United Nations Environmental Council
The Slope

P5 Presentation

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Strategic Architectural Design Development
Chapter 1. Tasks & goals
Chapter 2. Idea development
Chapter 3. Programs
Chapter 4. Space organization
Chapter 5. Structure & construction
Chapter 6. Spatial quality
Chapter 7. Materialisation & details
Chapter 8. Climatic design
CHAPTER 1
TASKS & GOALS
CHAPTER 1  TASKS & GOALS

The project is located along the east coast of Manhattan. On the plot of existing UN headquater
CHAPTER 1  TASKS & GOALS

A new 6th council for the United Nations

Environmental Council
CHAPTER 1  TASKS & GOALS

Responsibility of the new council

Send message concerning sustainability to public, get more and more people be aware of environment problems and get them involved into the discussion of sustainable issue.

Contribute to sustainability of the planet

Deliver the message of sustainability to public

NEW COUNCIL

PUBLIC
CHAPTER 1   TASKS & GOALS

Responsibility of the new council
Send message concerning sustainability to public, get more and more people be aware of environment problems and get them involved into the discussion of sustainable issue

IT'S NOT THE ISSUE OF ONE ORGANIZATION. PUBLIC SHOULD ALSO MAKE EFFORTS
NO MORE ISOLATION!
BRING PUBLIC IN!
CHAPTER 2
IDEA DEVELOPMENT
The project starts from the reflection of current typical highrises which consist of a tower and a podium.
CHAPTER 2  IDEA DEVELOPMENT

The prototype of typical tower-podium building
The podium of typical highrise is not friendly and accessible to the public, it tends to block the public off. The public can not have a visual connection to the green roof on the top of the podium.
Replace the box with a slope. Creating a access to public. Visitor from the distance can also get a glimpse of rooftop.
Creating courtyards between the volumes. Adding two platforms responding the green boulevard on the west and river scenery of east side.
A terrace at front is added to offer visitors a place to have rest and enjoy the scenery of river side.
Elevate the tower and give the tower and podium two different materials creating strong contrast. It can make the two volumes more distinctive and iconic.
A lot of possibilities can be created on the slope roof.
CHAPTER 3
PROGRAMS
### CHAPTER 3  PROGRAMS

**Showing floor area requirement and affiliation**

<table>
<thead>
<tr>
<th>ENTRANCE</th>
<th>COLLECT</th>
<th>PRODUCE</th>
<th>PROPAGATE</th>
<th>EXCHANGE</th>
<th>GENERAL</th>
<th>FACILITIES</th>
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<tbody>
<tr>
<td>930 M²</td>
<td>1835 M²</td>
<td>1224 M²</td>
<td>3536 M²</td>
<td>3330 M²</td>
<td>2680 M²</td>
<td>2300 M²</td>
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<tr>
<td>6%</td>
<td>12%</td>
<td>8%</td>
<td>22%</td>
<td>21%</td>
<td>17%</td>
<td>14%</td>
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</tbody>
</table>

[Diagram showing floor area distribution and affiliated spaces]
CHAPTER 3  PROGRAMS

Based on the approximate required space height. Under slope from lower to higher.
CHAPTER 4
SPACE ORGANIZATION
CHAPTER 4  SPACE ORGANIZATION

PEOPLE FLOW ANALYSIS

- Main Entrance
- Entrance for employee
- Entrance for delegate
- Entrance

Visitor
Businessman + Press
Delegate + Secretariat
Employee
CHAPTER 4  SPACE ORGANIZATION

PEOPLE FLOW ANALYSIS

- Visitor
- Businessman + Press
- Delegate + Secretariat
- Employee

First floor
CHAPTER 4  SPACE ORGANIZATION

PEOPLE FLOW ANALYSIS

Visitor
Businessman + Press
Delegate + Secretariat
Employee

PUBLIC

First floor
CHAPTER 4  SPACE ORGANIZATION

PEOPLE FLOW ANALYSIS

Visitor
Businessman + Press
Delegate + Secretariat
Employee

CONFERENCE

First floor
CHAPTER 4  SPACE ORGANIZATION

PEOPLE FLOW ANALYSIS

Visitor
Businessman + Press
Delegate + Secretariat
Employee

Second floor
CHAPTER 4 SPACE ORGANIZATION

PEOPLE FLOW ANALYSIS
CHAPTER 5
STRUCTURE & CONSTRUCTION
Basic structure type: steel structure
Structure layout of council chamber lobby

Span: 16m in the middle with 4.5m cantilever on both ends
Spacing: 8.1m

Dimension of columns: 400mm X 400mm
Structure layout of council chamber lobby

Span: 16m in the middle with 4.5m cantilever on both ends
Spacing: 8.1m

Dimension of columns: 400mm X 400mm
CHAPTER 5 STRUCTURE & CONSTRUCTION

Structure layout of council chamber lobby

Steel primary beams
Primary open-web steel joists
Secondary open-web steel joists
Steel posts to bear the facade
Facade: Concrete elements
Roof Construction

Basic Structure
Corrugated roof slabs
Low walls to enclose the area for the top soil of green roof
Soil layer of green roof and steel supports for walkways on both sides
CHAPTER 5  STRUCTURE & CONSTRUCTION

Roof Construction

Green roof layer
CHAPTER 5  STRUCTURE & CONSTRUCTION

Roof Construction

30mm white granite panel supported by steel post
250mm extensive single-course substrate
300mm mineral subsoil substrate
150mm drainage course
water proof
200mm thermal insulation
vapor barrier
150mm metal decking concrete floor
light gauge steel frame
150mm thermal insulation

