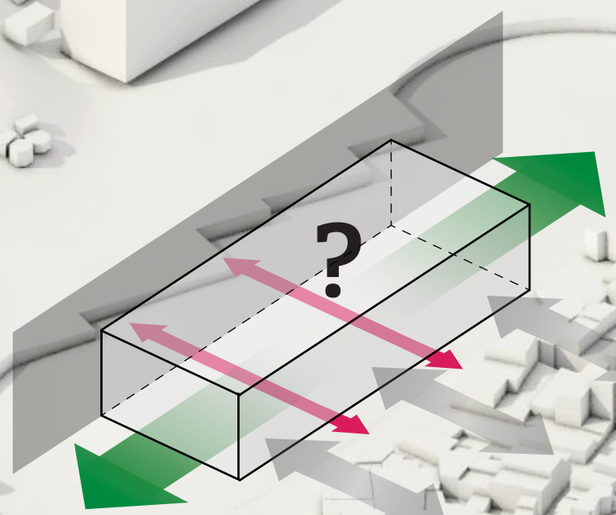


Historical Peninsula 2013

0 1000 2000

meters

Urban Agenda



1 Respect Mahalle

The building should respect notion of mahalle as enclosed urban phenomena. Also, it should enable connection with the existing mahalle, and serve as a border between two mahalles.

2 Embrace Green Strip

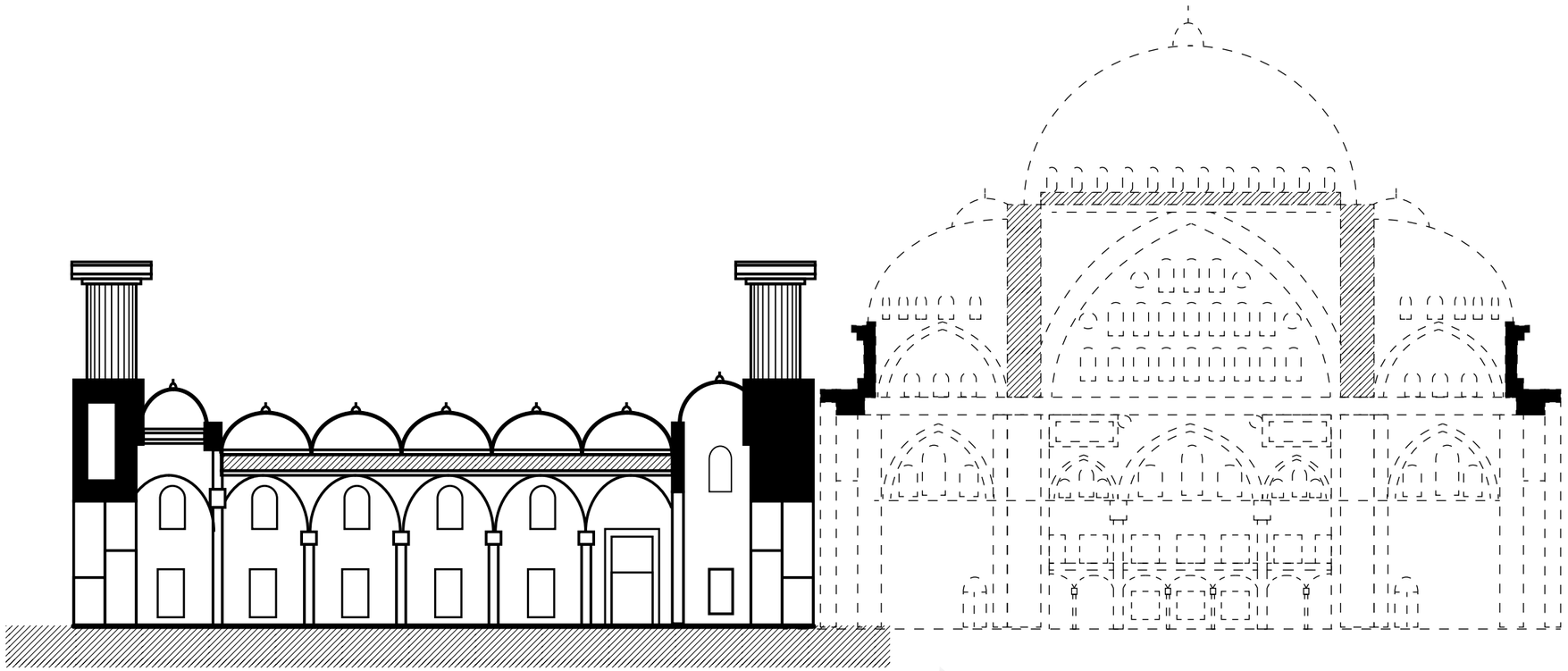
The building should be positioned and organized in a way to embrace green strip passing under it. It should not only be placed on top of it, but it should unify with green space.

3 Relation with the Mosque

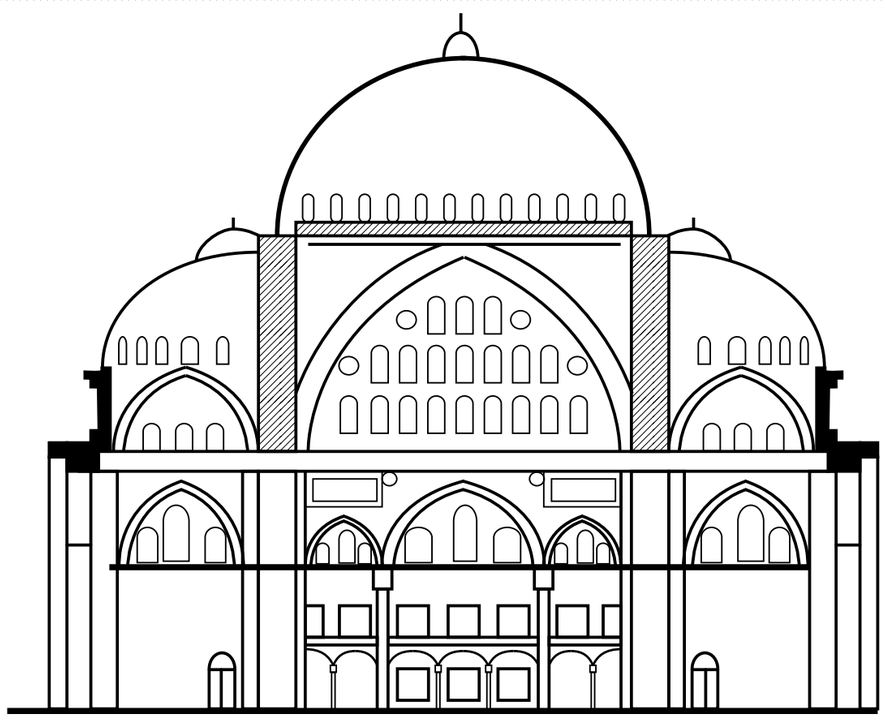
Based on the size of the building, it will be in direct relation with the mosque. I don't want to compete with it, and where mosque has extreamly rich form, I propise inverted approach.
How to create a formless building?
How to attract users?

Introducing Vertical Organization

1 Courtyard
Public Space

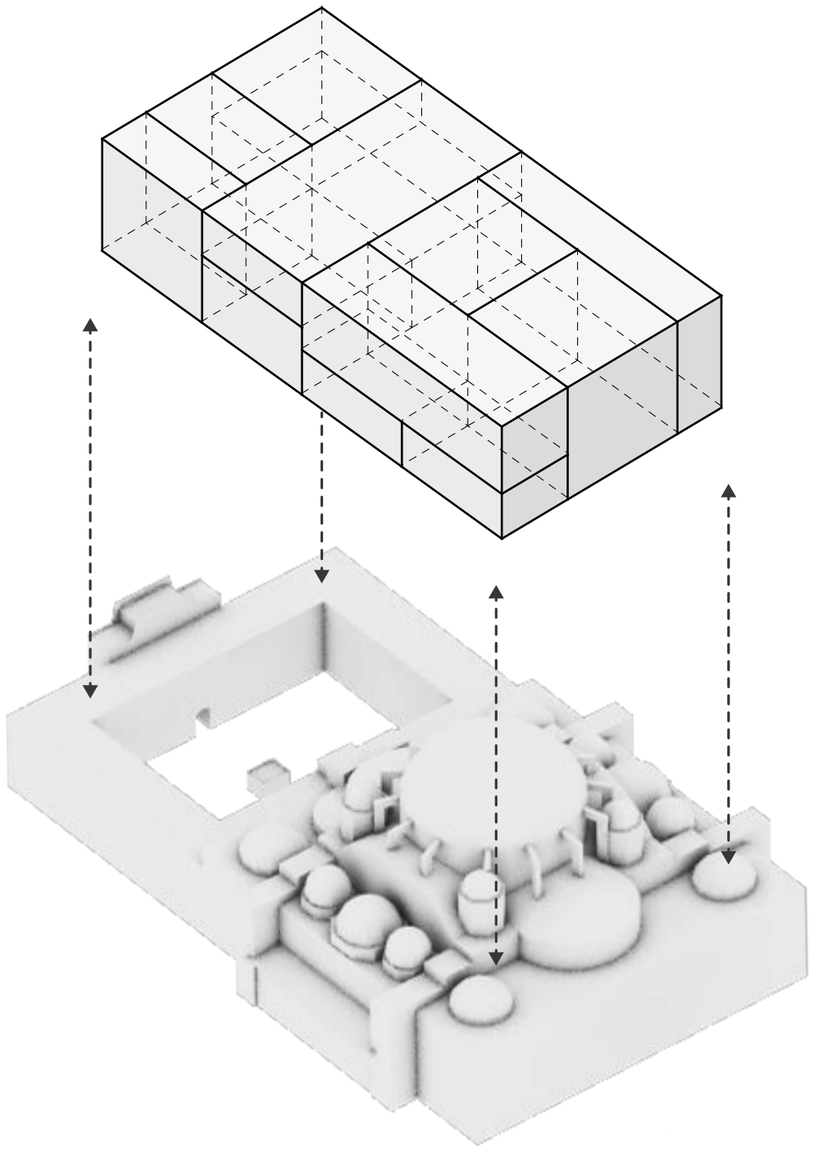


2 Courtyard
Public Space

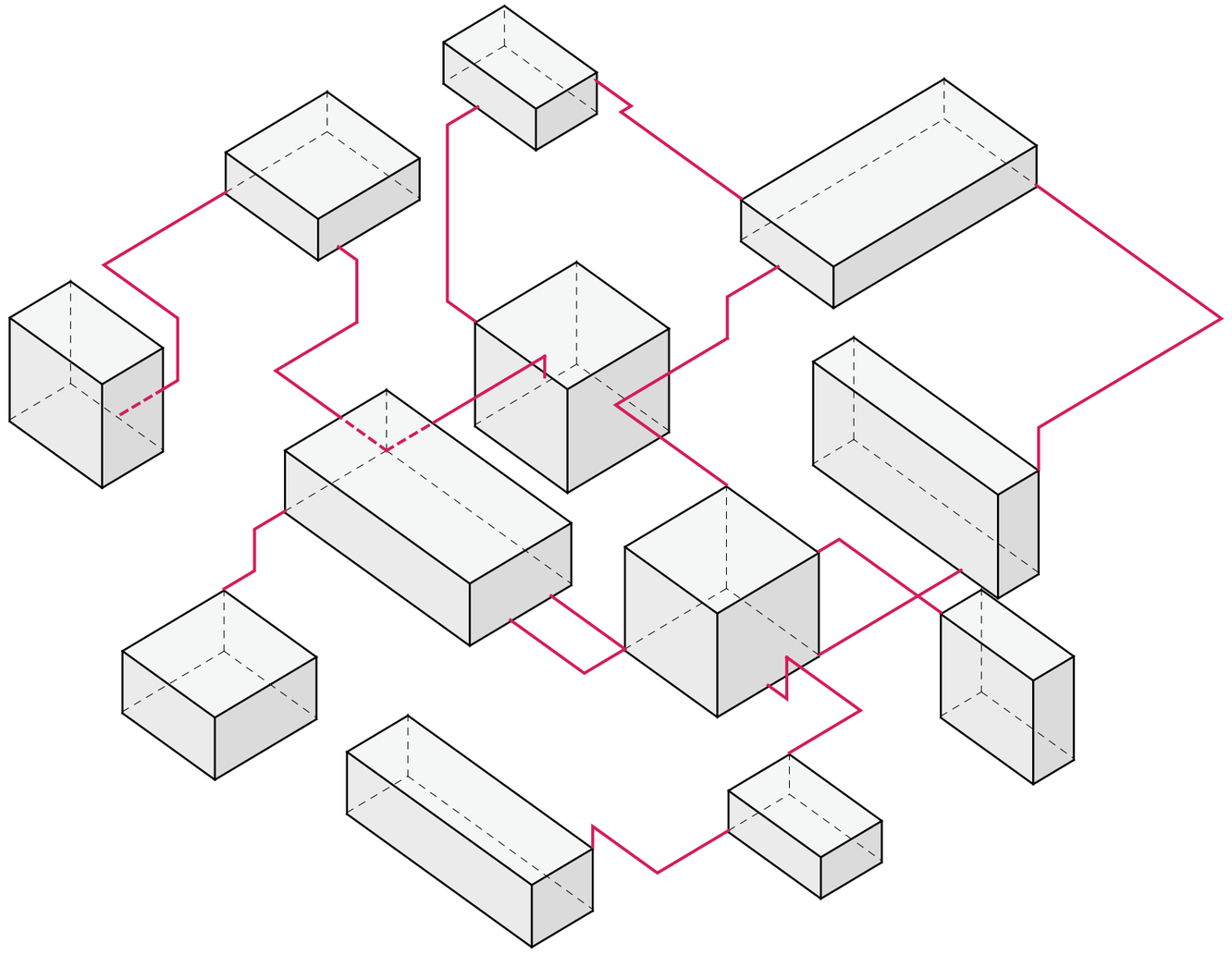


Programatic Decomposition

Mosque, as the public building is concieved as a cluster of program. That cluster is exploded, where spatial relationship between programs is challenged.

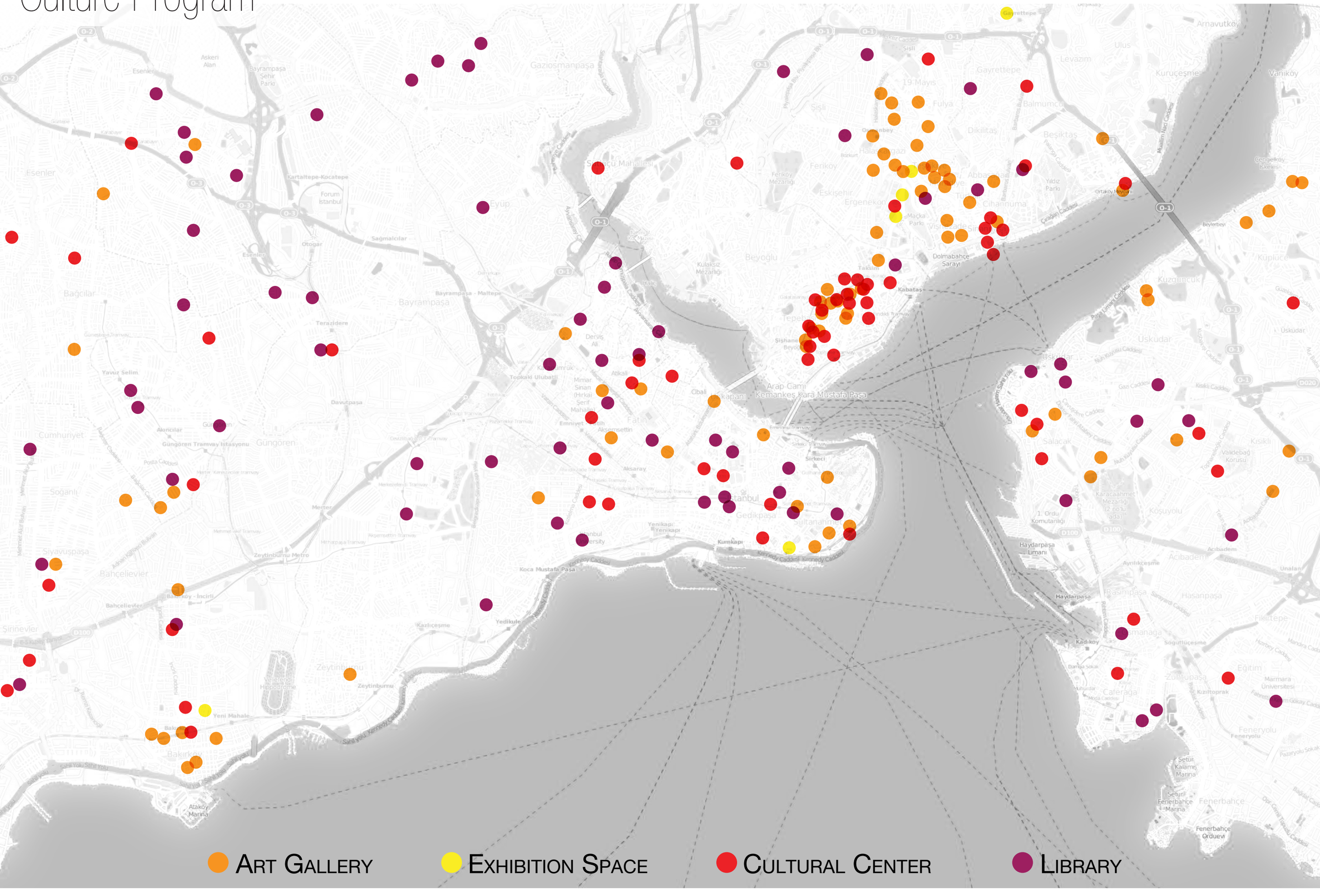


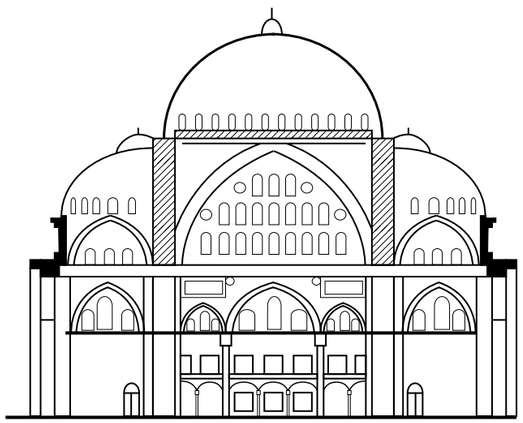
Cluster of Program



Decomposition of Program

Culture Program

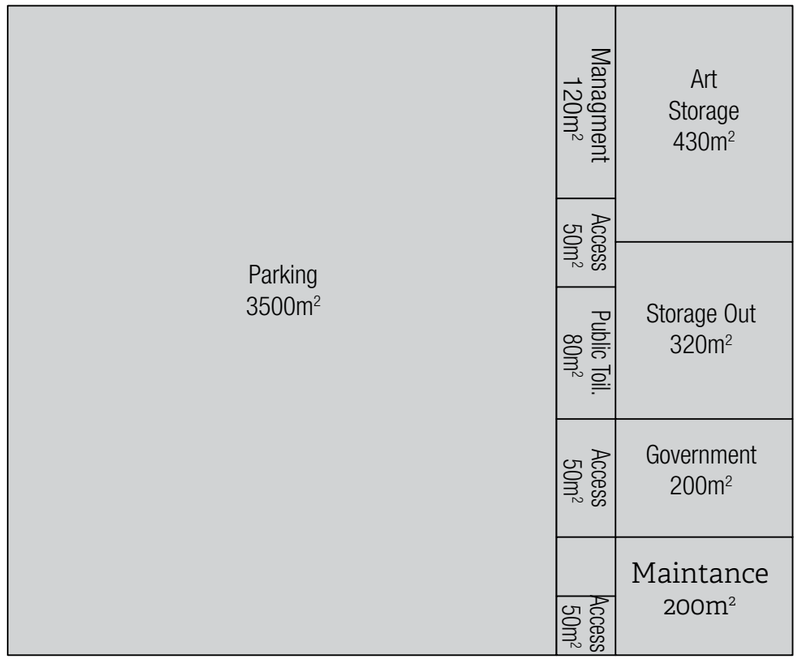




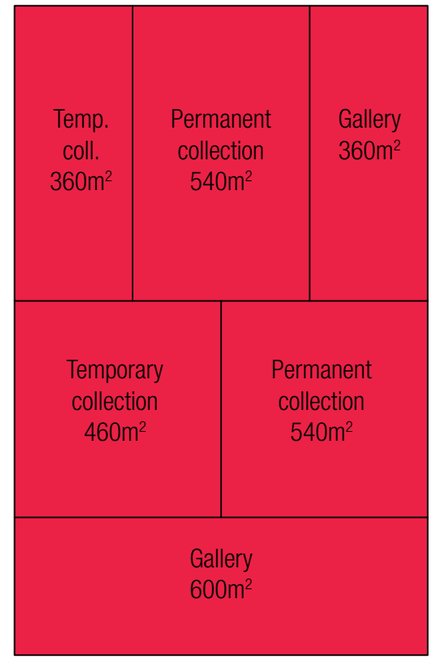
1 Private Program

Program used for cultural educational building, which is placed on top of public space.

