



Floating office

**UNITED NATIONS ENVIRONMENTAL
COUNCIL**

Contents

- **Idea and aims**

- Urban position**

- site design*

- architectural position*

- The Concept*

- **Architecture design**

- Form investigation*

- Program analysis*

- Floor plan design*

- Space design*

- Route analysis*

- structure design*

- Facade design*

- **Climate control**

- Ventilation*

- Heating and cooling*

My understanding of UNHQ



As a council chamber : Transparency & Openness

As a office building: Intimate environment for works

Concrete forest

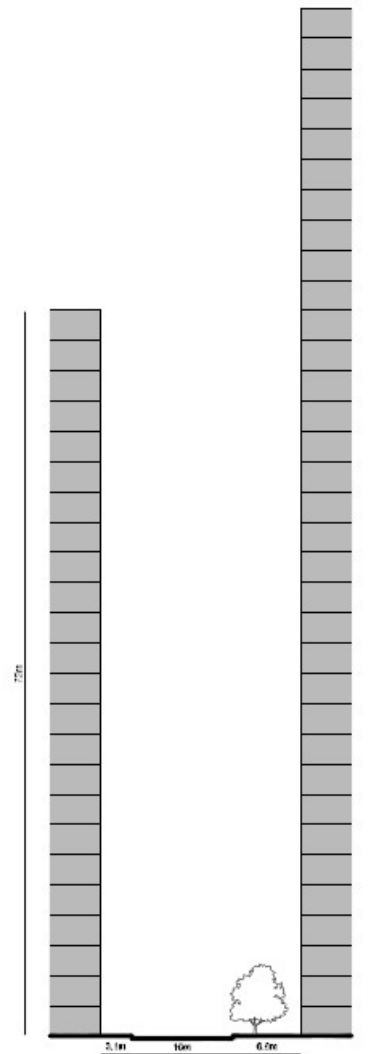


Too much high building-----blind the light. Leave in shadow.



