Framing a Possible Future of Urban Farming

BOSTANICAL GARDEN

Patrick Stijger - 1269119
Public Building
Palazzo Enciclopedico
PRESENTATION STRUCTURE

DESIGN BRIEF
PALAZZO ENCICLOPEDICO

ISTANBUL
PERSONAL FASCINATION

SITE & DESIGN GOALS
OPENNESS IN A DENSE CITY

DESIGN
BOSTANICAL CENTRE

TECHNICAL DESIGN
DETAILING AND SUSTAINABILITY
**DESIGN BRIEF**

**PALAZZO ENCICLOPEDICO**

Encyclopedic palace of the world

*Palazzo enciclopedico*

Marino Auriti (1955)

Cabinet of curiosities or wunderkammer

*musei wormiani historia*

Ole Worm (1655)
ISTANBUL
AN EXPANDING CITY

PRESENT
new airport and bridge
AN EXPANDING CITY

speculation on urban growth

2050
NATURE IN THE CITY

ISTANBUL
Importance of Green in a City

- Recreation
- Cooling in Summer
- Raising Property Value
- Ecosystem Benefits
- Social Benefits
- Aesthetic Benefits
- Environmental Benefits
- Air Quality
- Fights Pollution
Cultural tradition dating back to 400 AD

Most of these gardens were lost due to the city's rapid expansion.

Only a few remaining bostans remind of this cultural history.
URBAN FABRIC
no space for agriculture
Pollution due to long distance transportation

more individual, impersonal stores
URBAN FARMING
local food production
Focus on small communities

Focus on large production
LED FARMING

Relatively new technology currently being researched in the Netherlands and Japan

Can it bring an agricultural revolution?
PRESENTATION STRUCTURE

DESIGN BRIEF
PALAZZO ENCICLOPEDICO

ISTANBUL
PERSONAL FASCINATION

SITE & DESIGN GOALS
OPENNESS IN A DENSE CITY

DESIGN
BOSTANICAL CENTRE

TECHNICAL DESIGN
DETAILING AND SUSTAINABILITY
ISTANBUL'S PUBLIC GREEN SPACES ARE LOSING GROUND
SITE & DESIGN GOALS

OPENNESS IN A DENSE CITY
SITE & DESIGN GOALS

OPENNESS IN A DENSE CITY
SITE & DESIGN GOALS

OPENNESS IN A DENSE CITY

1946 1966 1982 2013
SITE & DESIGN GOALS
OPENNESS IN A DENSE CITY
SITE & DESIGN GOALS
OPENNESS IN A DENSE CITY

Refik Saydam

Istiklal

Mesrutiyet
SITE & DESIGN GOALS

OPENNESS IN A DENSE CITY

A SERVING SPACE

- A PLACE TO PARK THE CAR AND LEAVE
AN ATTRACTING SPACE

- AN ATTRACTING PUBLIC SPACE
- FUNCTIONS THAT ADD TO THE SHOPPING STREET
  NOT COMPETE WITH IT

SITE & DESIGN GOALS

OPENNESS IN A DENSE CITY
SITE & DESIGN GOALS
OPENNESS IN A DENSE CITY
SITE & DESIGN GOALS

OPENNESS IN A DENSE CITY
THE BUILDING

An educational, chronological route beginning at the historical level of the bostan and ending at the futuristic production of crops with LED farming.
DESIGN CONCEPT

Museum cafe

Library

Technical space

A

B

C

240 m

80 m

Section A  1:100

Section B  1:100

Situation  1:1000

23000 + P

- 3500  P

8200 + P

0 = P

- 9000  P

- 14000  P

Aproximation of the existing building height

1900 + P

1000 + P

- 4500  P

- 7000  P

Road slopes down thus the exact height is variable

0 = P

8200 + P

- 4500  P

- 9000  P

- 14000  P

Underground farm with LED technology

Reference: Plantlab (Dutch)

Section C  1:500

Section including the front facade of the museum.

This is still work in progress

Detail A

Detail A still needs to be drawn. Location chosen because it's the edge of the sloped museum roof including the water drainage.

gutter

museum roof bearing construction

bearing construction

showing a possible future of urban farms

Soil

Foils and insulation

Concrete floor (bubbledeck)

Ceiling finishing

water element

Planned detail

Planned detail

Planned detail

showing the new technology (future bostan)

museum cinema

exhibition

public library

museum entrance hall

Rainwater harvesting technology (future building)

bath market space

Bostan themed garden

Bostan themed garden

Turkish market space

"bazar style"

BOSTANICAL GARDEN

MAY 22, 2015

SLIDE 49/68
Lara Rios house, Spain

Meydan shopping square, Turkey

Bolton Eco House, England
Stedelijk museum, Amsterdam

Het Stedelijk Museum is het grootste kunststof gebouw ter wereld. Een iconisch gebouw dat mogelijk gebruikt in Tenax wordt o.a. aangebracht. Hoeveelheid: 24k wil zeggen dat de vezel uit Tenax is een type koolstofvezel. Type 2200 is een hoog-modulus aramide vezel wat betekent dat de vezel geoptimaliseerd is op stijfheid: zo laag mogelijke rek bij een bepaalde kracht. Het getal 8050 refereert naar kapverdieping, en heeft een zeer sterk materiaal als gevolg. De vezel ongeveer 8 kg per 10 km weegt. De vezel is beschikbaar in verschillende vormen zoals als garen, stapelvezel, pulp en laminaten. Twaron heeft geen smeltpunt, een lage ontvlambaarheid, het is niet-geleidend en duurzaam.