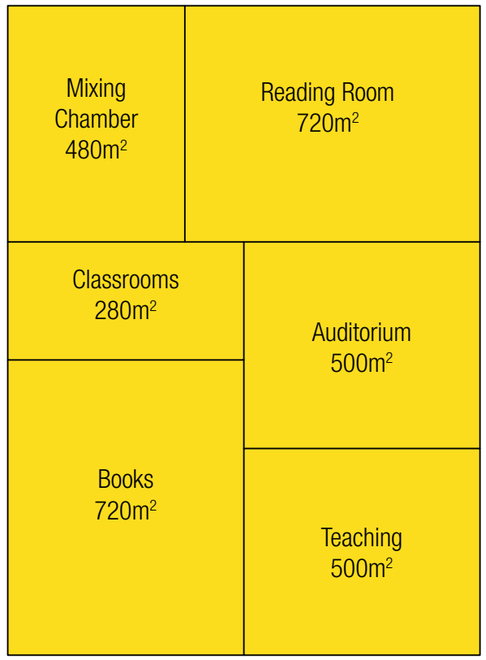
Service

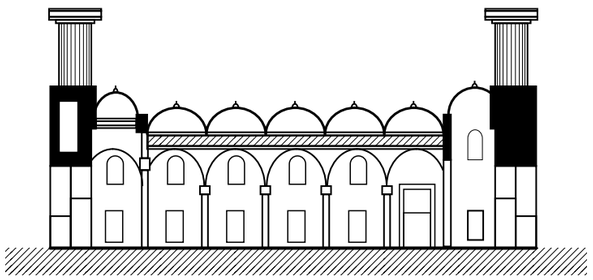


Culture



Education

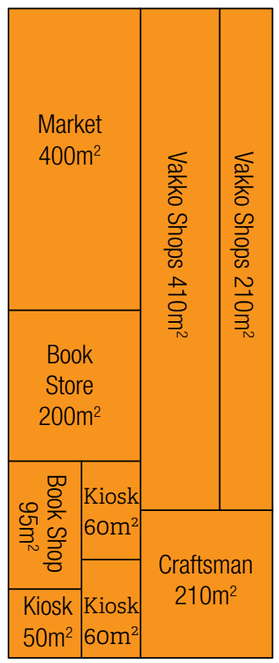




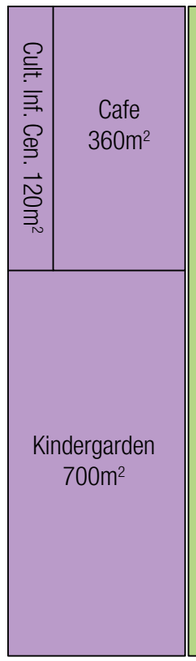
2 Public Program

Introduced as part of the public space. It is supposed to activate it by introducing new types of users.

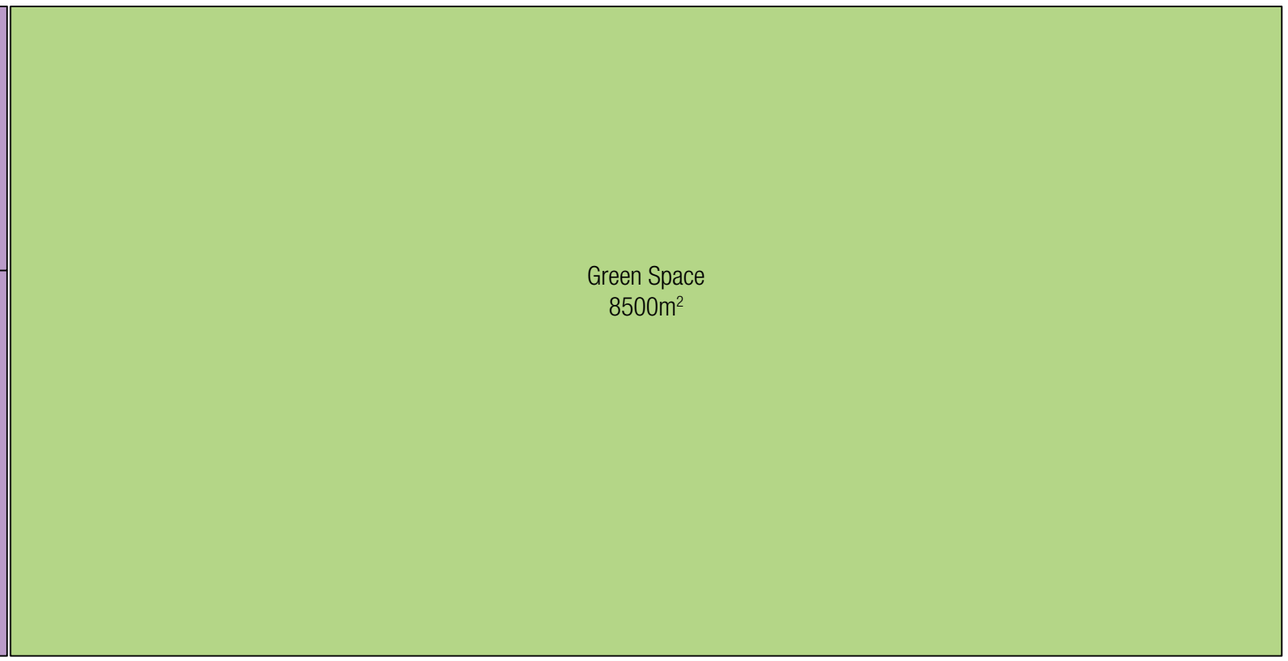
Retail



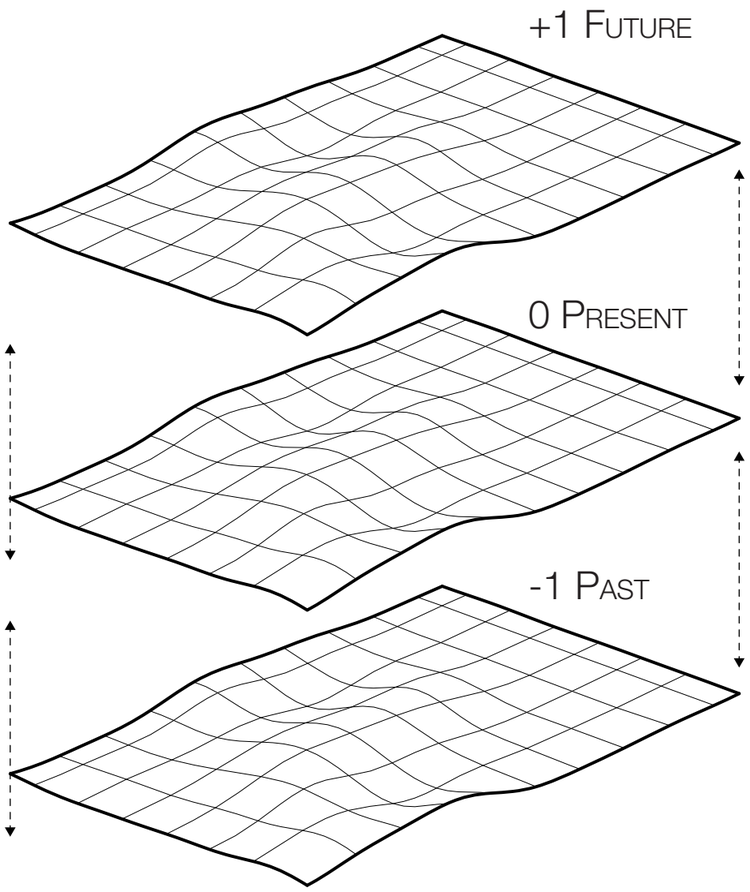
Leasure



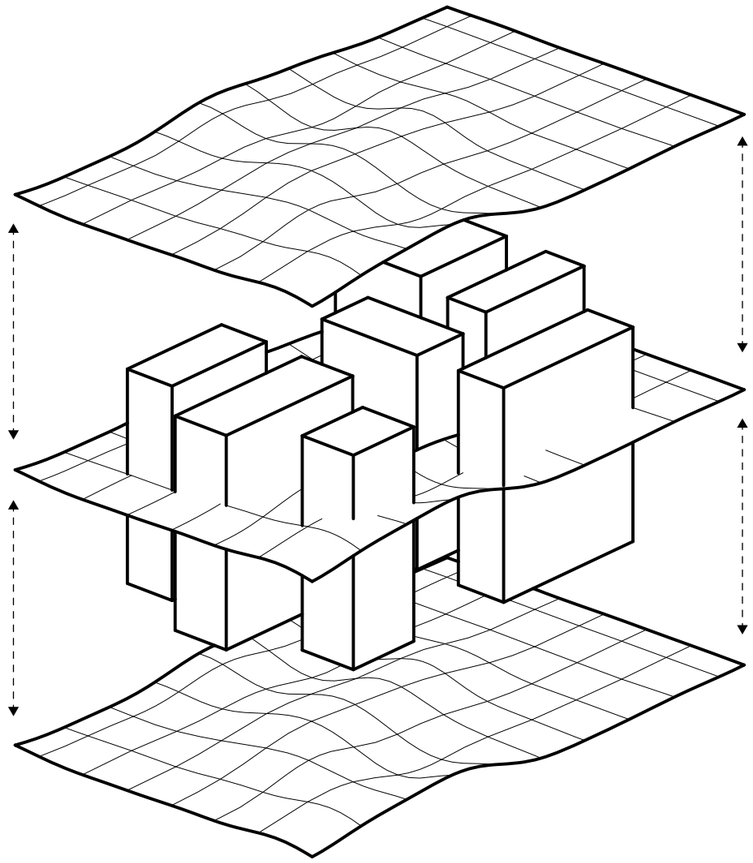
Green



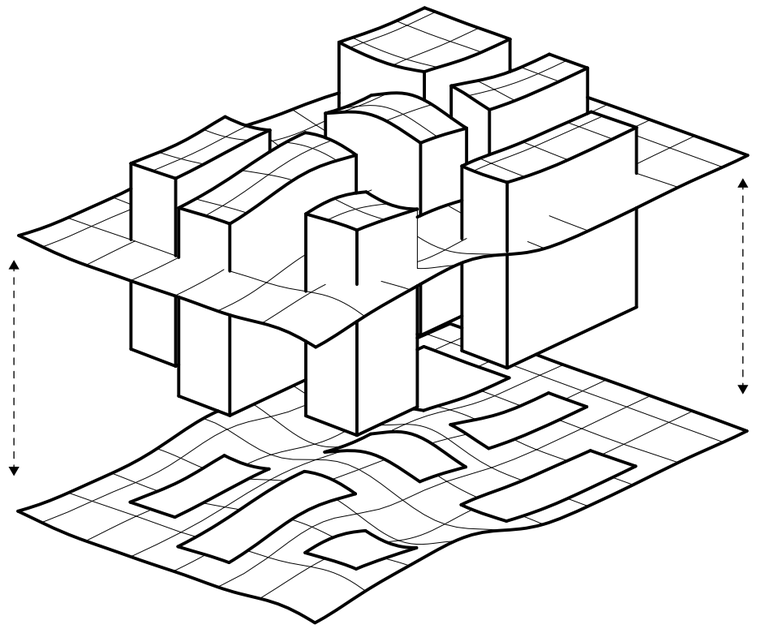
1 Displacement
Importance of the topography is emphasized by displaceing the ground on vertical level.