Section : 59th & Park Ave

No light

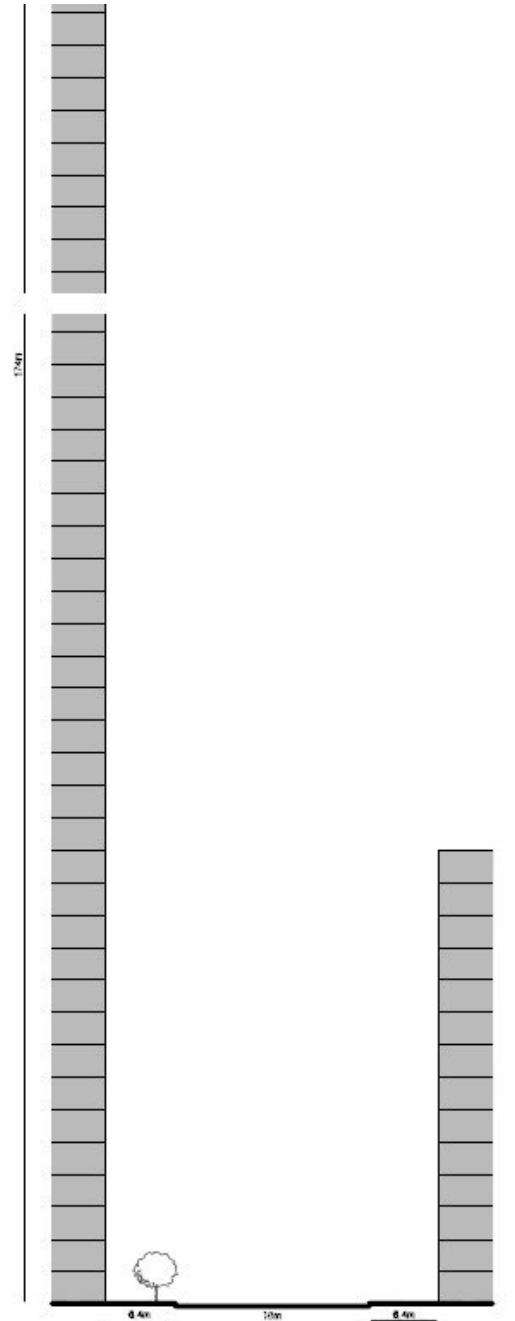


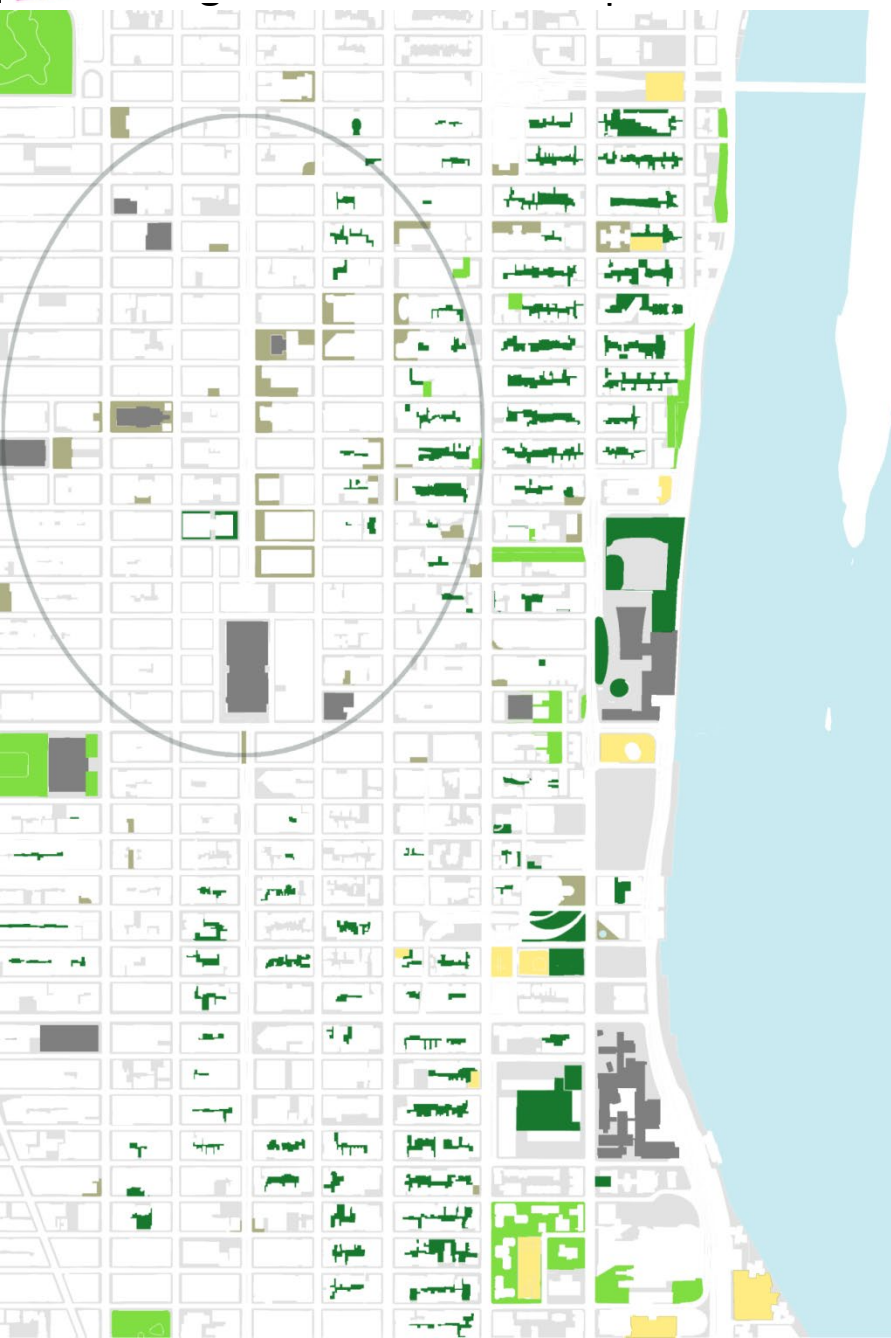
Lubo Dragomirov
 Group-MaartenKorpershoek