Buitenhuid
- Tenax
- Twaron
- Unifilo
  (harstransport)

Kern
- Polysocyamuur schuim (PIR)

Binnenhuid
- Unifilo
- Twaron
- Tenax
- Twaron
Exhibition cafe
Exhibition entrance
Section A 1:200
23000 + P
- 3500 P
8200 + P
0 = P
- 9000 P
- 14000 P

Aproximation of the existing building height
1900 + P
1000 + P
- 4500 P
- 7000 P
Road slopes down thus the exact height is variable

Situation 1:1000

4500
7200
4500
4500
7200
4500
4500
7200
4500
4500
7200

More levels in the ground conform existing situation

Section C 1:100

Grey water reservoir roughly 800,000 Liters
The edge still needs to be designed, including the green space.

The third layer has three functions. One function as an unofficial, open air theatre. Large circular stairs which could also balance of space between garage and farms has to be decided in a later phase.

But do to the flexibility of both functions they are very interchangeable.

The layers underneath all this are for led light. Parking cars and led farms. The exact use us trees and other spatial elements. These routes are also emphasized by the clear routing. Connects to the surrounding urban fabric and walkways creating a clear routing. By continuing the lines of public streets accessible grass roofs that give a height vantage and a beautiful view over the city that extends to the west.

The top layer is a public green space with vegetable gardens of Istanbul. The space references to the bostan, historical vantage and a beautiful view over the.

The layer under it contains several functions. Firstly there is a public market. And secondly there is a part of the parking centre which goes down one level. Centre which goes down one level. As both a production and a research exhibitionexhibition area. As well as both a production and a research exhibition centre situated in the middle. Its main entrance is in the middle. Its main entrance is a public library which is accessible from multiple sides. By the grand bazar with arched ceilings. And thirdly the exhibition centre situated as both a production and a research exhibition centre and as a secondary entrance to the exhibition centre and as a

Secondly there is a part of the parking centre which goes down one level. As both a production and a research exhibition centre situated in the middle. Its main entrance is

The third layer has three functions. One function as an unofficial, open air theatre. Large circular stairs which could also balance of space between garage and farms has to be decided in a later phase.

But do to the flexibility of both functions they are very interchangeable.

The layers underneath all this are for led light. Parking cars and led farms. The exact use us trees and other spatial elements. These routes are also emphasized by the clear routing. Connects to the surrounding urban fabric and walkways creating a clear routing. By continuing the lines of public streets accessible grass roofs that give a height vantage and a beautiful view over the city that extends to the west.

The top layer is a public green space with vegetable gardens of Istanbul. The space references to the bostan, historical vantage and a beautiful view over the.
INTERIOR: Preliminary impressions
PRESENTATION STRUCTURE

DESIGN BRIEF
PALAZZO ENCICLOPEDICO

ISTANBUL
NATURE OF THE CITY

SITE & DESIGN GOALS
OPENNESS IN A DENSE CITY

DESIGN
BOSTANICAL CENTRE

TECHNICAL DESIGN
DETAILING AND SUSTAINABILITY
Harvesting the rainwater

Grey water storage

Adding water if necessary

Grey water storage

Grey water storage

Grey water storage

Grey water storage

Grey water storage

Grey water storage
BOSTANICAL GARDEN  -  MAY 22, 2015

Detail V2
Detail V3
Detail V4

Market Layer   -3500 P
Park Layer   P = 0
Top   8500+P

Top of ceiling   -5000 P
LED Layer   -9000 P
Top of ceiling   -9500 P
Parking Layer   -13500 P

OUTSIDE

Section Detail 1:30

I
J

Detail V1Detail V1'
Detail V5

Built on existing structure
Exact depth and foundation are unknown

Detailing of the ramp is still an open task

low temperature heating
convector to prevent cold downdraught

Winter

Summer

low temperature cooling

convector to prevent cold downdraught
RULE OF THUMB CALCULATION

Complete roof = 1500 m² high.

Liner: Steel ISL V 1/6 L

Ar: 7.50 = 360 mm / 6 = 60 mm

Ar: 7.50 = 48 mm

B. Detail V1: 650 mm

B. Detail V1': 660 mm

B. Detail V5: 660 mm
DEMOLISHED TRT BUILDING