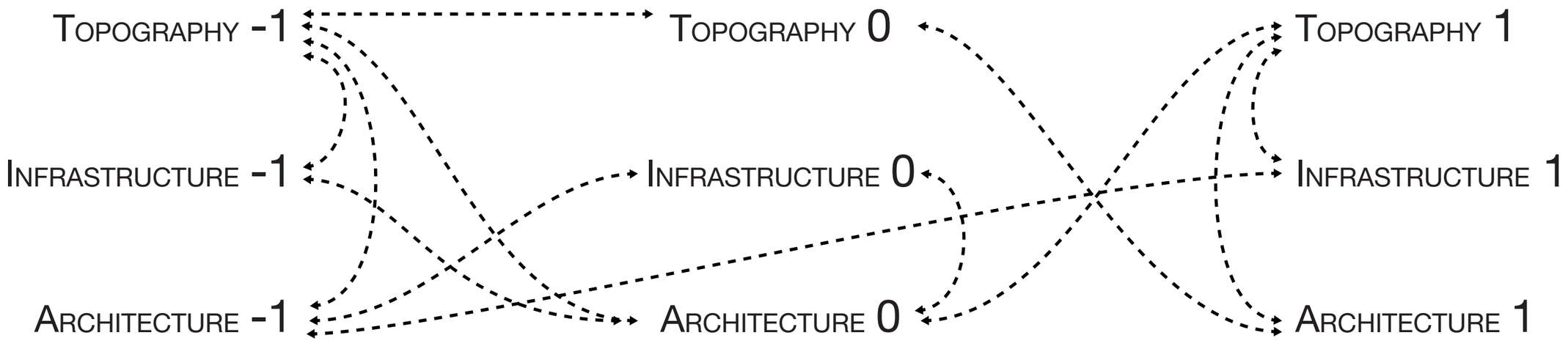


2 Connection
Ground surfaces are connected via blocks, which span vertically trough them.

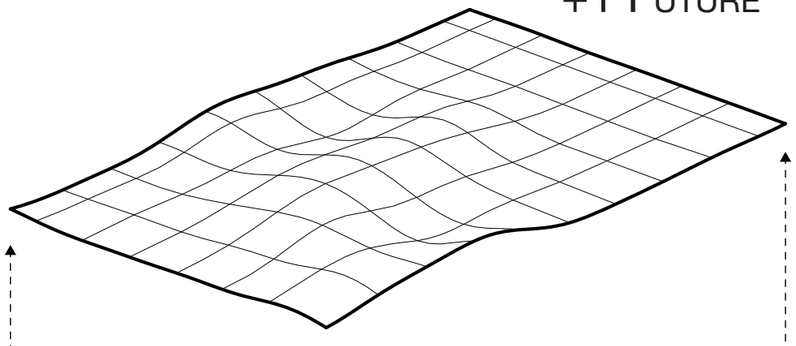


3 Transformation
Architecture, landscape and infrastructure became one thing. Perception is changing based on the scale.

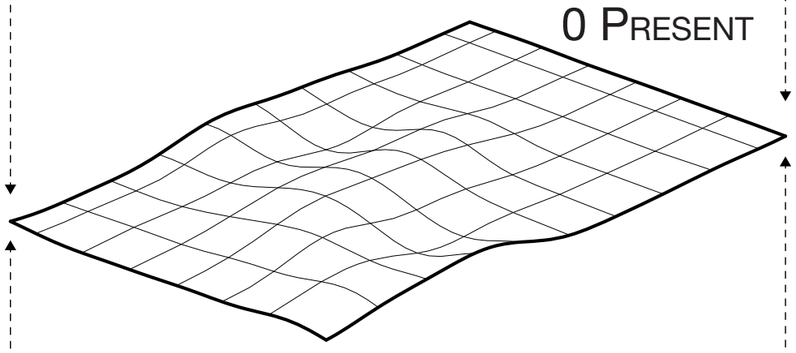




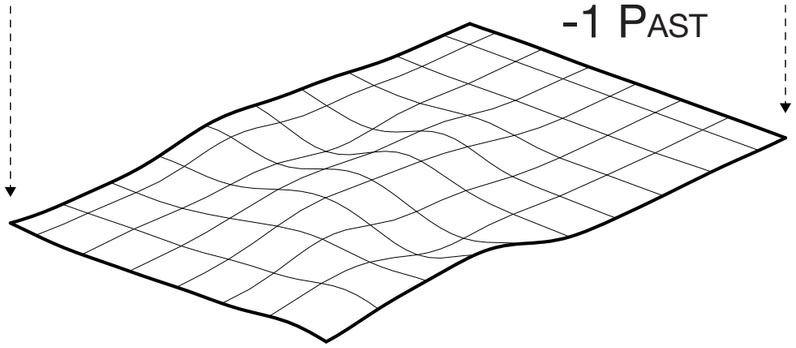
+1 Future



0 Present

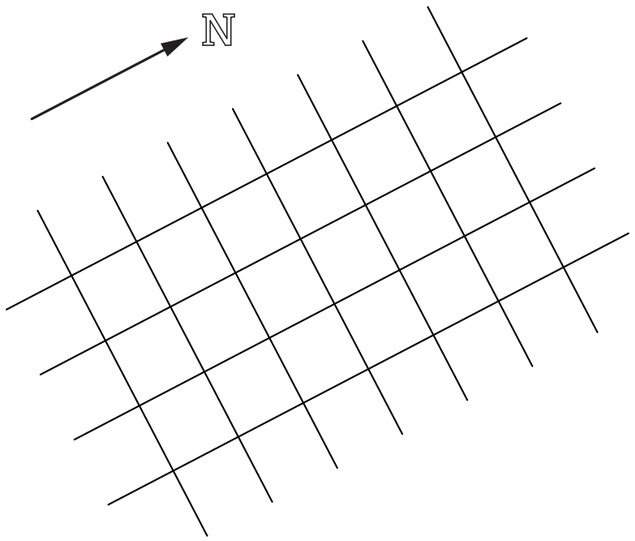


-1 Past

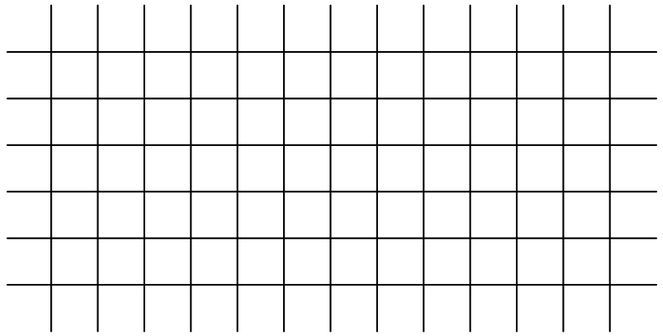


TOPOGRAPHY

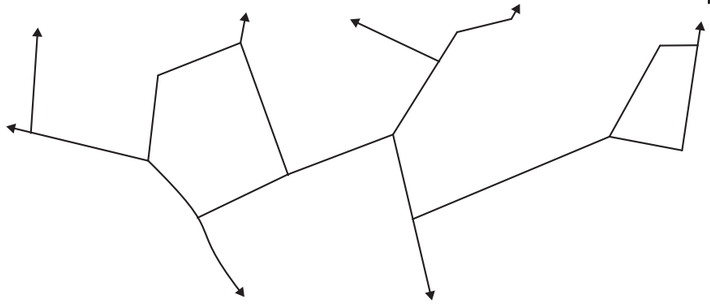
+1 North - South Grid



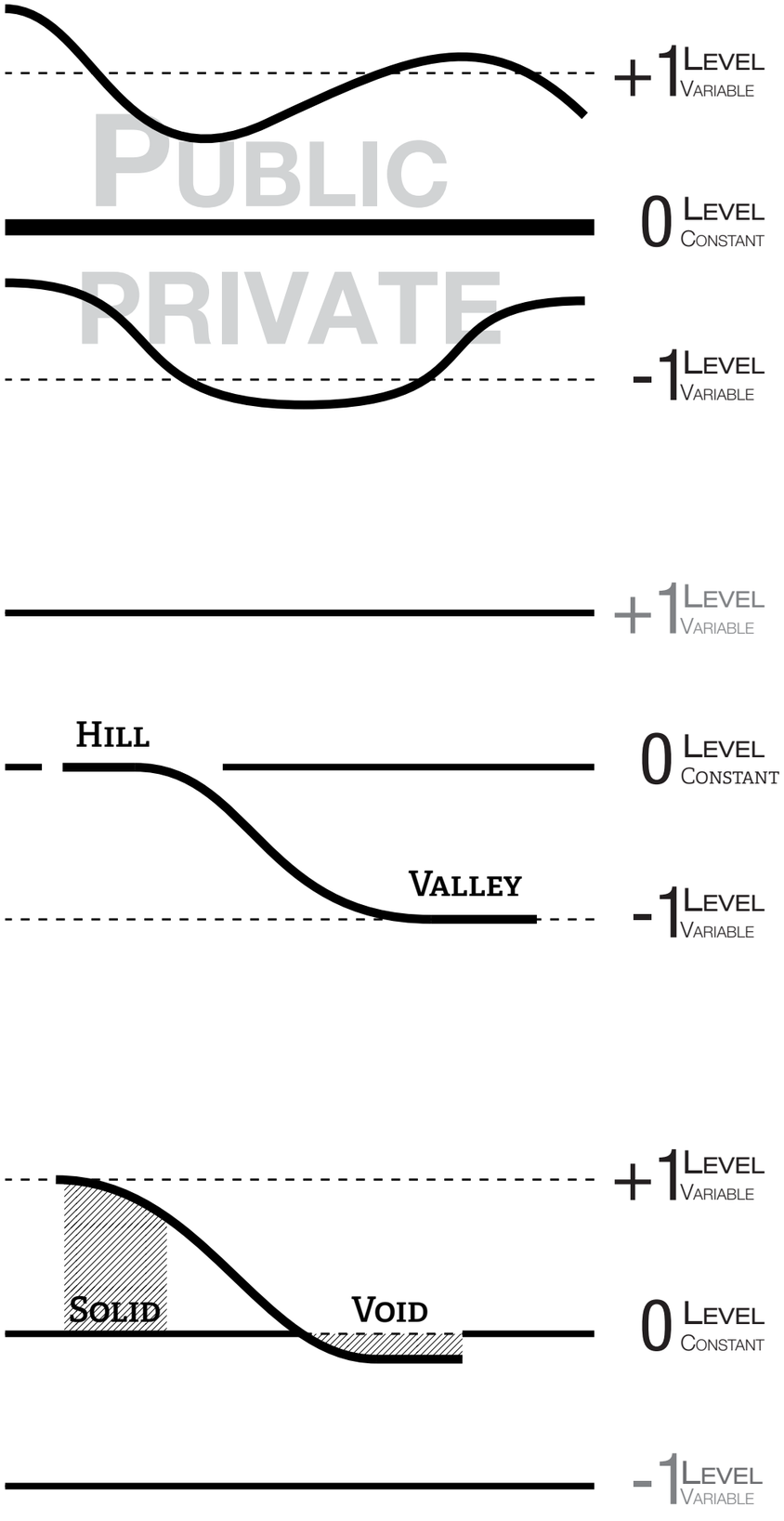
0 Site Extension Grid

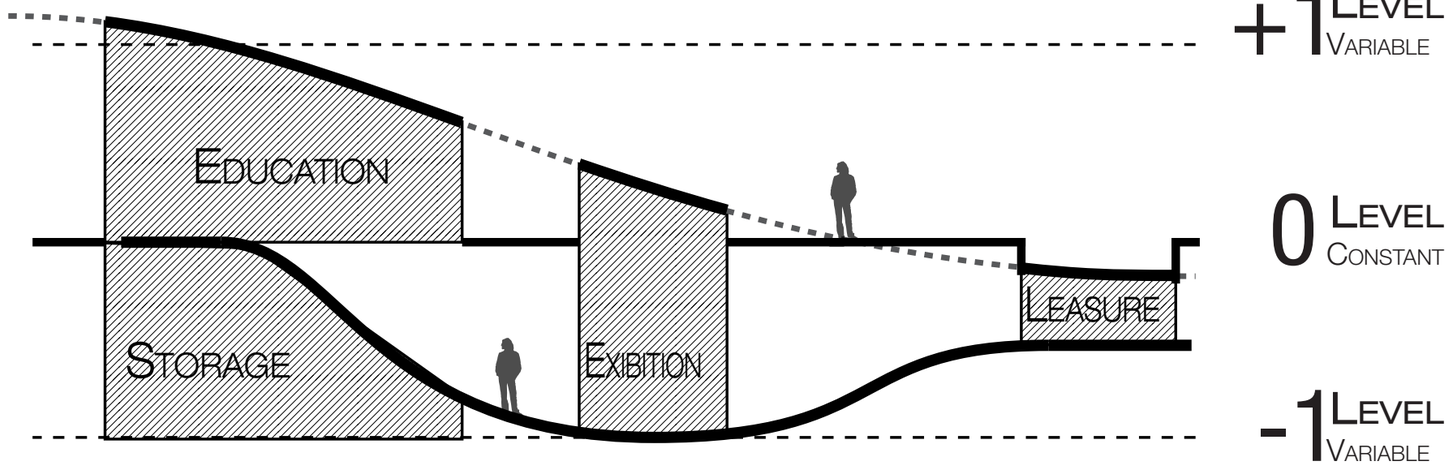


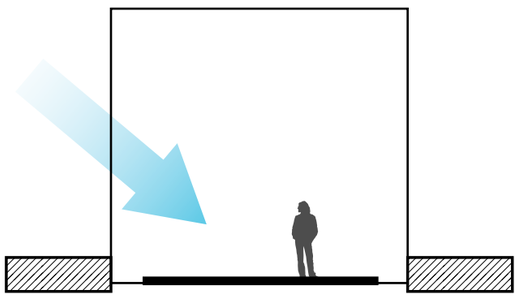
-1 Organic Grid



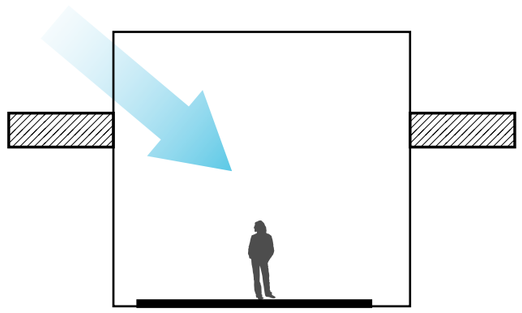
STREET NETWORK



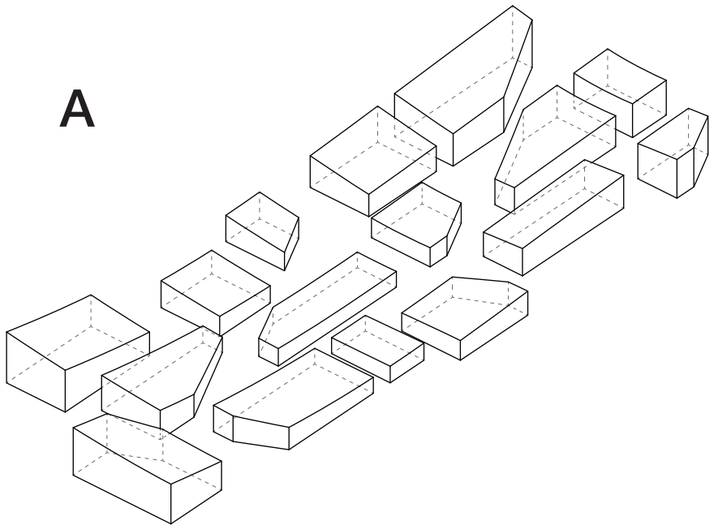


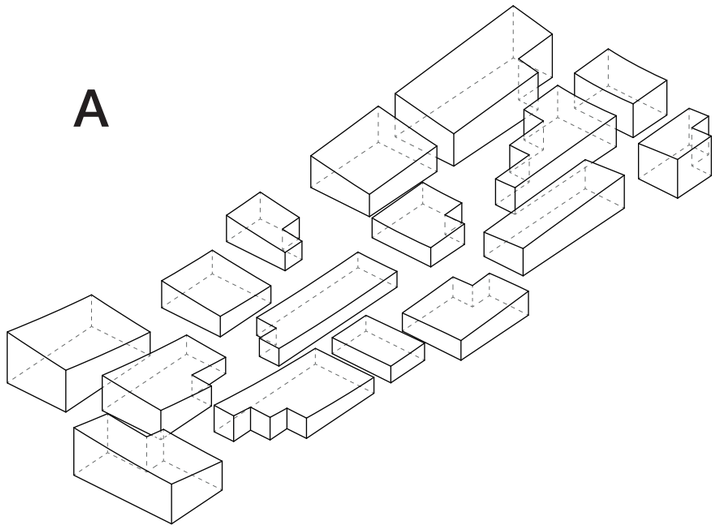


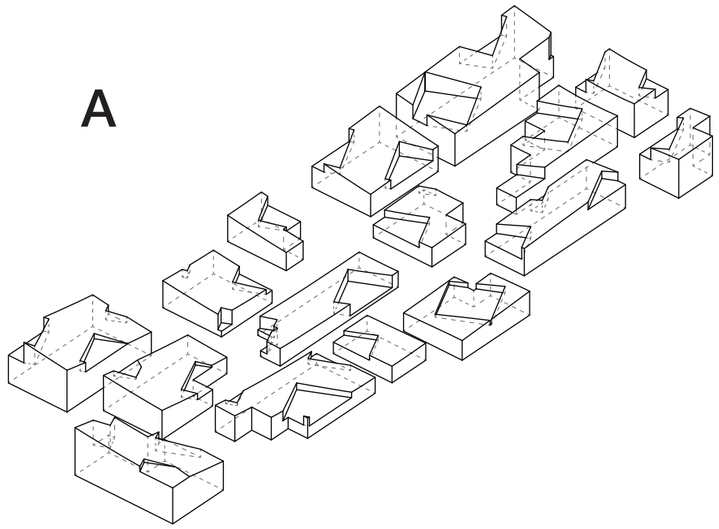
1 Education Program
Daylight from the side

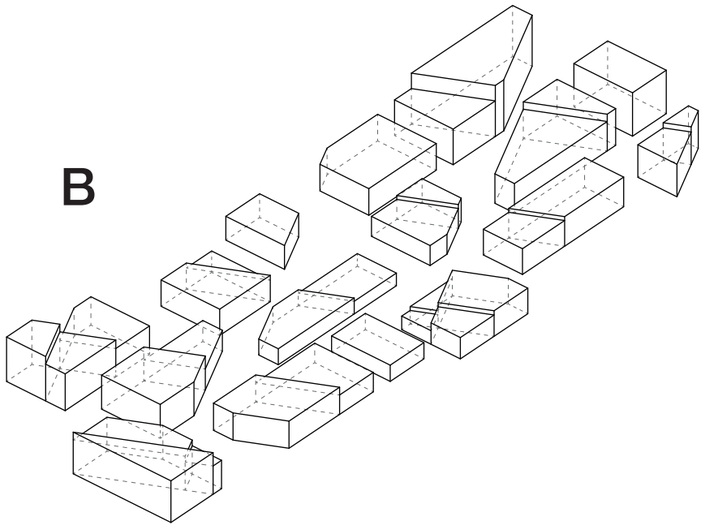


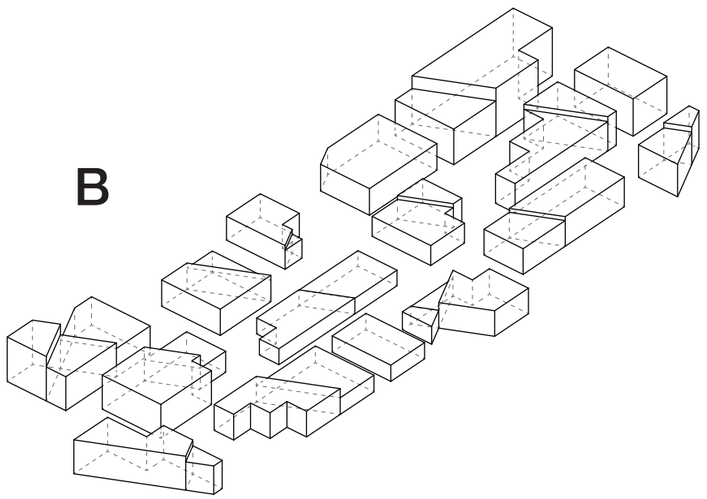
2 Exhibition Program
Daylight from the top

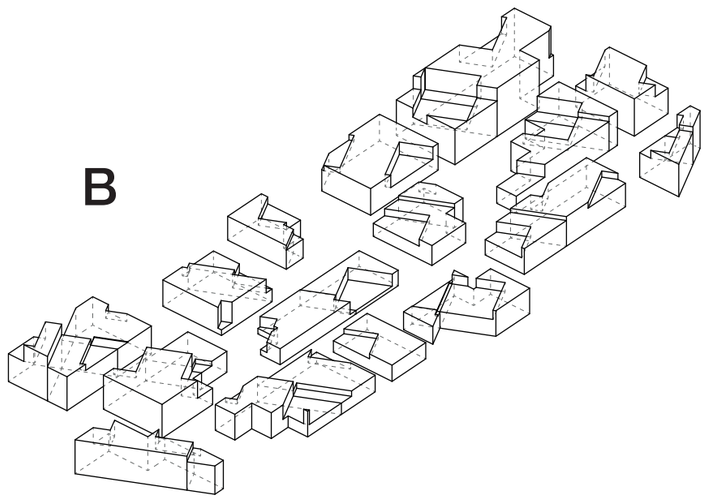












1 RoofScape

Continious surface proved to be better solution, since othervise the geometry become too abstract, and unable to “read”

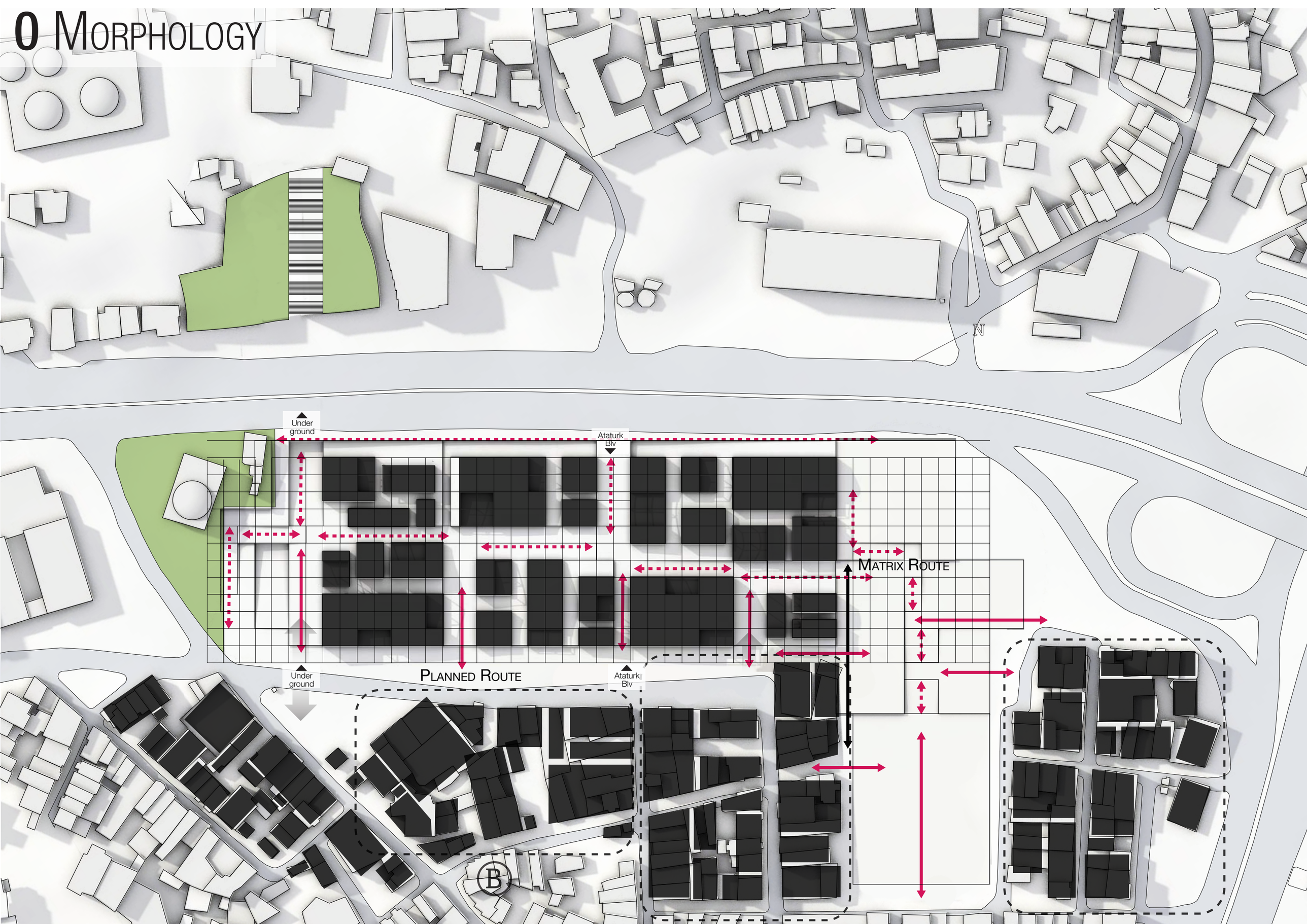
2 Outline

Outline of the pavillions is tested as a variation between stepped outline, following the underlaying grid, or as straight couts, following carthesian grid

3 Tessellation

Cuts based on carthesian grid are introduced to enable daylight penetration, but also to affect the form, making it more contextual

0 Morphology



0 Program


Office
Education Auditorium
Office
Education Book Storage
Kiosk
Cafe
Exhibition
Entrance Lobby
Education Mix Chamber
Craftsman Shop
Inform. Center
Book Store
Education Learning
Entrance Lobby
Exhibition
Resta-urant
Kiosk
Education Reading Room
Education Learning
Craftsman Shop
Craftsman Shop