Broadway & 49th

No green

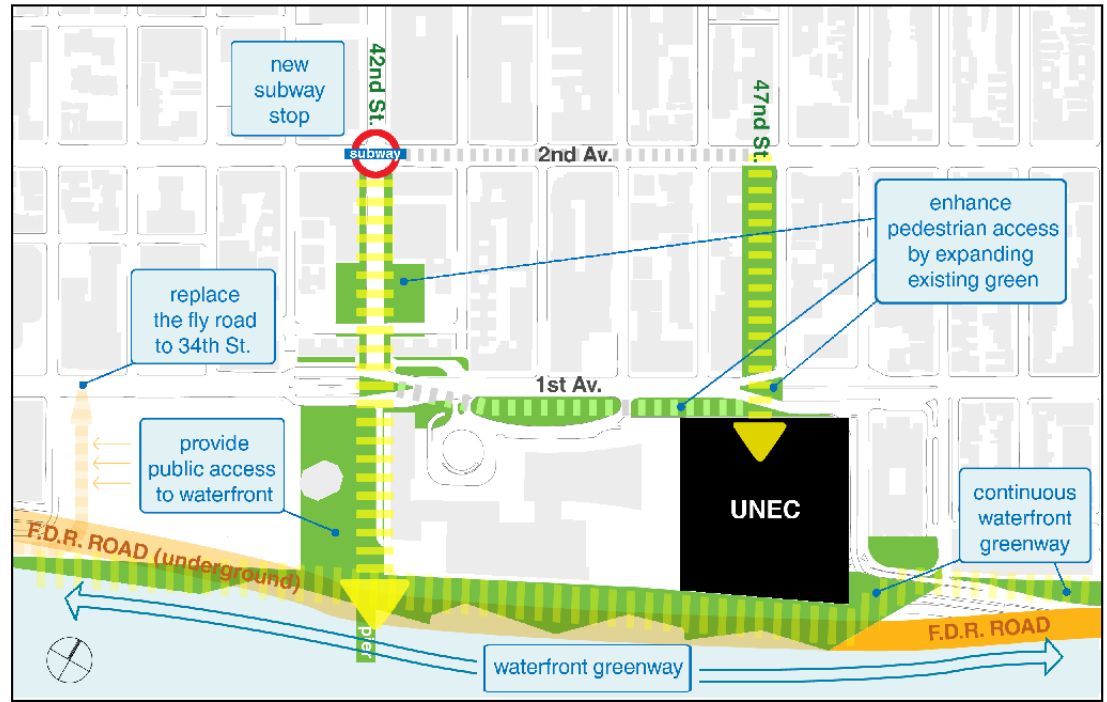
Roadside tree





UN site is a important node for the urban green.





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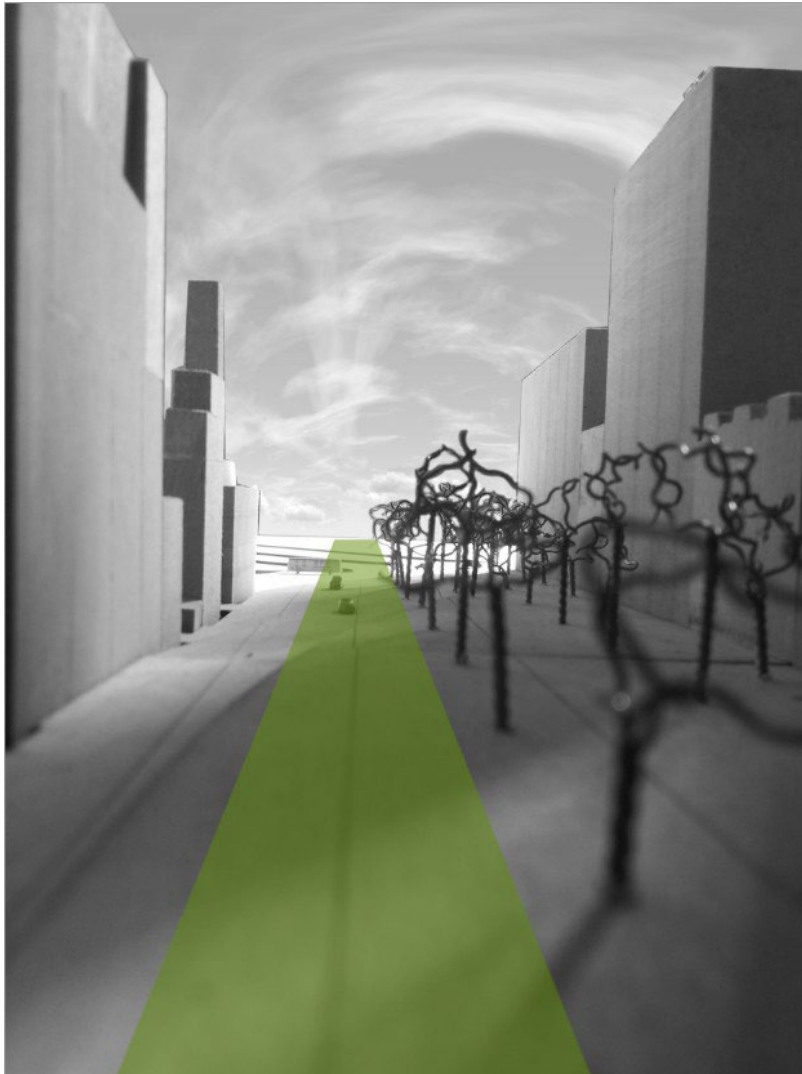
Facade design