Details of the roof layer
CHAPTER 5  STRUCTURE & CONSTRUCTION

Council Chamber Construction

Load bearing wall and steel truss
Secondary beams
Secondary structure to bear the floor
Secondary structure to bear the floor
Steel post to bear facade and create rhythm
Chapter 5: Structure & Construction

Tower Construction

Super structure on the top
Tension bars to pull all the floor
Tension bars to pull all the floor
Structure of green house on the top
CHAPTER 5  STRUCTURE & CONSTRUCTION

Tower Construction
CHAPTER 6
SPATIAL QUALITY
Lobby of council chamber
CHAPTER 6  SPATIAL QUALITY

Lobby of council chamber

Exposed structure

Interior landscape

White gypsum board

Wood floor

Grey polished screed
CHAPTER 6  SPATIAL QUALITY

Hallway along the facade
Platform of staircase on the first floor
CHAPTER 7
MATERIALISATION & DETAILS
Facade material

Material of tower is glazing, that of the plinth is concrete panels. A strong contrast of smoothness and roughness can be created.
Facade panelization:

The dimension of concrete panel is smaller than 3.6m X 7.2m for the sake of transportation.

The vertical seams will be hidden because of the vertical pattern of the concrete panels. Horizontal seams will be aligned with the edge of windows.
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The vertical seams will be hidden because of the vertical pattern of the concrete panels. Horizontal seams will be aligned with the edge of windows.
Fragment of south facade:

- Concrete elements with corrugated pattern
- Glazing
CHAPTER 7 MATERIALISATION & DETAILS

Fragment of south facade:

material list of the details

30mm white granite panel supported by steel post
250mm extensive single-course substrate
300mm mineral subsoil substrate
150mm drainage course
water proof
200mm thermal insulation
vapor barrier
150mm metal decking concrete floor
light gauge steel frame
150mm thermal insulation

100mm concrete elements

facade post: 20/300mm steel sheet

double glazing: 6mm toughened glass + 12mm cavity + 2X4mm laminated safety glass

100mm polished screed

vapor barrier

200mm thermal insulation with floor heating

reinforced concrete
The main structure of the concrete elements of facade is the steel column which is connected to the main structure of the building.
CHAPTER 7 MATERIALISATION & DETAILS

Fragment of south facade:

The light gauge steel frame holding the facade concrete elements is connected to the steel columns.

30mm white granite panel supported by steel post
250mm extensive single-course substrate
300mm mineral subsoil substrate
150mm drainage course
   water proof
200mm thermal insulation
   vapor barrier
150mm metal decking concrete floor
   light gauge steel frame
150mm thermal insulation

100mm concrete elements
   facade post: 20/300mm steel sheet

double glazing: 6mm toughened glass + 12mm cavity + 2X4mm laminated safety glass

100mm polished screed
   vapor barrier
200mm thermal insulation with floor heating
   reinforced concrete
CHAPTER 7 MATERIALISATION & DETAILS

1:5 Details of the strip opening on the facade

The window frame of the strip opening and insulation is connected to the beam between steel columns by steel profile.
1:5 Details of the strip opening on the facade

The window frame of the strip opening and insulation is connected to the beam between steel columns by steel profile
1:5 Details of the strip opening on the facade

The window frame of the strip opening and insulation is connected to the beam between steel columns by steel profile

Cross section detail 1:5

Horizontal section detail 1:5
CHAPTER 7  MATERIALISATION & DETAILS

1:5 Details of the connection between interior and exterior

The material of interior and exterior are different. It will be strange if they are aligned with each other. The way to deal with the connection is to use a height difference to separate them. In this way the concrete wall can stick out, the interior wall will sit back. Both materials can be independent seen from outside or inside.

exterior material: concrete element

interior material: white gypsum board

cross section detail 1:5
Fragment of east facade:
Fragment of east facade:

Material list of the details:

- Metal plate
- Glued wood boarding
- Light gauge steel frame
- 100mm concrete elements
- Waterproof
- 200mm thermal insulation
- Vapor barrier
- 150mm metal decking concrete floor
- Wood grating suspended ceiling
- Facade post: 20/500mm steel sheet
- Double glazing: 6mm toughened glass + 12mm cavity + 2X4mm laminated safety glass
- 100mm polished screed
- Prefabricated concrete element
CHAPTER 7 MATERIALISATION & DETAILS

1:5 Details of sharp edge of the facade
The upper sharp edge is realized by putting the vertical concrete element in front of the top one. In this way, the ugly section of the capstone can be hidden behind.

The water proof layer will be extended all the way up to protect the seam on the top.
CHAPTER 7 MATERIALISATION & DETAILS

1:5 Details of sharp edge of the facade

The lower sharp edge is realized one piece of the prefabricated concrete element. The element is fixed on the beam of building and sits on the front concrete element.
CHAPTER 7  MATERIALISATION & DETAILS

1:5 Details of sharp edge of the facade
The lower sharp edge is realized one piece of the prefabricated concrete element. The element is fixed on the beam of building and sits on the front concrete element.
CHAPTER 8
CLIMATIC DESIGN
CHAPTER 8 CLIMATIC DESIGN

Natural ventilation
Air of each floor will be exchanged with the air in the cavity

Multi-storey double facade
Solar chimney effect
Air-intake
Mechanical Ventilation

The mechanical room serving the offices is placed on the top of tower.

The one serving the podium is placed underneath the slope of council chamber.
Floor heating

The heat pump serving the offices is placed in the basement. The one serving the podium is placed underneath the slope of council chamber.
Climatic diagram of council chamber lobby

Natural ventilation in summer
Climatic diagram of council chamber lobby
Mechanical ventilation in summer
Climatic diagram of council chamber lobby

Heating in winter