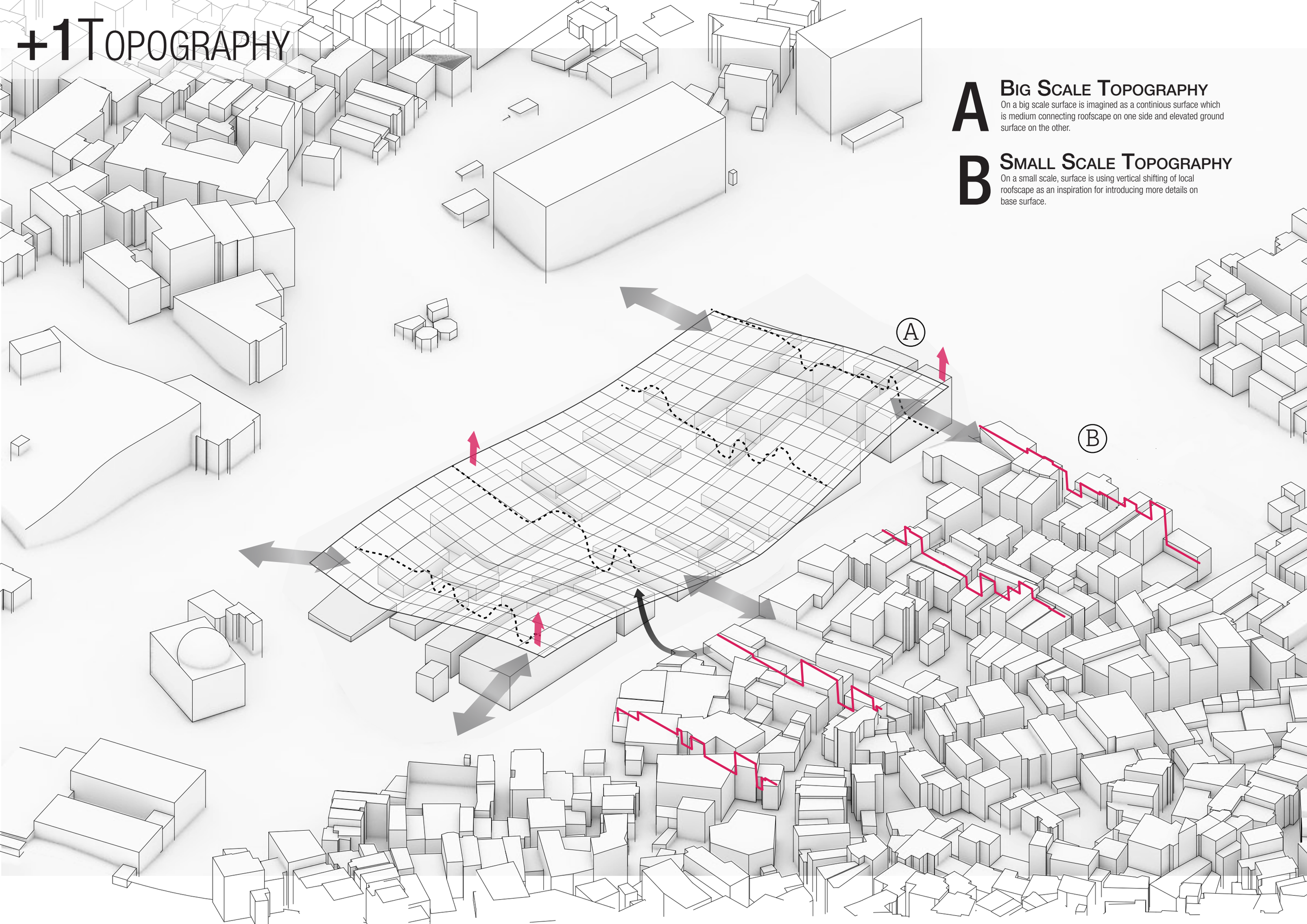
+1 Topography

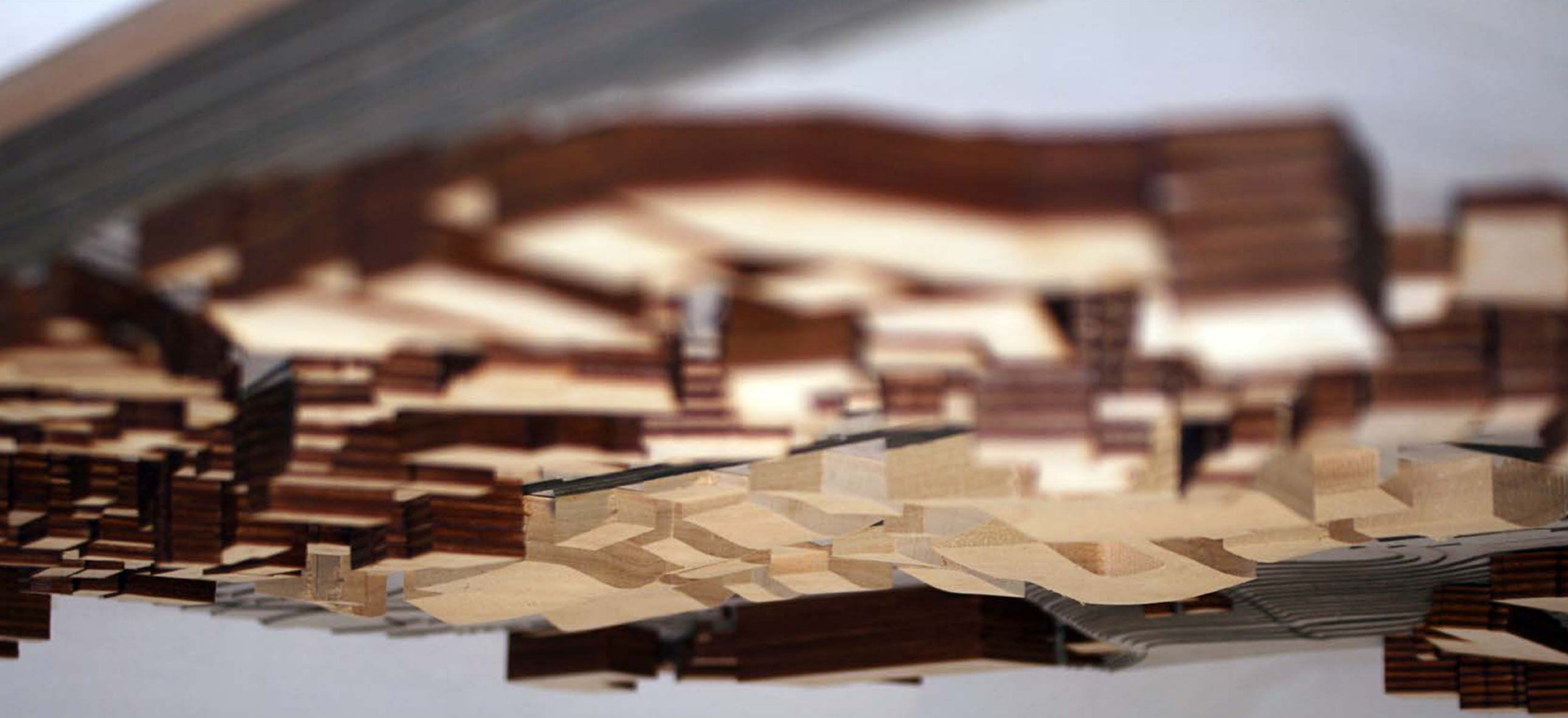
A Big Scale Topography

On a big scale surface is imagined as a continious surface which is medium connecting roofscape on one side and elevated ground surface on the other.

B Small Scale Topography

On a small scale, surface is using vertical shifting of local roofscape as an inspiration for introducing more details on base surface.





-1 Topography

N

0%

10%

20%

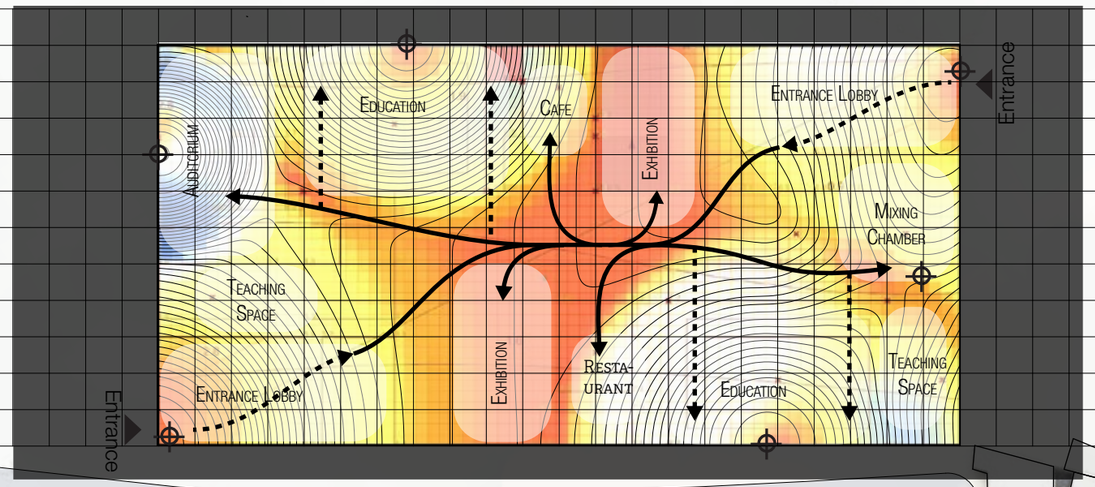
Slope Analysis

Surface is treated as a real topography, introducing hills and valleys. This surface uses height difference for program division. The slope is designed so that the whole surface can be accessible.

Maximum Auditorium Slope	20.0%
Maximum Pedestrian Slope	12.5%
Maximum Dis. Access Slope	8.5%
Max. Without Handrail Slope	5%

-1 Topography

N



1 Education Program

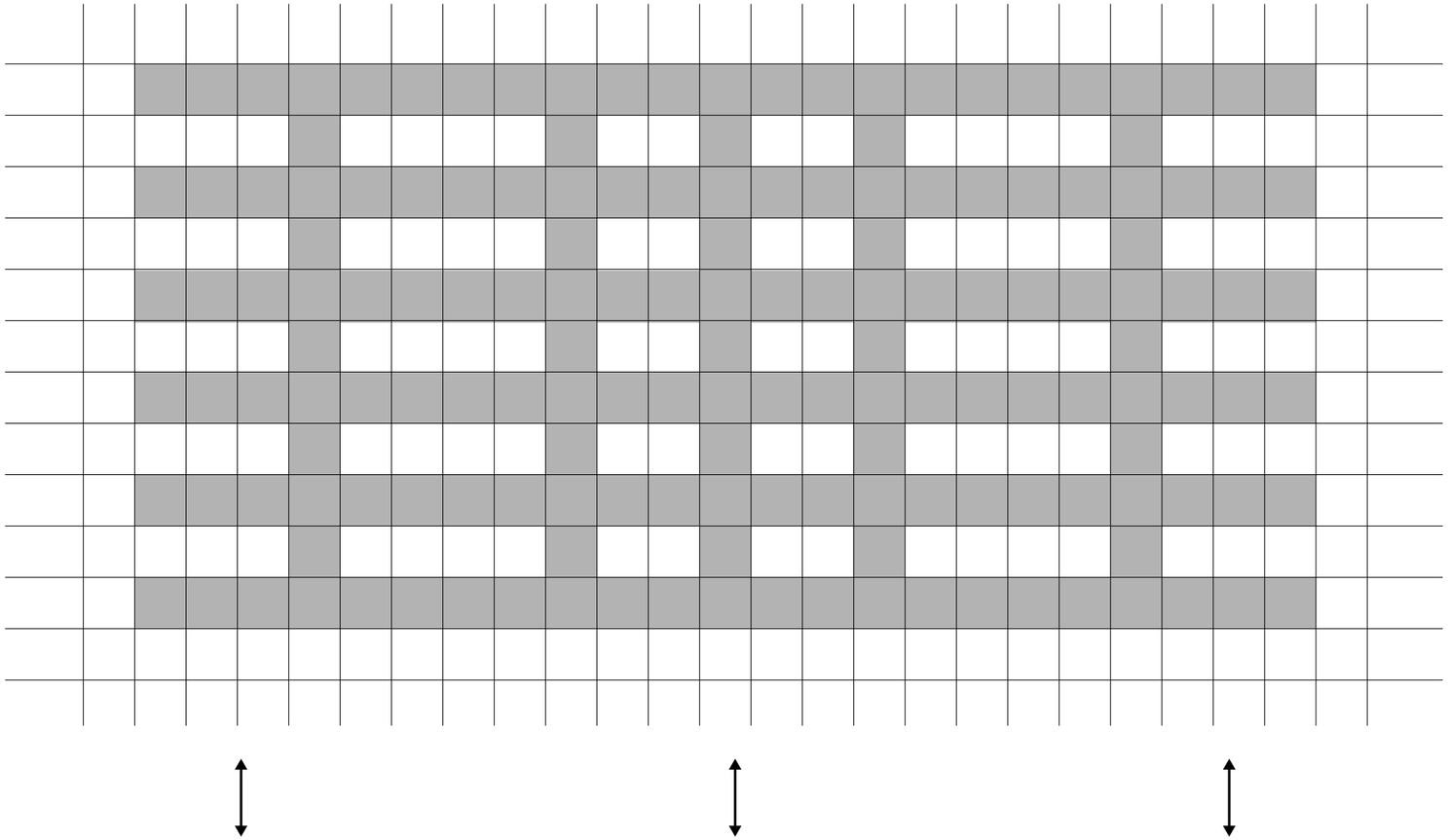
Education program is acting like an attractor inside the building. Those activities are intended for staying. On a big scale, they correspond to the idea of the mosque.

2 Exhibition Program

Exhibition program is acting like an informal activity in the organic street. Its activity is going on parallel with the movement of the user, and it correspond to the idea of the street

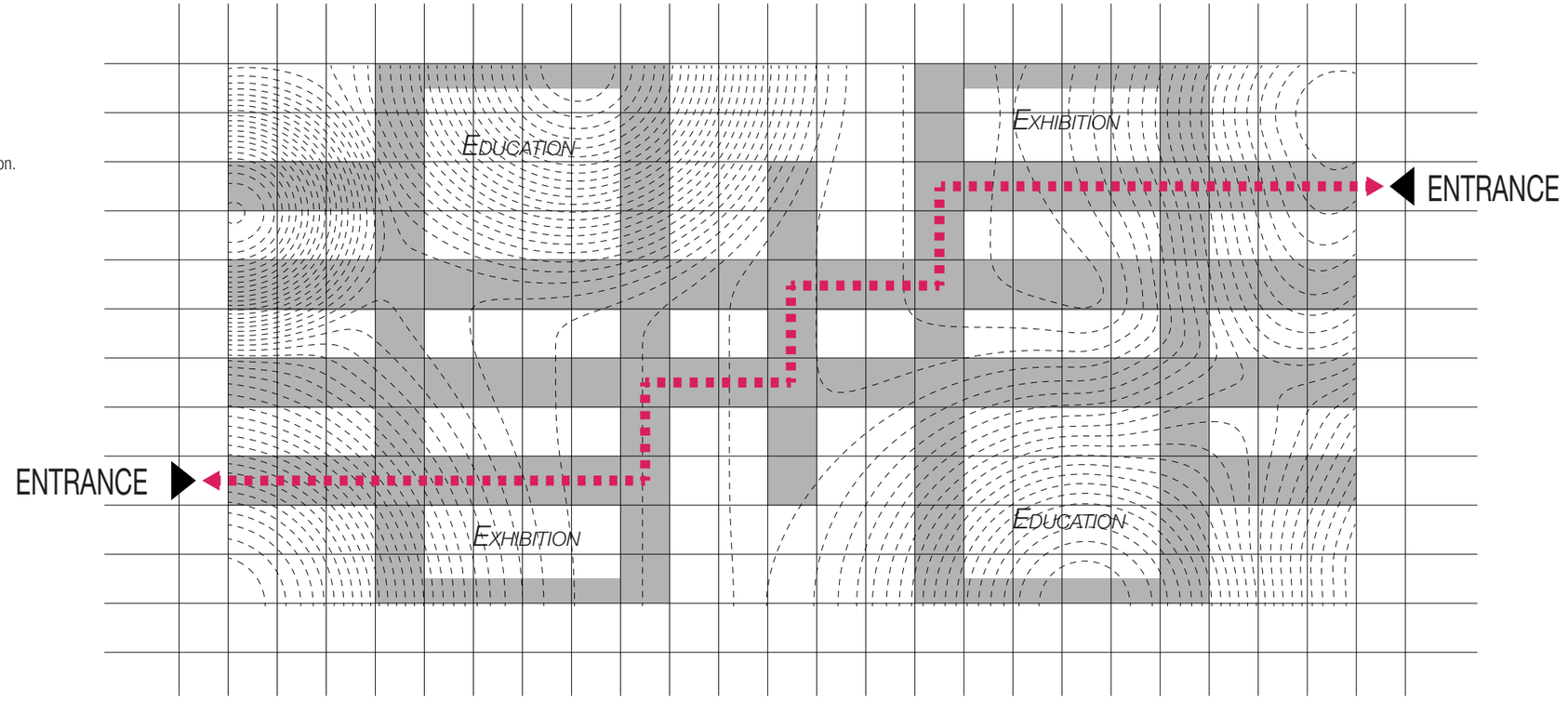
A Basic Grid Organization

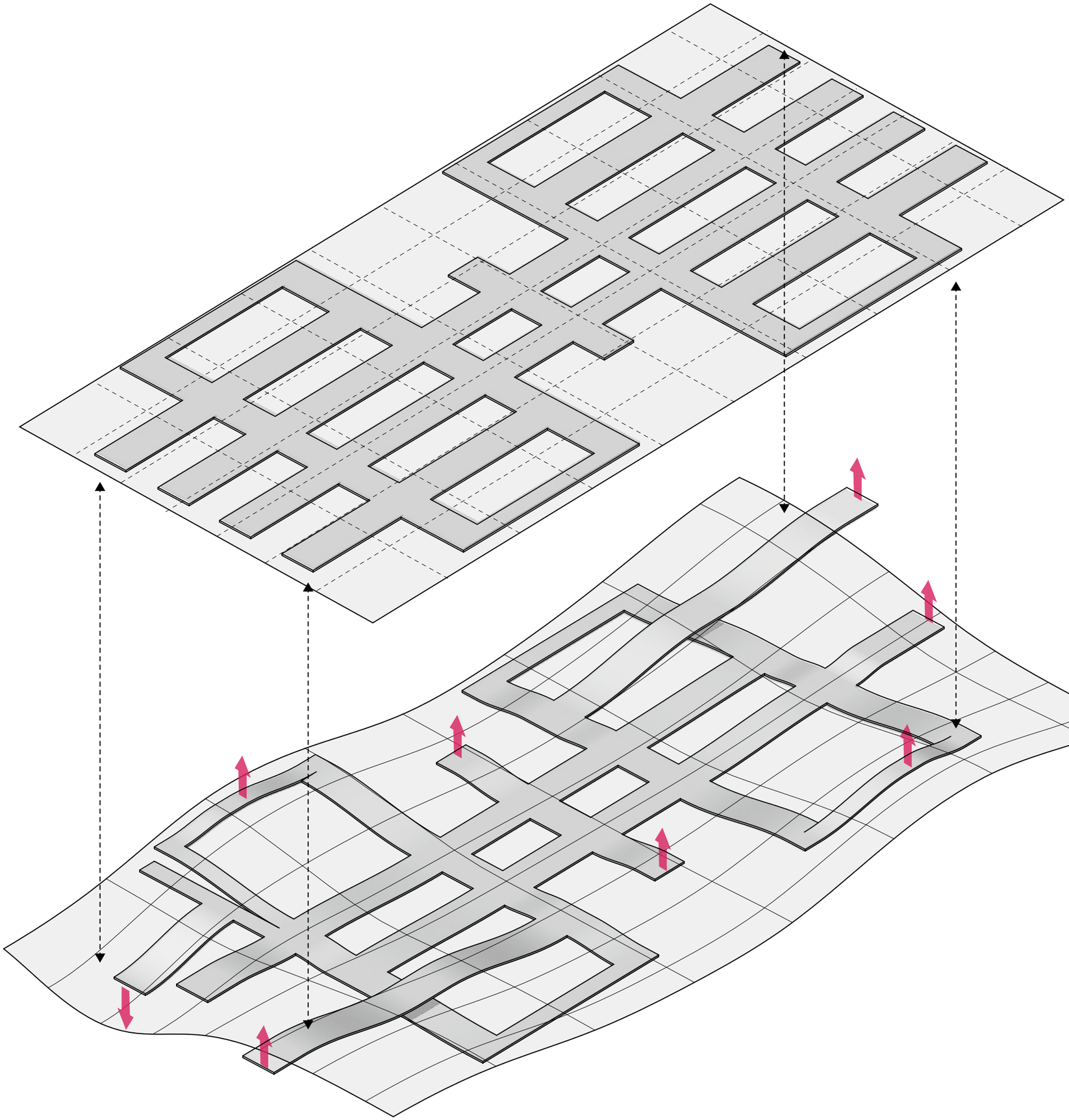
Orthogonal organization is used to design basic grid using already given sized grid.



B Grid Adaptation

Further modification are introduced to break down classic grid organization. Each one of the “street” are creating a loop, connecting simillar program.