- **Climate control**

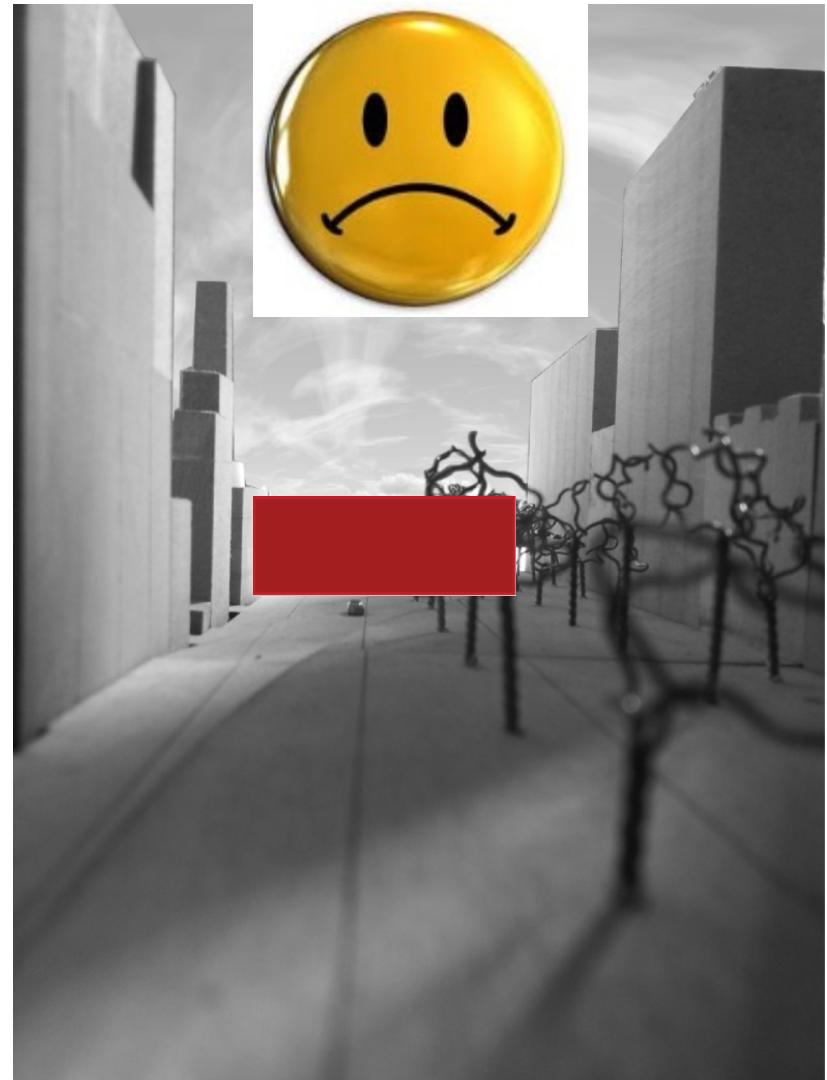
Ventilation

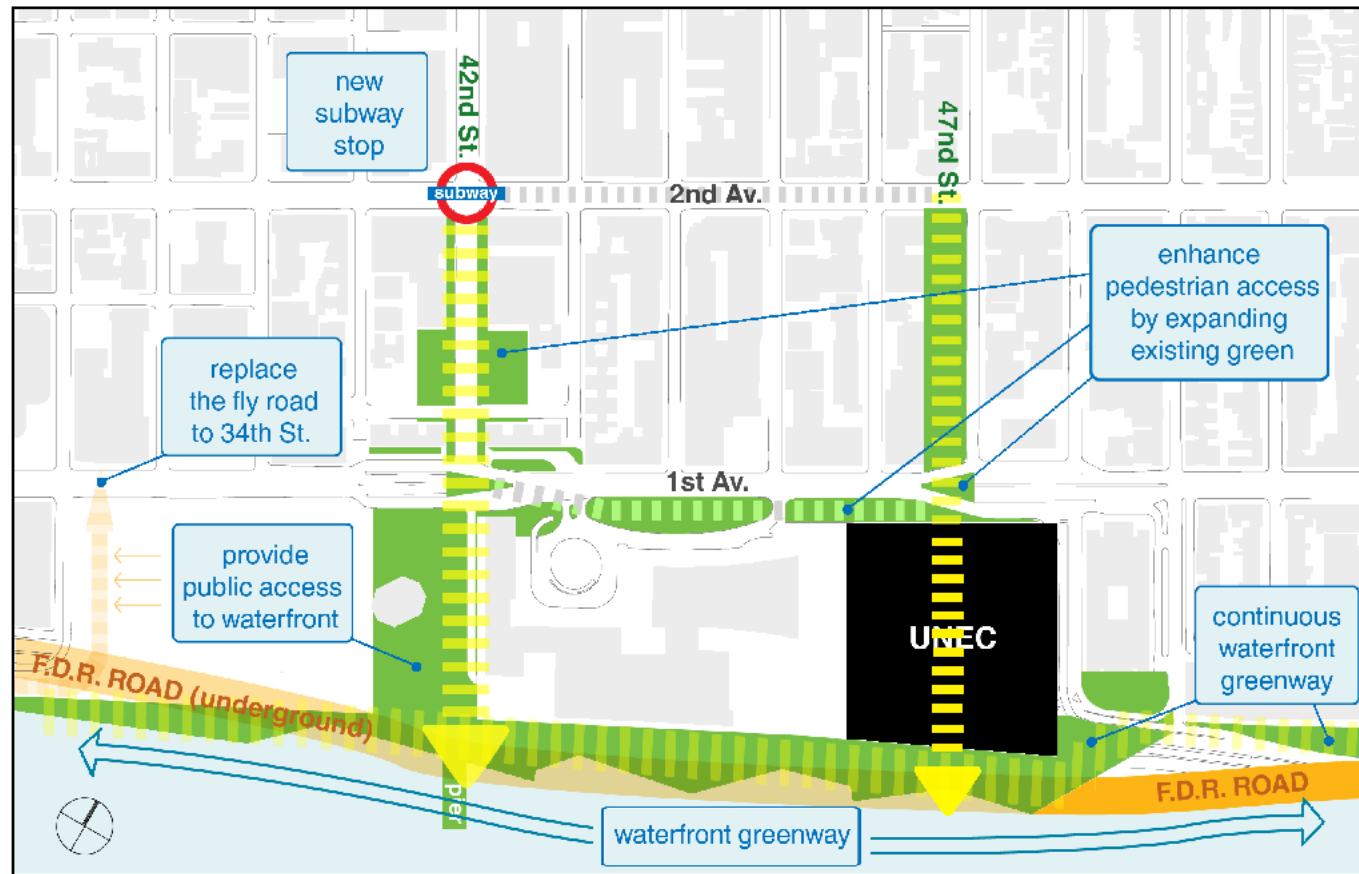
Heating and cooling





- Goal:**
1. architecture leave more green to the city.
 2. physical and visual connection from the city to the riverside.
 3. Transparency & Openness





The roll of UNEC for New York :

- a connection to connect the public green
- a connection to connect the inner city to the riverside leisure space

Make good use of the height difference



connection



Wooden platform with big stairs
Gradually Close to riverside park
Plant trees and grass to keep the green





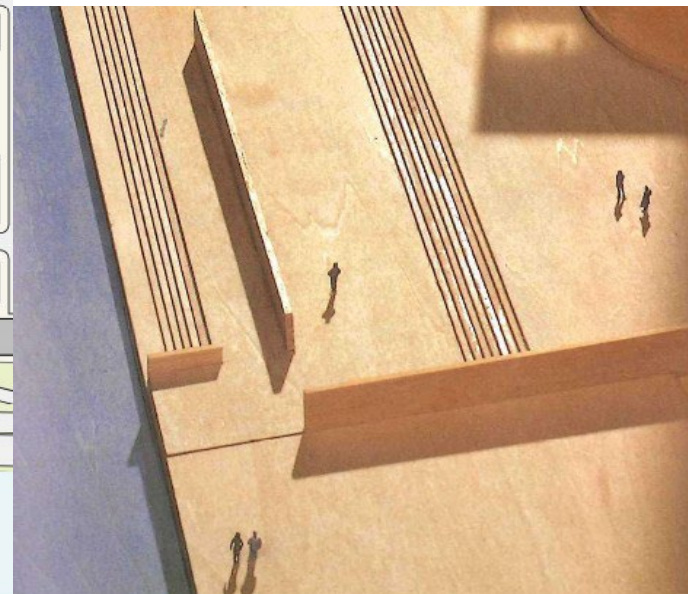
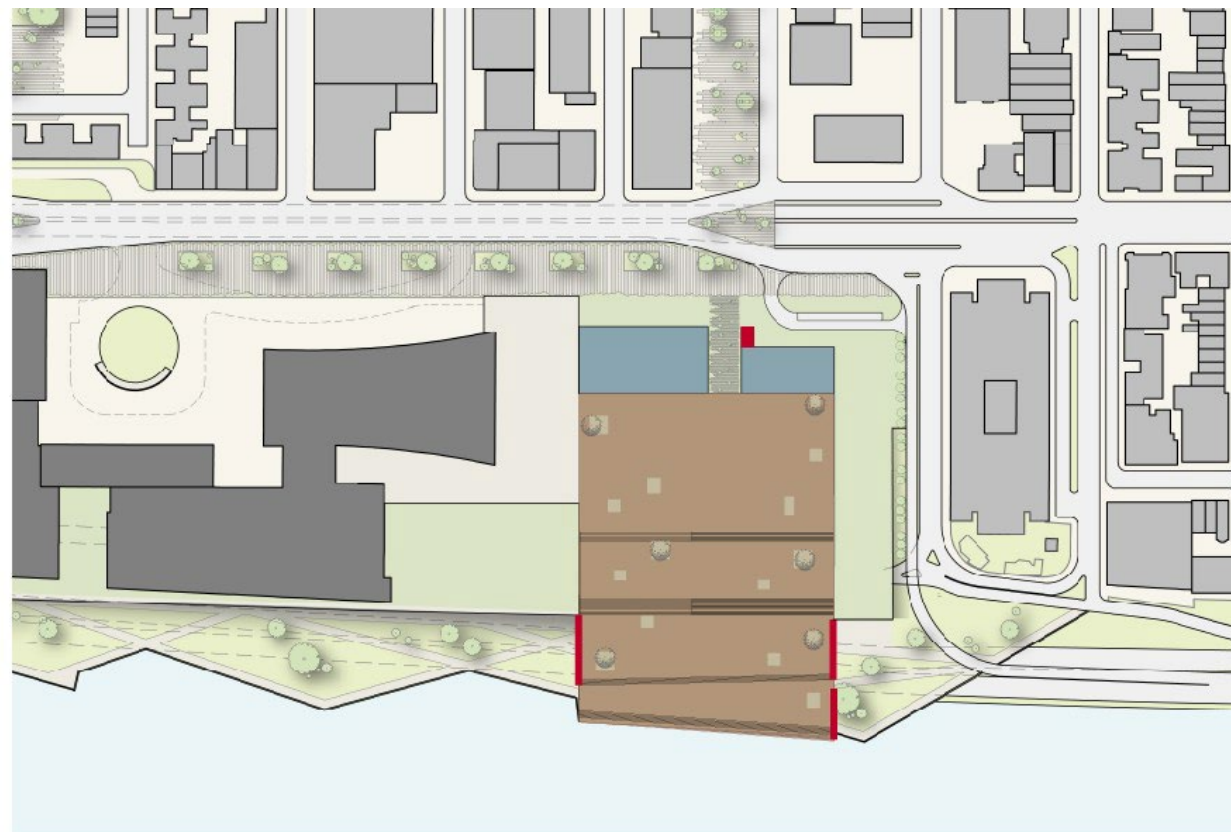
Security: invisible fence