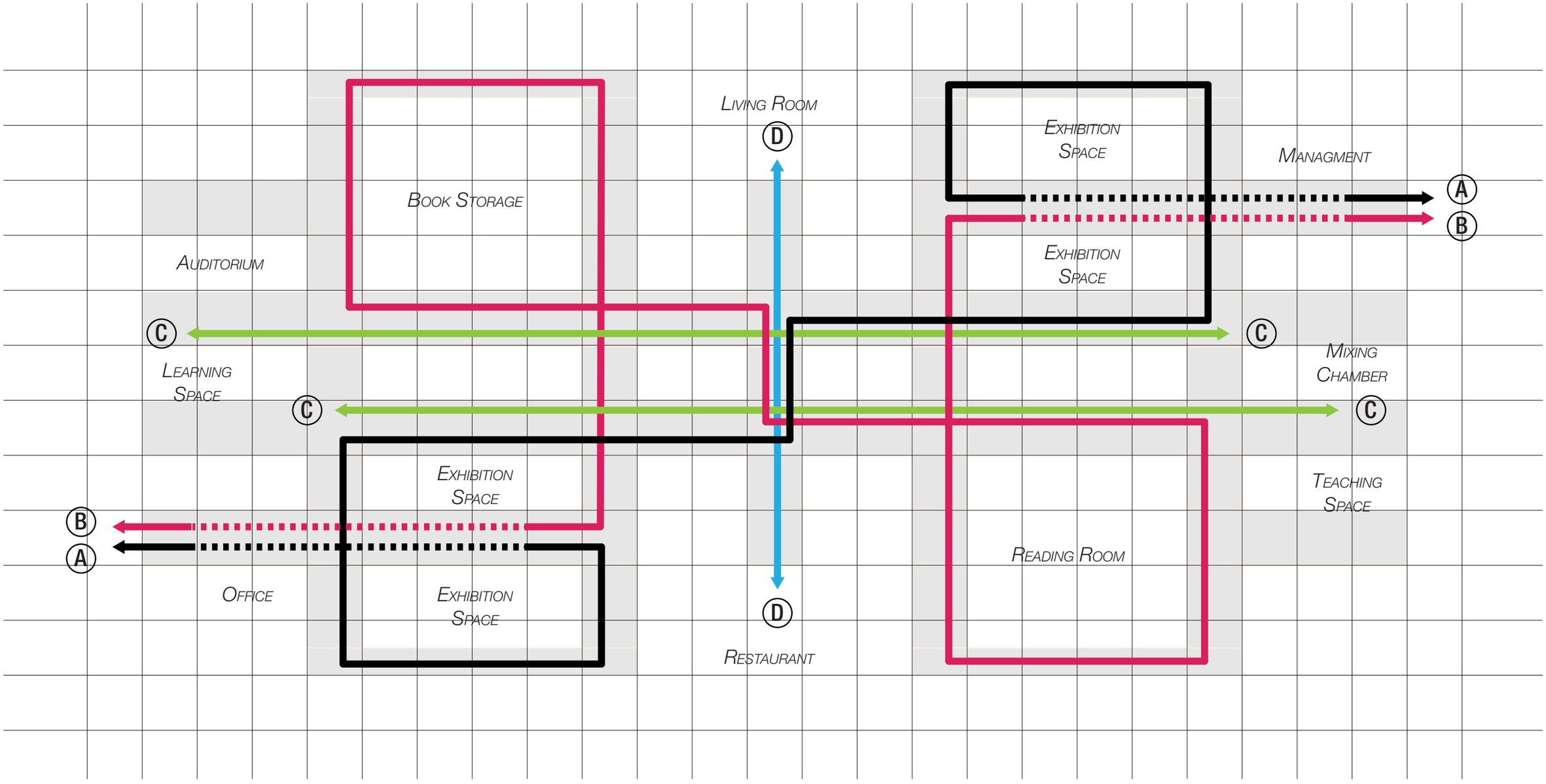


1 Base Condition

Base geometry of bridges as a base condition. It is based on grid geometry, with further adaptations. Lines of movement are positioned to span between similar programs.

2 Deformed Condition

Base geometry is projected to continious surface of underground layer. Hills, and valleys are visible in bridge deformation. 3D contionious loop is created. A new notion of symetry is introduced in term of diagonal.

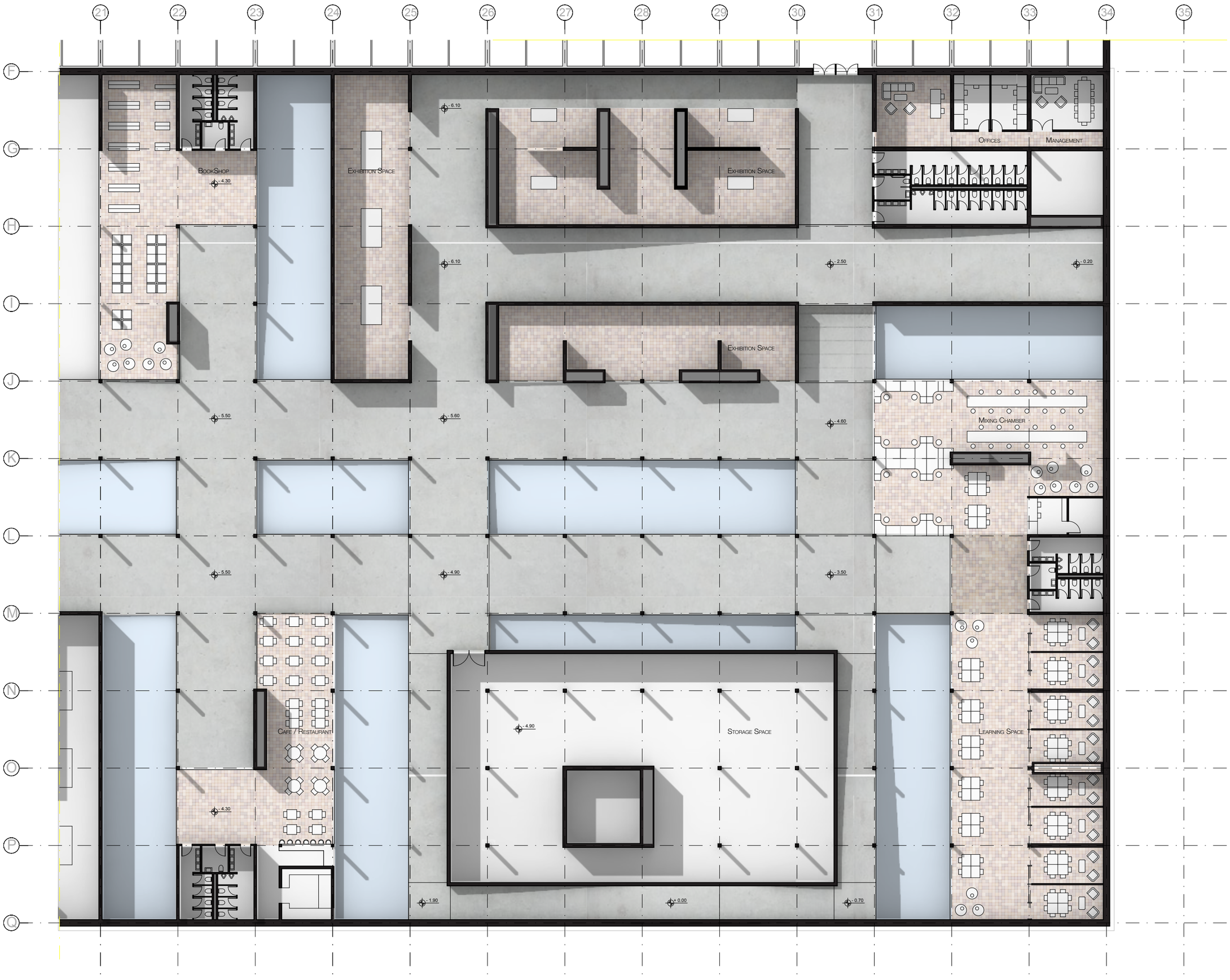


A Exhibition Program Route

B Education Program (reading) Route

C Education Program (learning) Route

D Leasure Program Route


21
22
23
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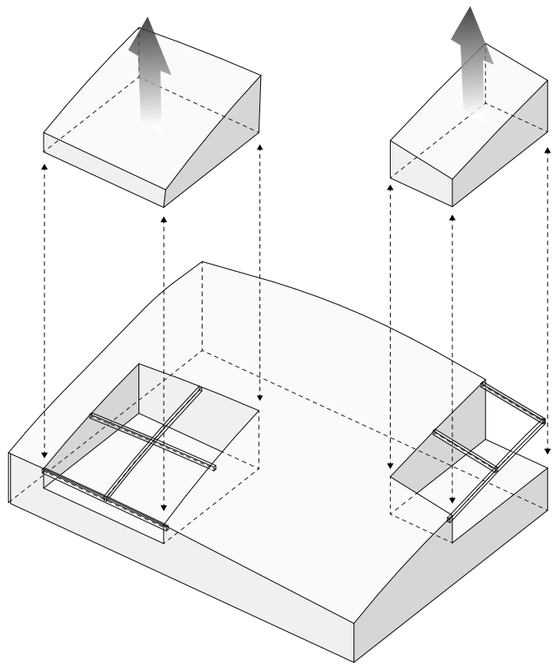
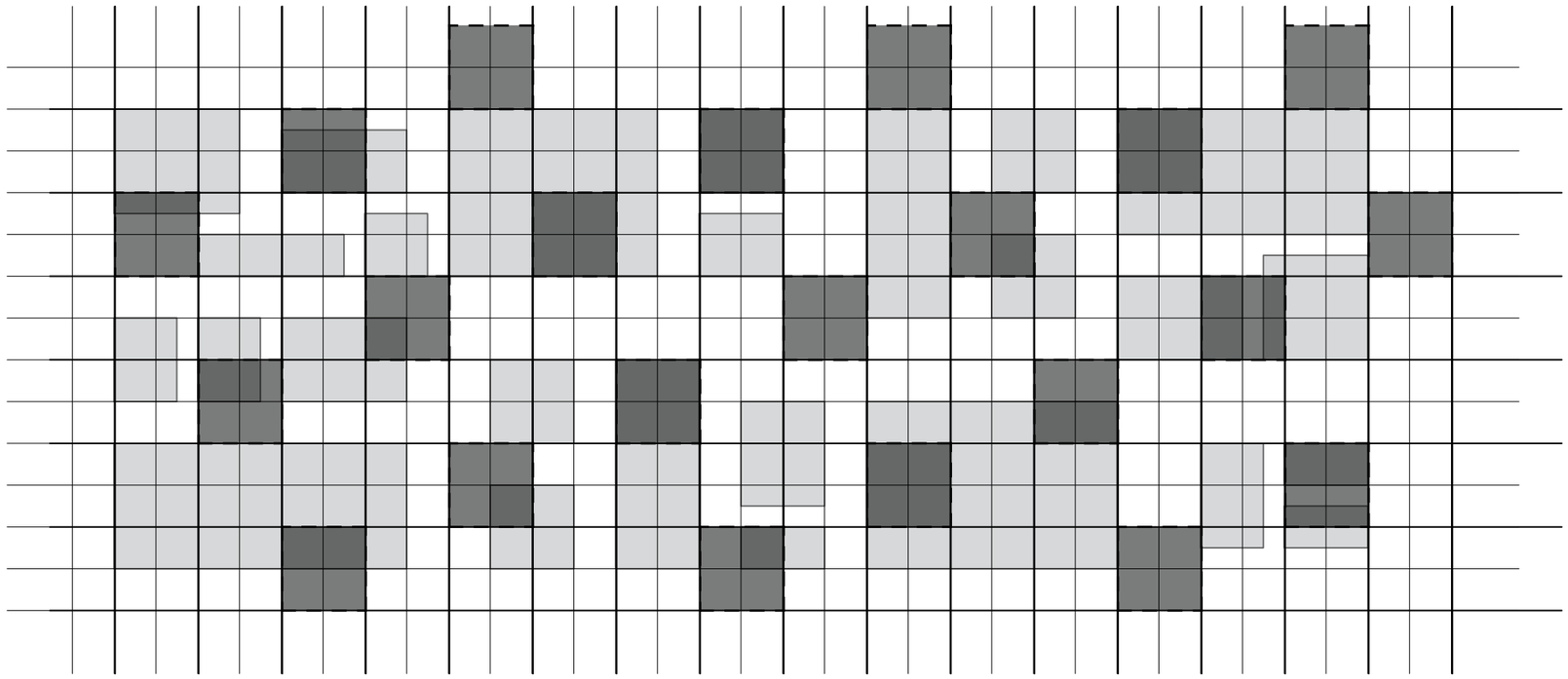
28
29
30
31
32
33
34
35
F
G
H
I
J
K
L
M
N
O
P
Q
BookShop
-4.30
Exhibition Space
-6.10
Exhibition Space
-6.10
-2.50
-0.20
Offices
Management
Exhibition Space
-5.50
-5.60
-4.60
Mixing Chamber
-5.50
-4.90
-3.50
Cafe / Restaurant
-4.30
-4.90
Storage Space
Learning Space
-1.90
-0.00
-0.70

1 Roofscape Cuts

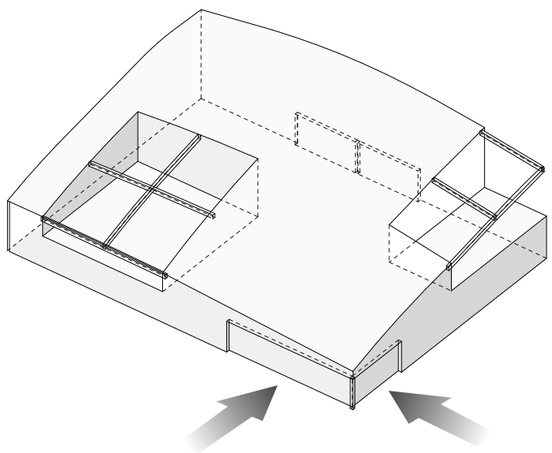
Importance of the topography is emphasized by displaceing the ground on vertical level.

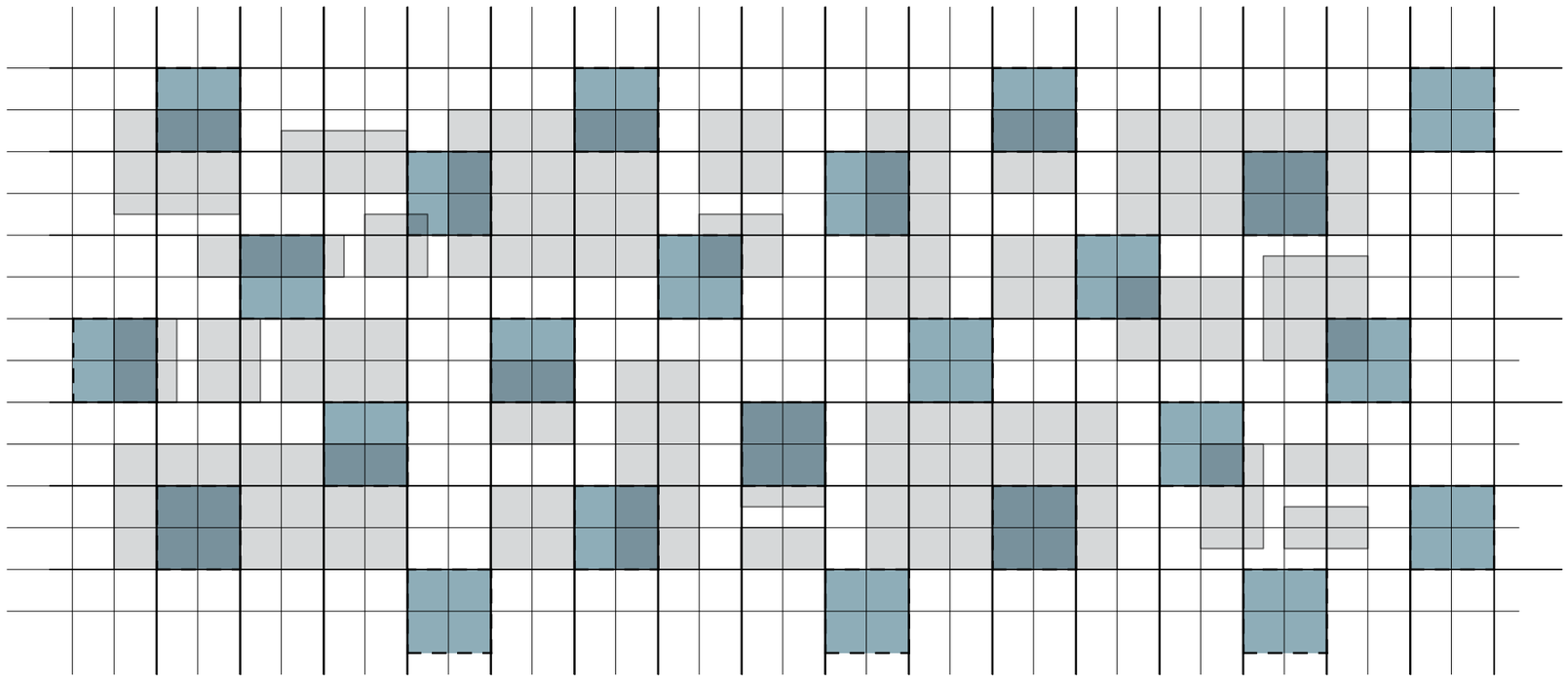


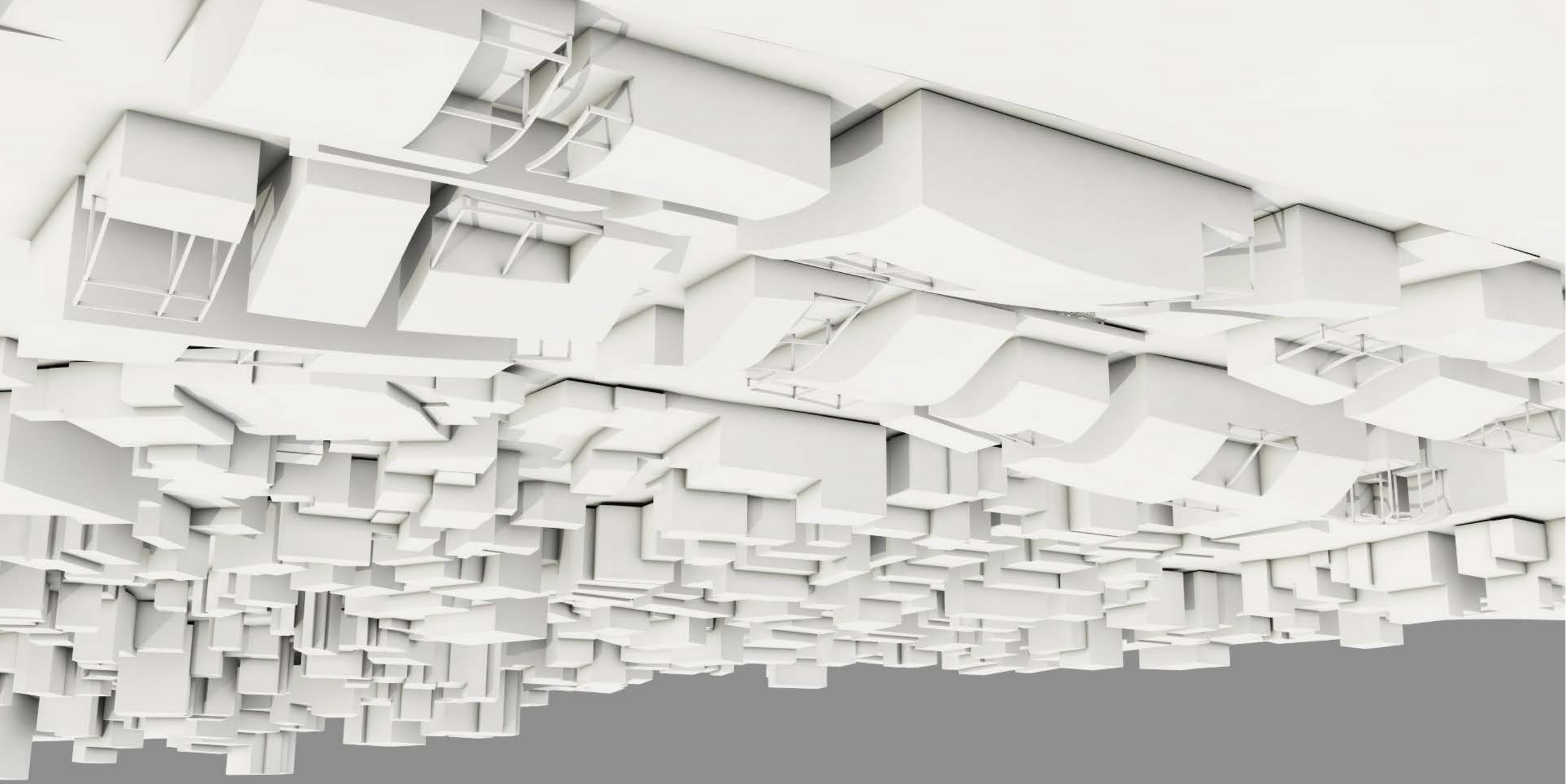


2 Windows Cuts

Ground surfaces are connected via blocks, which span vertically trough them.





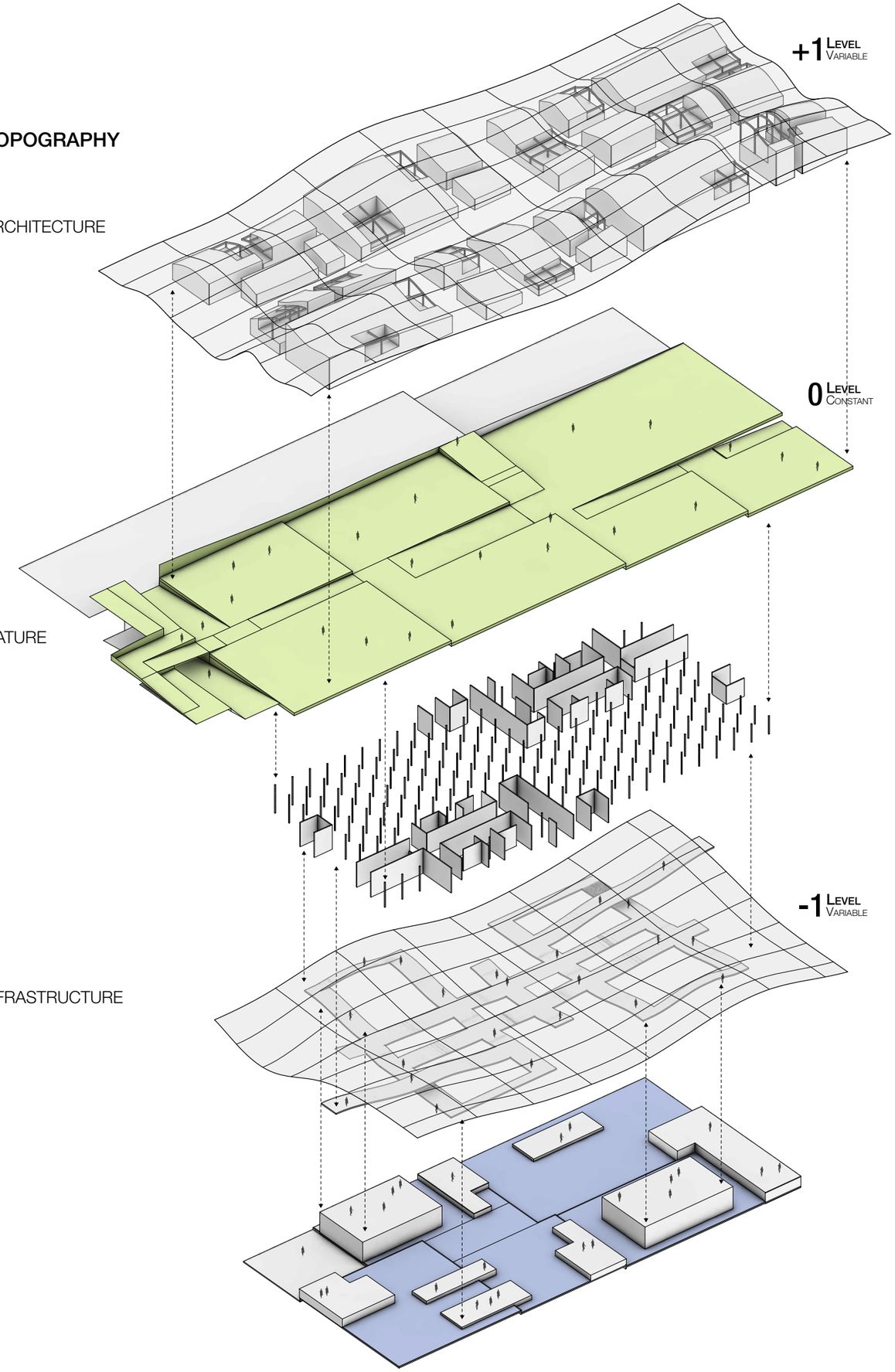


TOPOGRAPHY

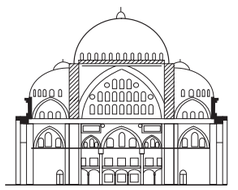
ARCHITECTURE

NATURE

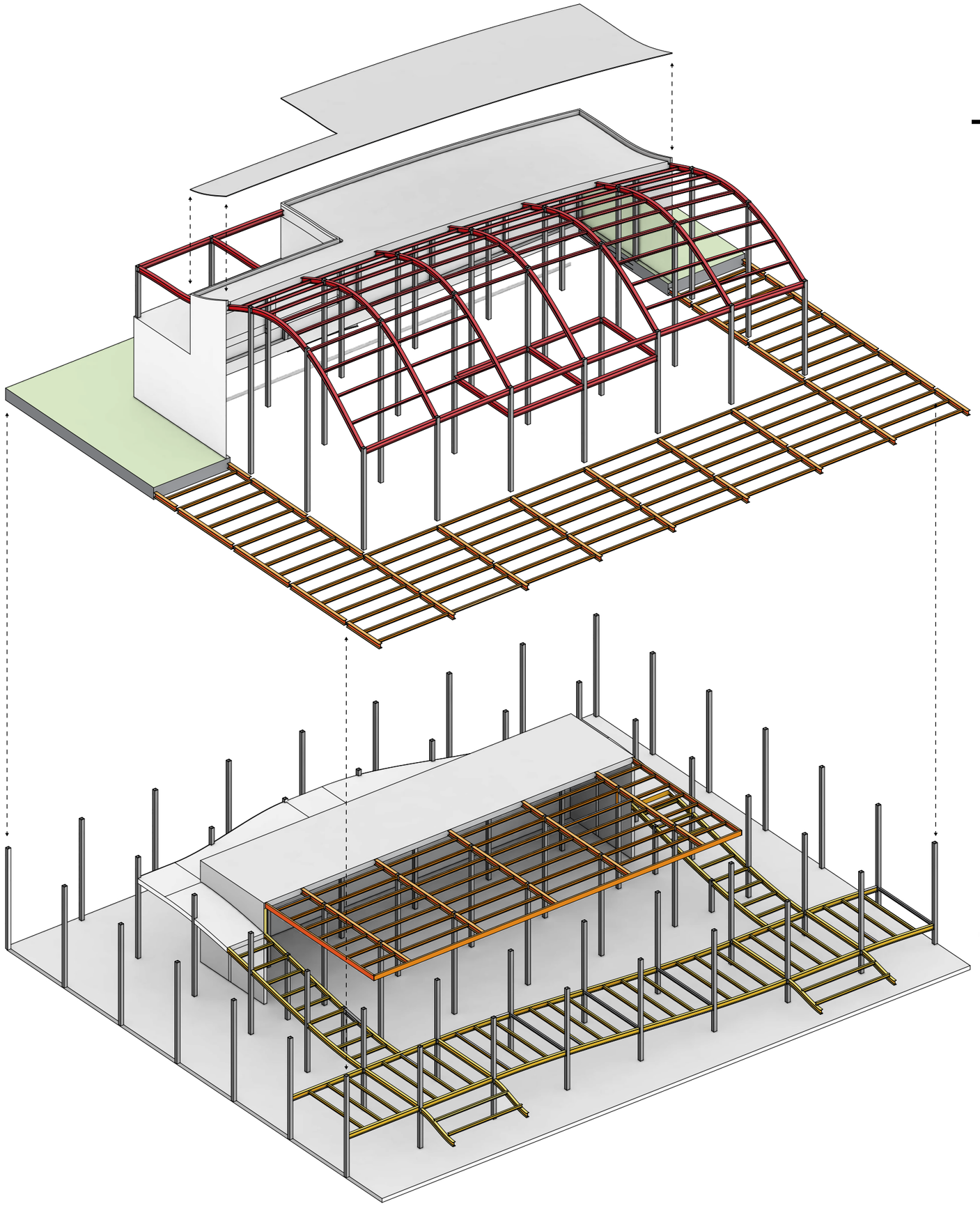
INFRASTRUCTURE

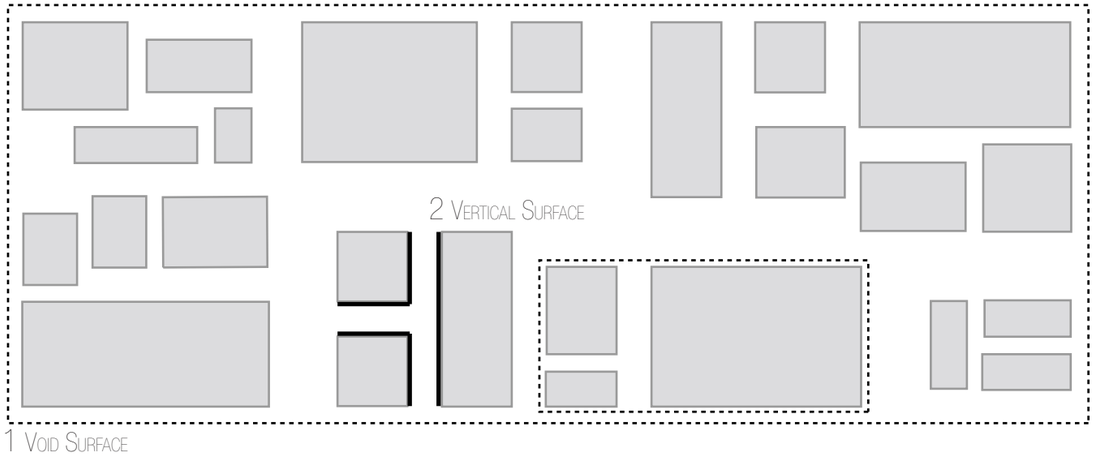


PUBLIC

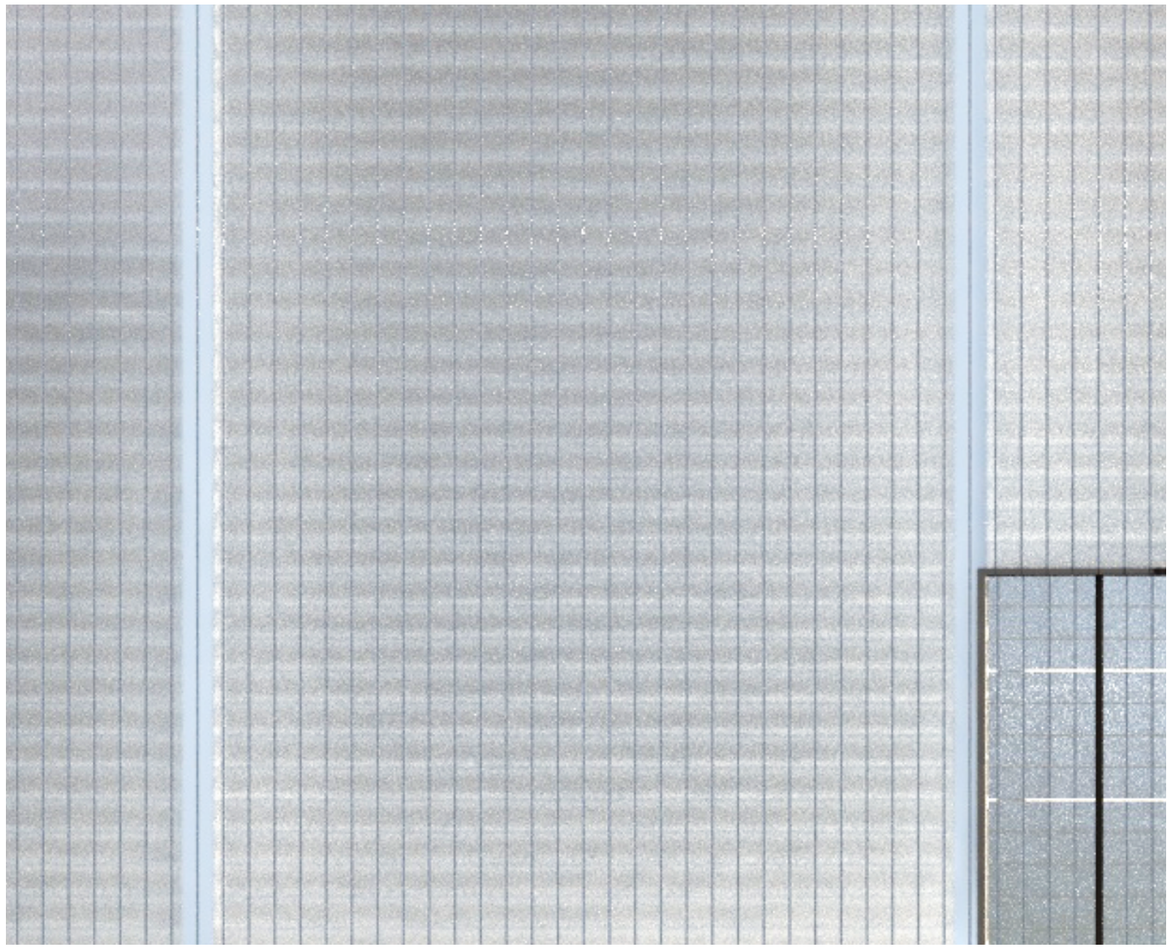


PRIVATE


+1 Level
Variable
0 Level
Constant
0 Level
Constant
-1 Level
Variable
Beam system 01_Bridge
Beam system 02_Planes
Beam system 03_Roofscape



1 Void Surface



2 Vertical Surface

Color Study: Squares with Concentric Circles by Wassily Kandinsky

Color / Program

Education
Red: alive, restless, confidently striving towards a goal, glowing, “manly maturity.” Translated into sound: "sound of a trumpet, strong and harsh," Fanfare, Tuba, deep notes on the cello, clear violin.

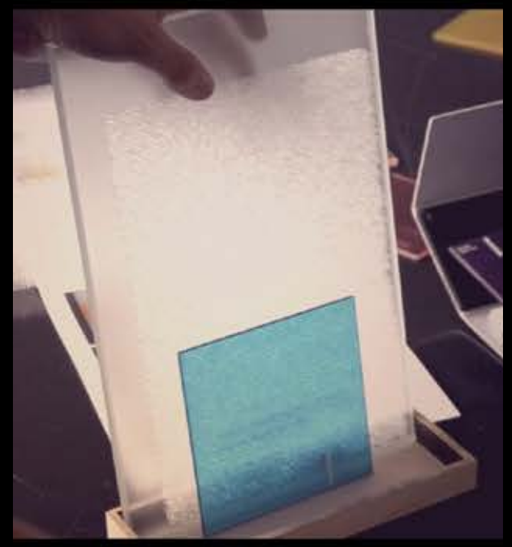
Exhibition
Blue: deep, inner, supernatural, peaceful. "Sinking towards black, it has the overtone of a mourning that is not human... typical heavenly color." Translated into sound: the flute, cello, and organ.

Entrance / Leasure
Orange: a mixture of red and yellow, radiant, healthy, serious. Translated into sound: middle range church bell, an alto voice.

Planes
Green: stillness and peace, but with a hidden, passive strength. "Green is like a fat, very healthy cow lying still and unmoving, only capable of chewing the cud, regarding the world with stupid dull eyes." Translated into sound: quiet drawn out middle position violin.

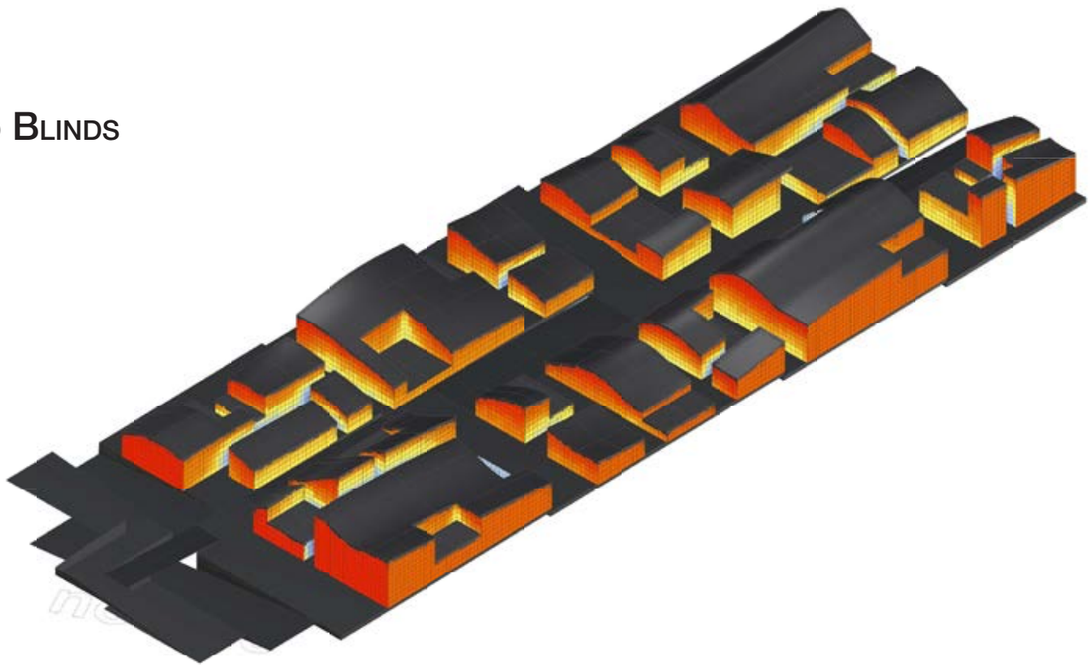
Office / Shops
Violet: a mixture of red and blue, "morbid, extinguished...sad." Translated into sound: the english horn and bassoon.

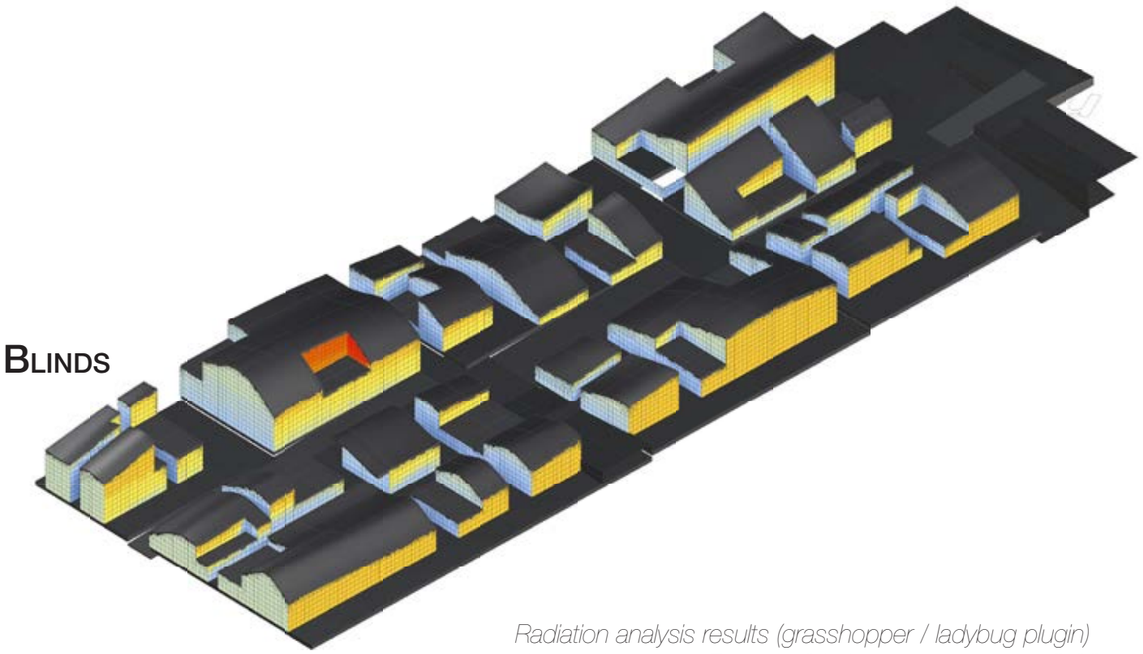

Introducing color in white Okalux glass



Sun Analysis

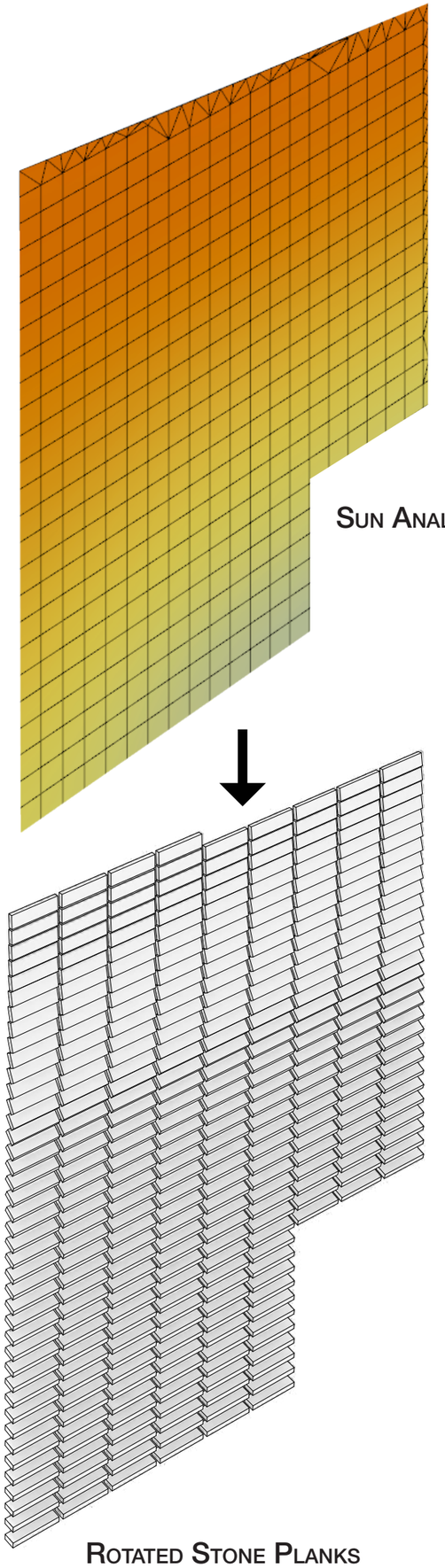
Max
Closed Blinds





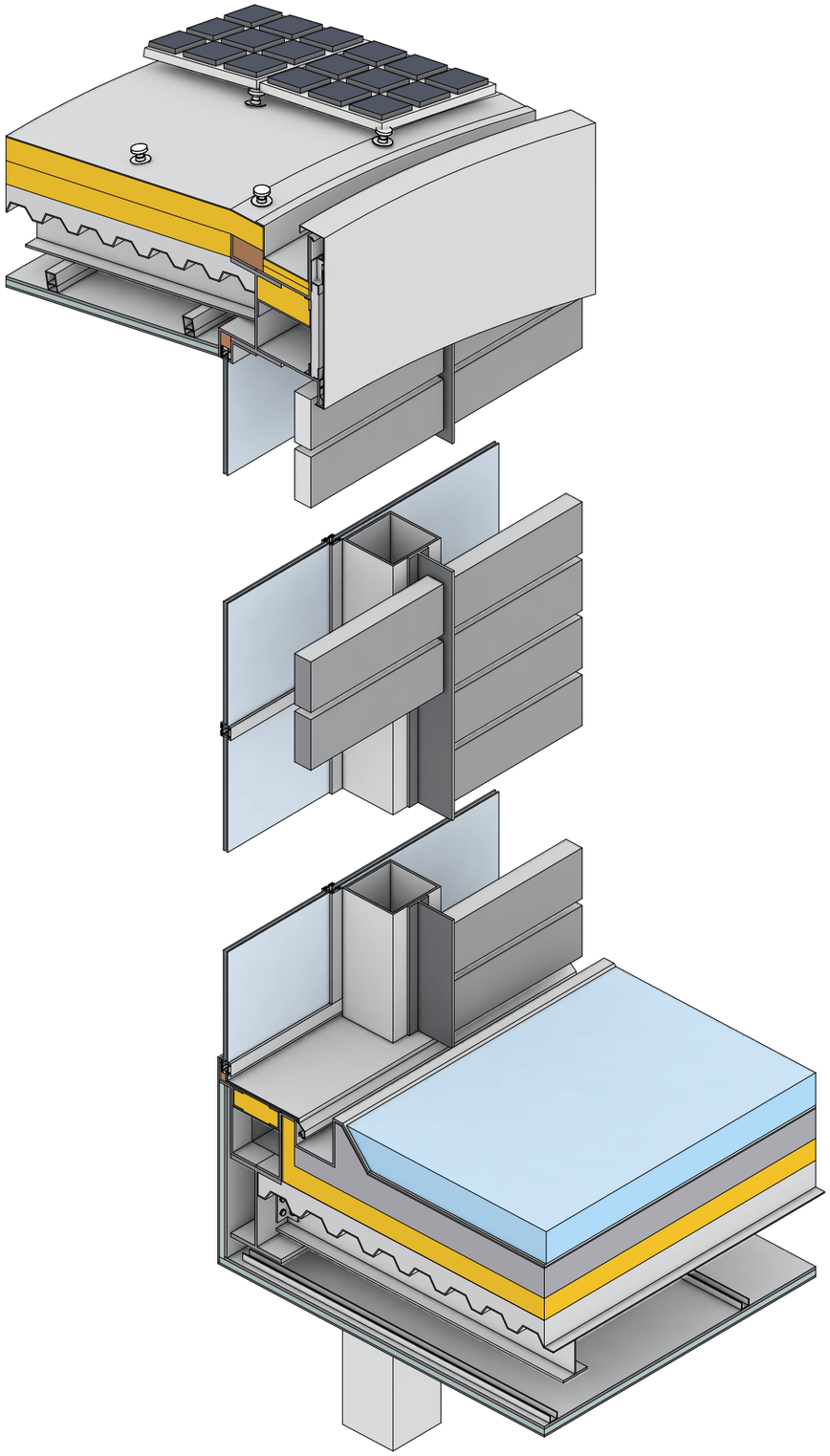
Min
Open Blinds

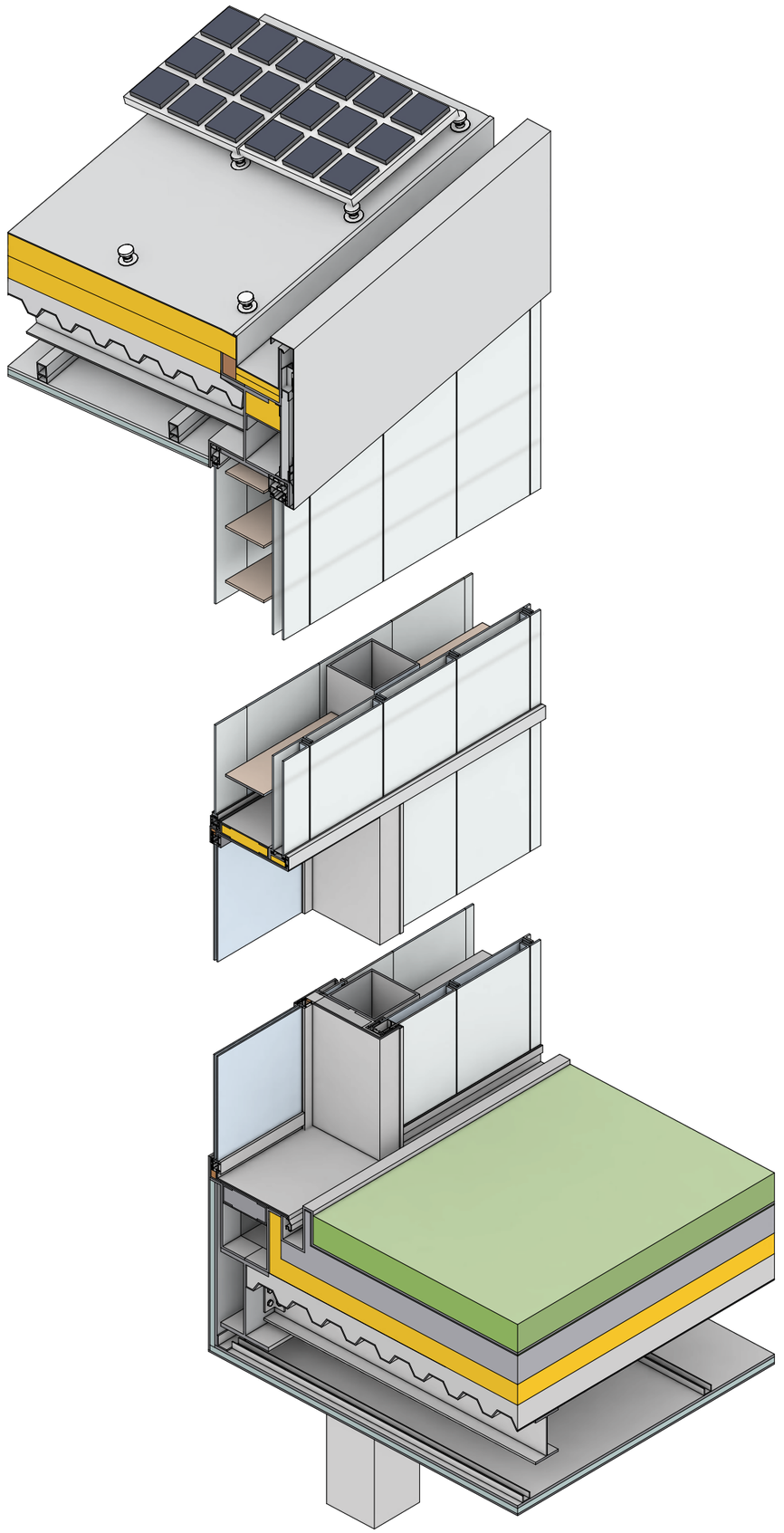
Radiation analysis results (grasshopper / ladybug plugin)
Period of analysis: 7 Jan to 21 Dec between hours 8:00 to 18:00



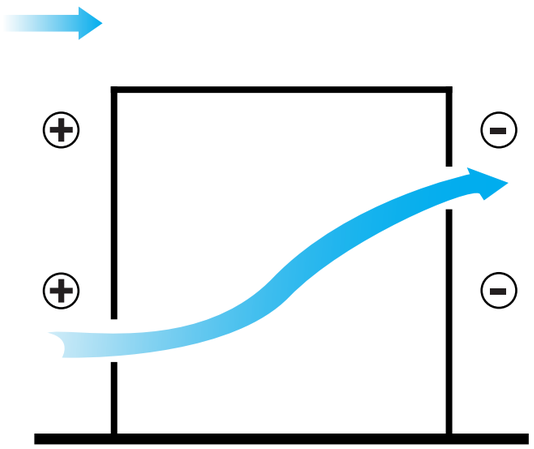
Sun Analysis

Rotated Stone Planks

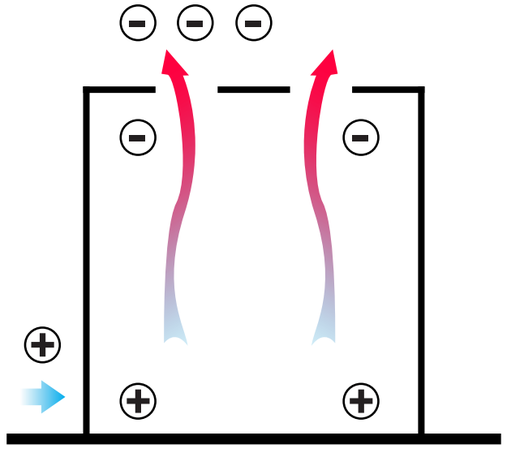




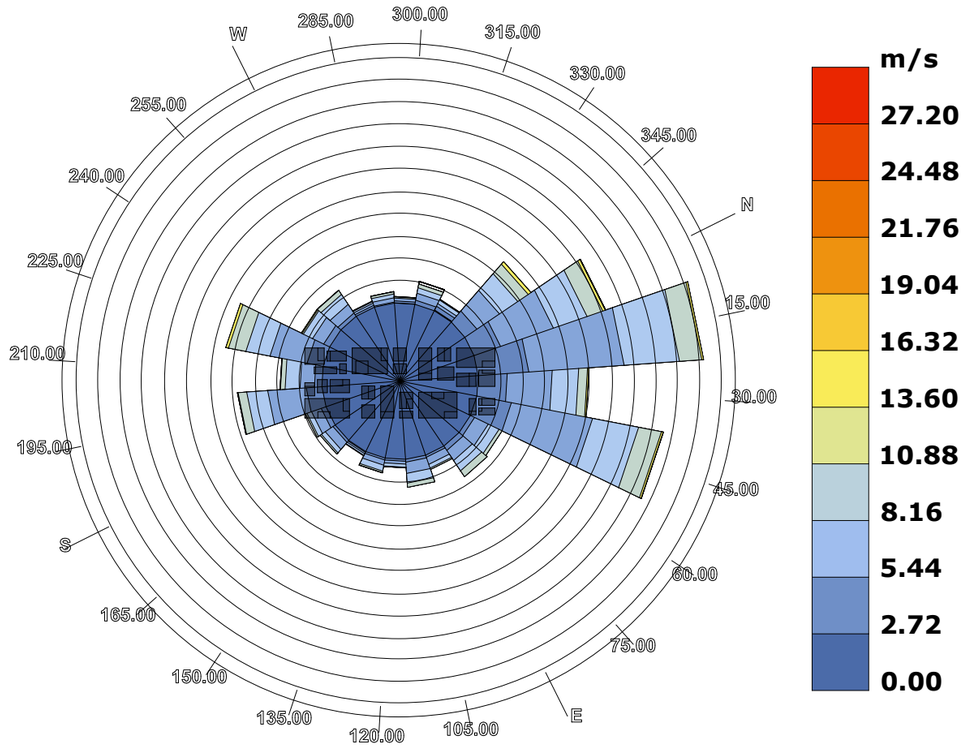
1 Climate Design
Natural Ventilation (Wind & Stack)



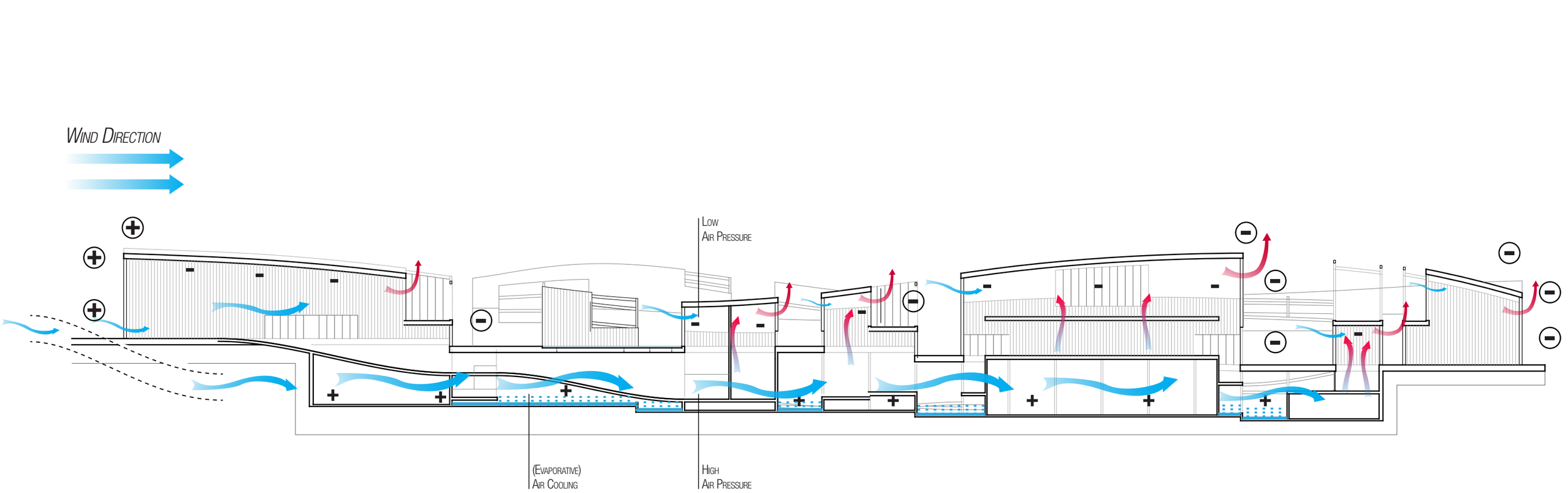
A Wind Ventilation



B Stack Ventilation



Wind-RoseISTANBUL_TUR1 JAN 1:00 - 31 DEC 24:00Hourly Data: Wind Speed (m/s)Calm for 4.04% of the time = 354 hours.Each closed polyline shows frequency of 1.2%. = 102 hours.



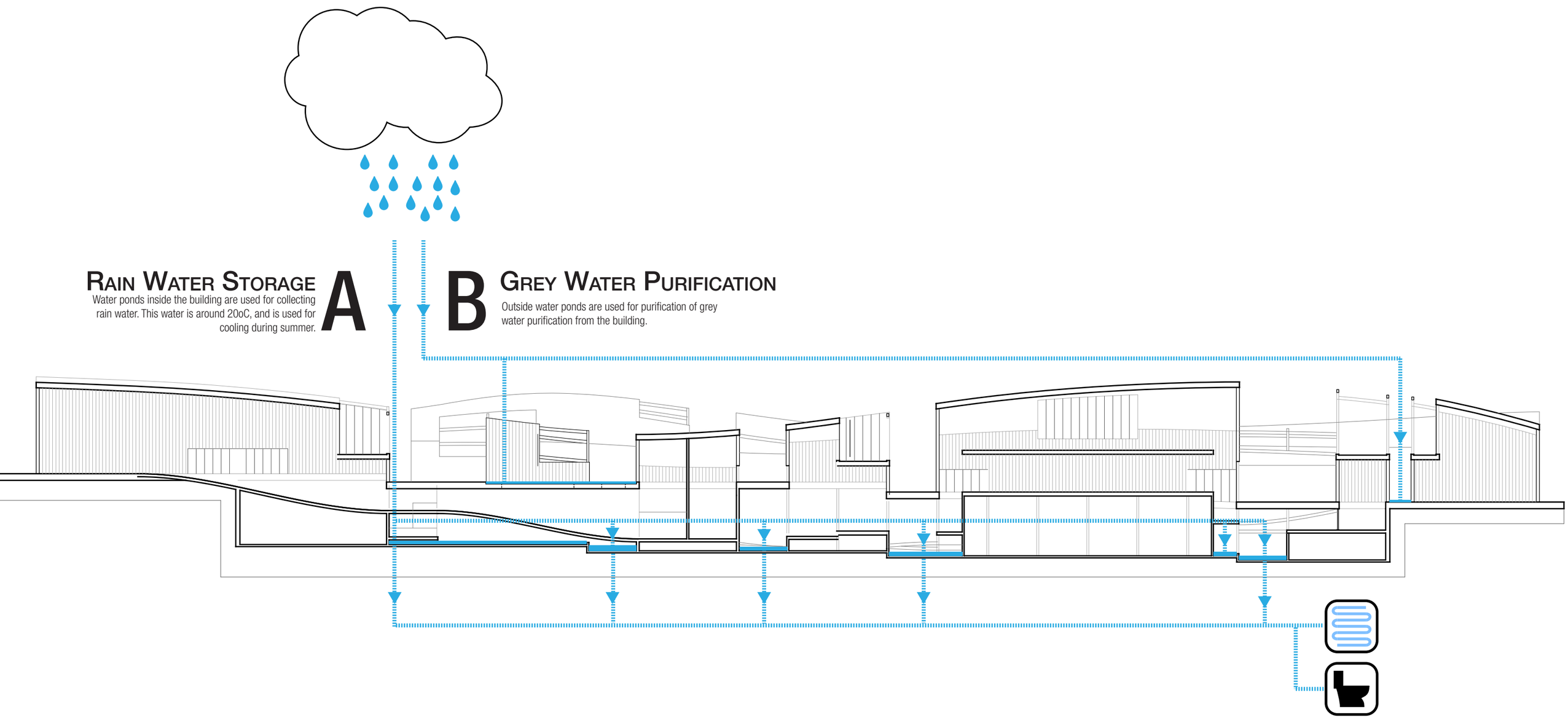
2 Climate Design
Rain Water (Storage & Purification)

Rain Water Storage
Water ponds inside the building are used for collecting rain water. This water is around 20oC, and is used for cooling during summer.

A

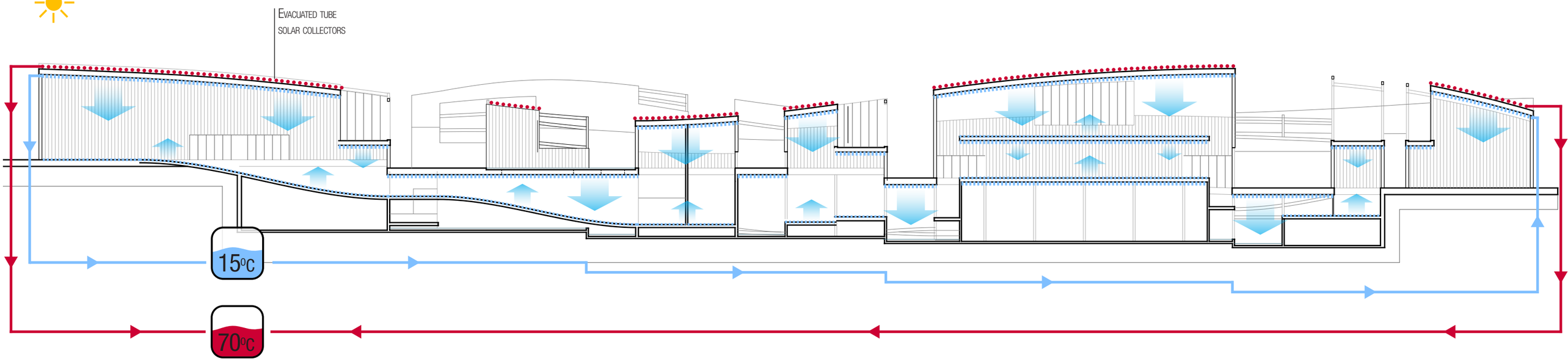
B

Grey Water Purification
Outside water ponds are used for purification of grey water purification from the building.

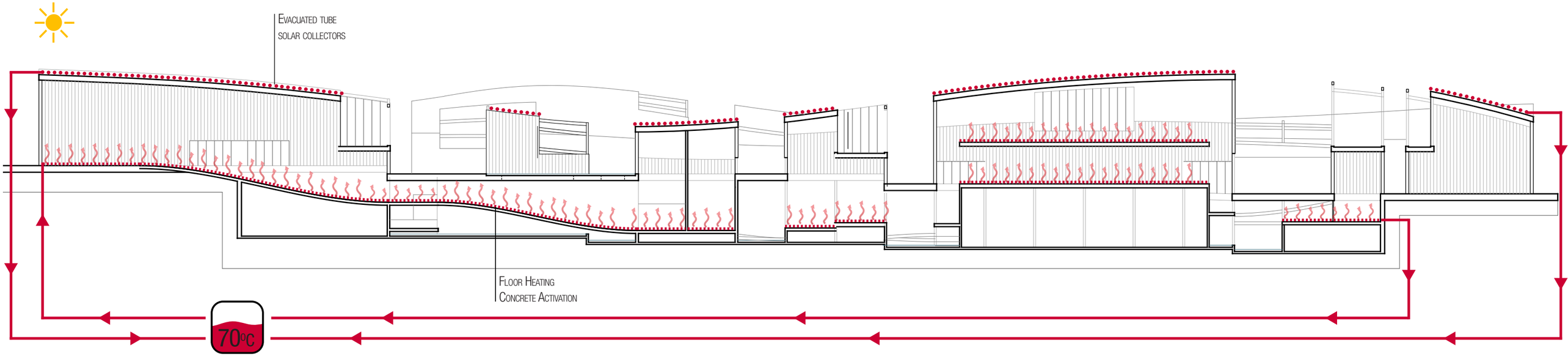


3 Climate Design
Water System (Heating & Cooling)

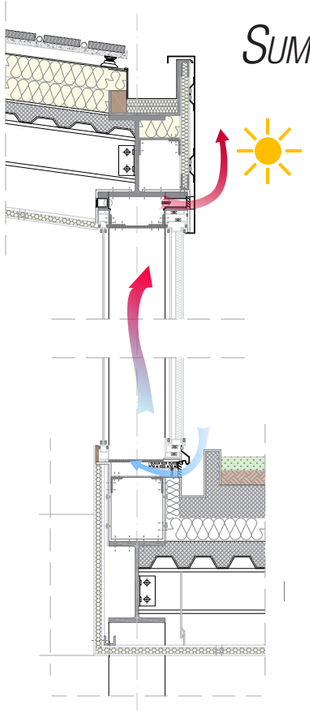
Summer

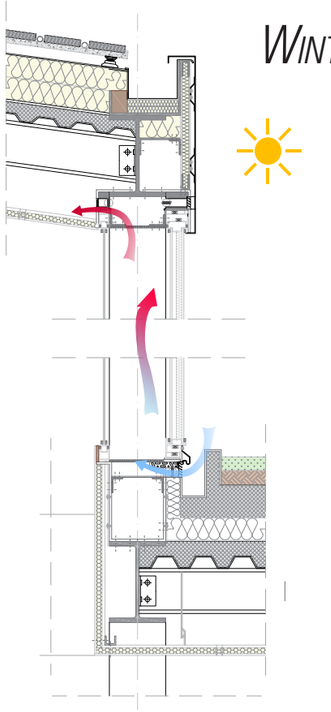


Winter

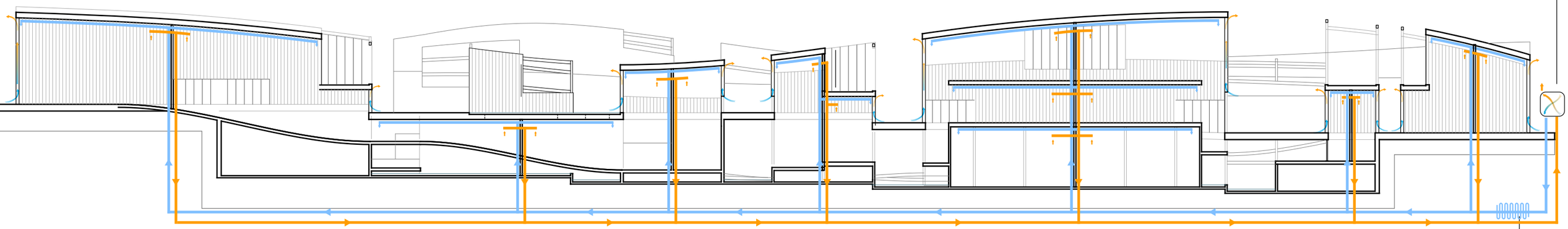


4 Climate Design
Air System (Mechanical Ventilation)

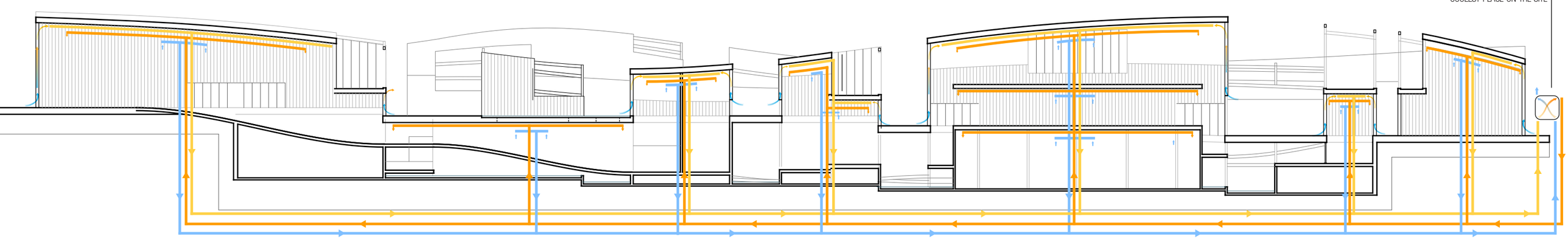




Summer



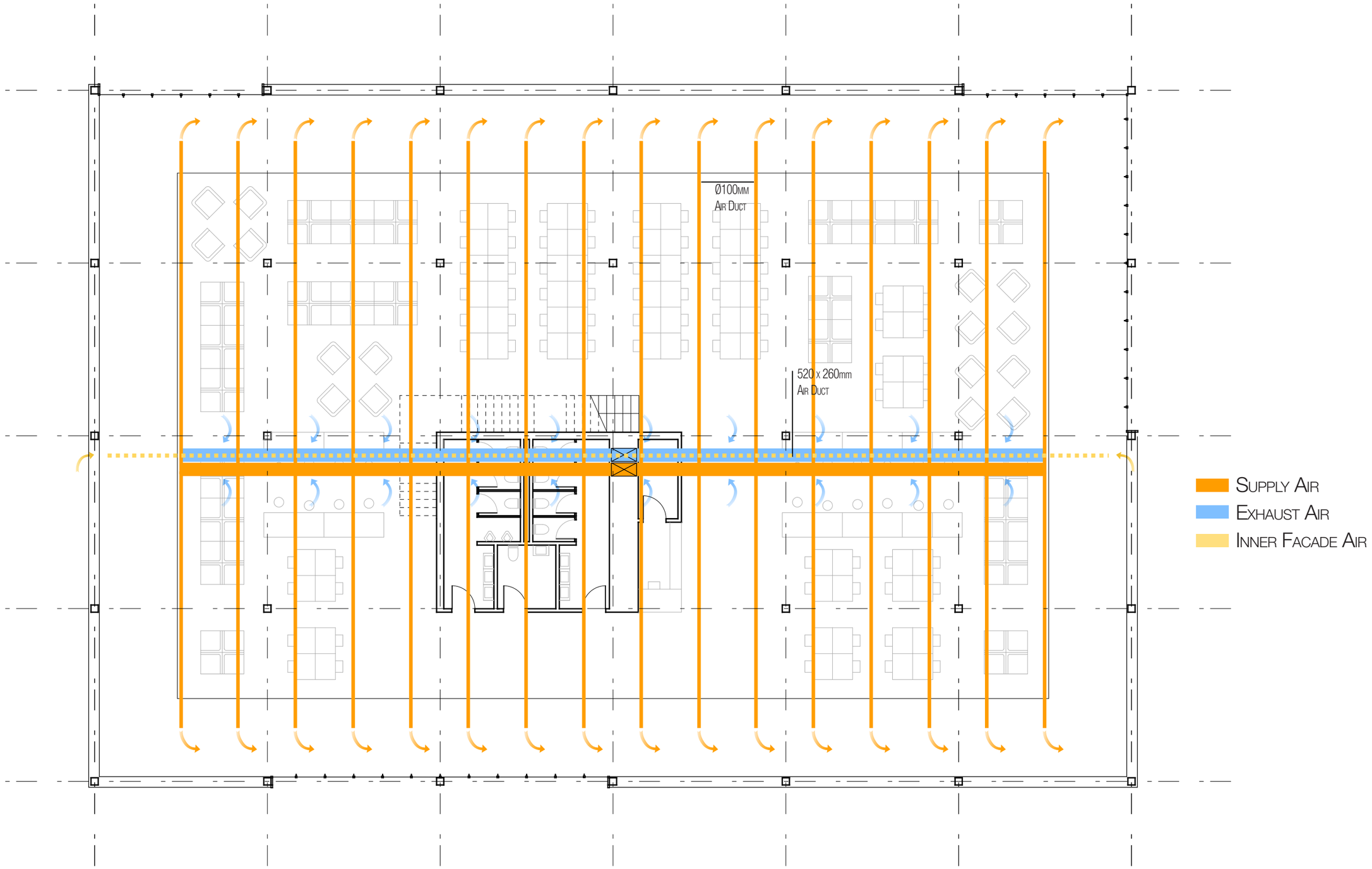
Winter



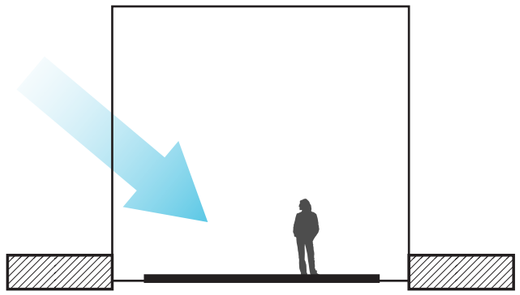
5 Climate Design_Reading Room
Air System (Mechanical Ventilation)

Room	Area m²	Height (m)	Volume (m3)	Area per Person (m²/p)	Number of People	Demand (m3/p/h)	Air Changes Per Hour	Q (m3/s)	Diametar (mm)	A Sqare (mm)	B Sqare (mm)
Library	486.00	3.50	1701.00	5	97	50	3	1.4175	300	450	225
Reading Room	900.00	4.50	4050.00	7	129	50	3	3.375	350	525	262.5
Auditorium	432.00	8.00	3456.00	2	216	50	5	4.8	450	675	337.5
Exhibition Space	1152.00	9.00	10368.00	8	144	50	2	5.76	450	675	337.5
Café / Restaurant	432.00	5.50	2376.00	4	108	50	4	2.64	450	675	337.5
Learning Space	720.00	4.00	2880.00	3	240	50	3	2.4	300	450	225
Coridors	2556.00	4.80	12268.80	3	852	50	3	10.224	600	900	450
Entrance Pavillioin	1152.00	7.00	8064.00	4	288	50	4	8.96	500	750	375

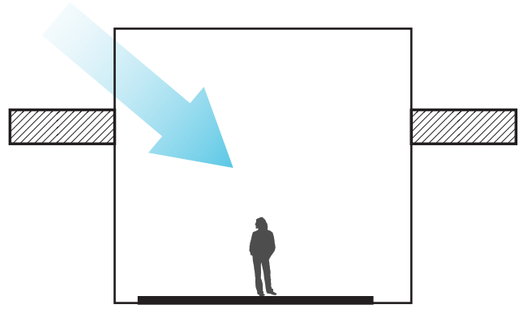
ØD = 2AB / A+B



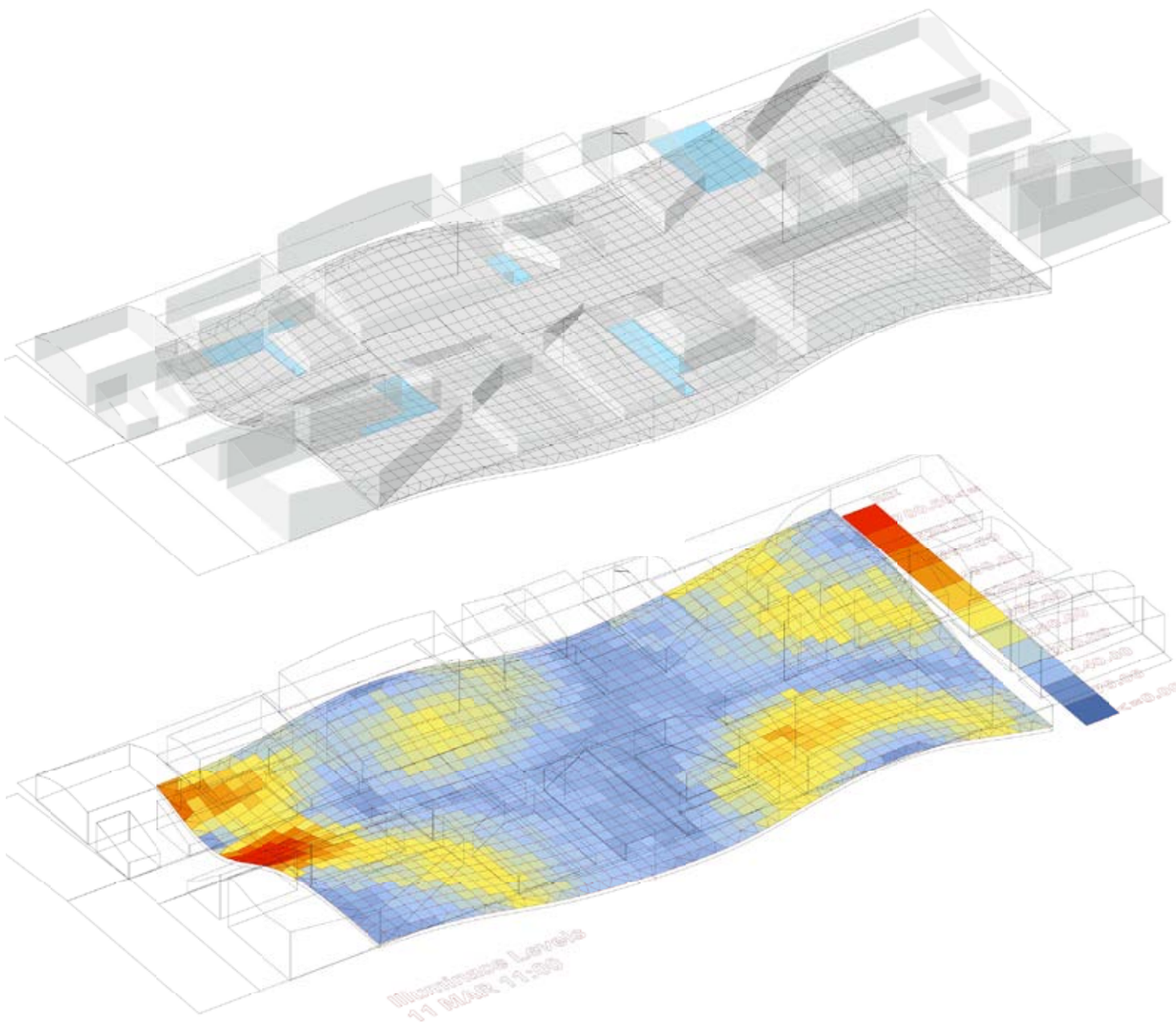
6 Daylight Analysis
Daylight Factor (-1 surface)

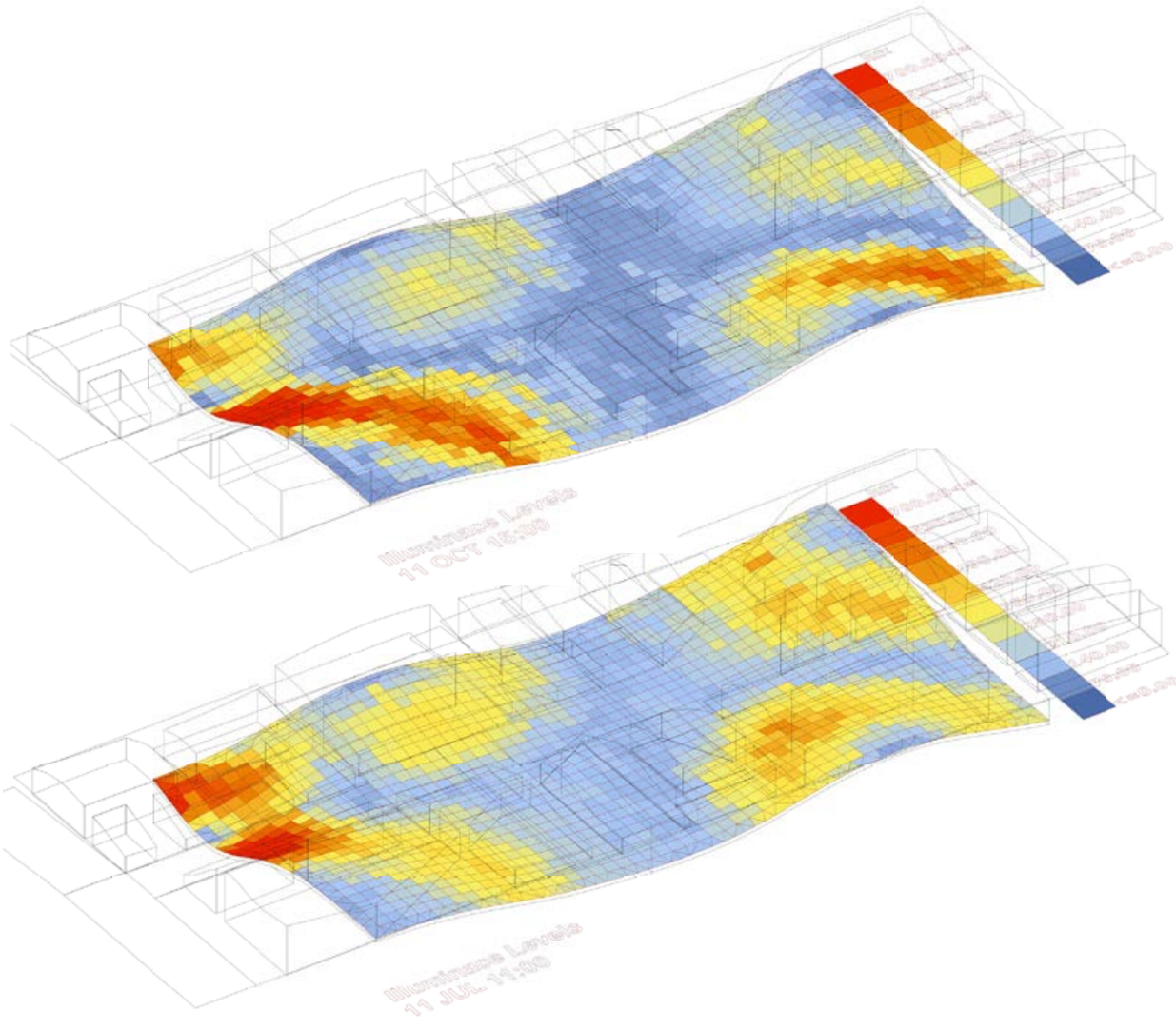


1 Education Program
Daylight from the side



2 Exhibition Program
Daylight from the top





Thank You