City side: two peaceful pools spereate city's noise and pullution

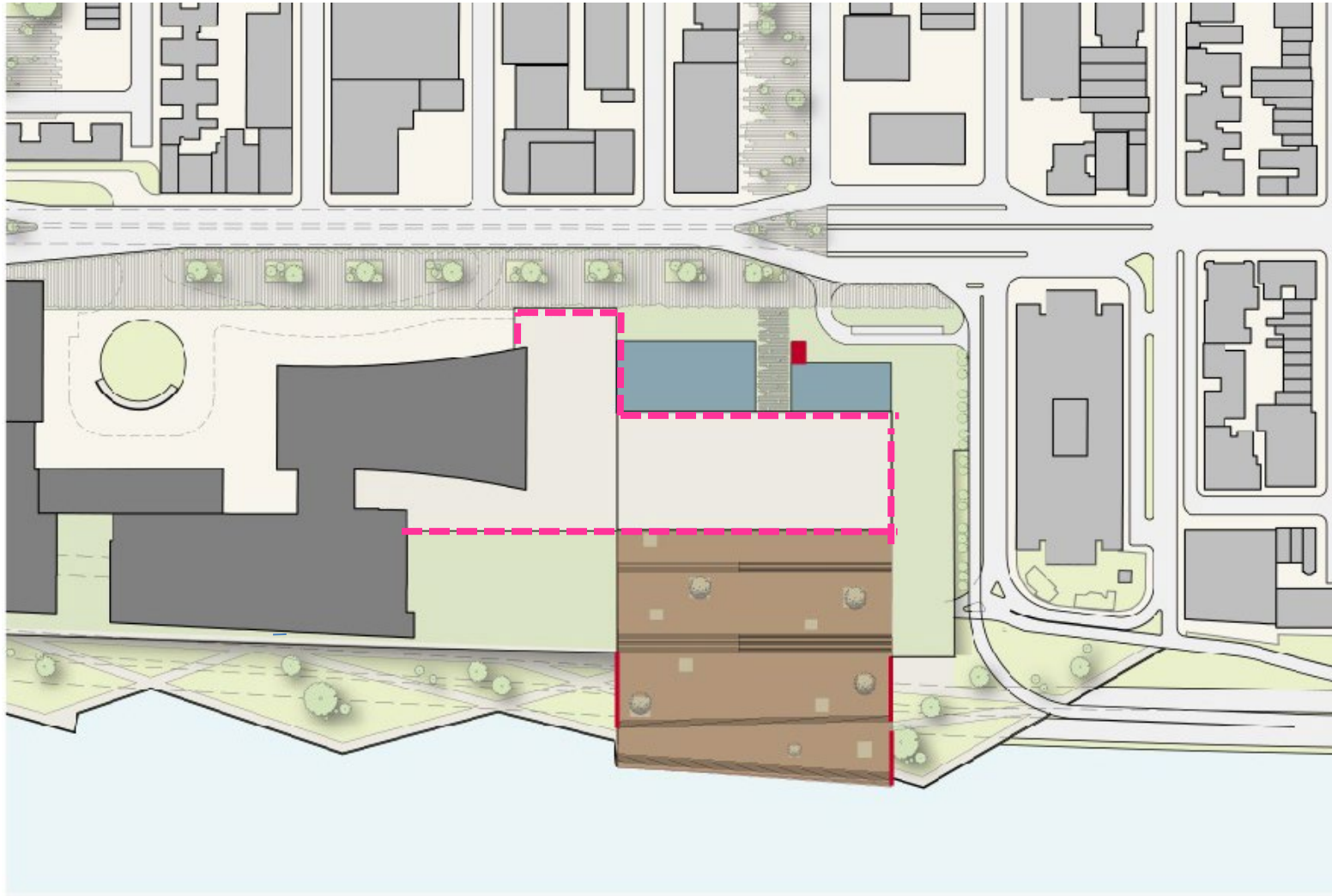
River side: short walls at the boundary

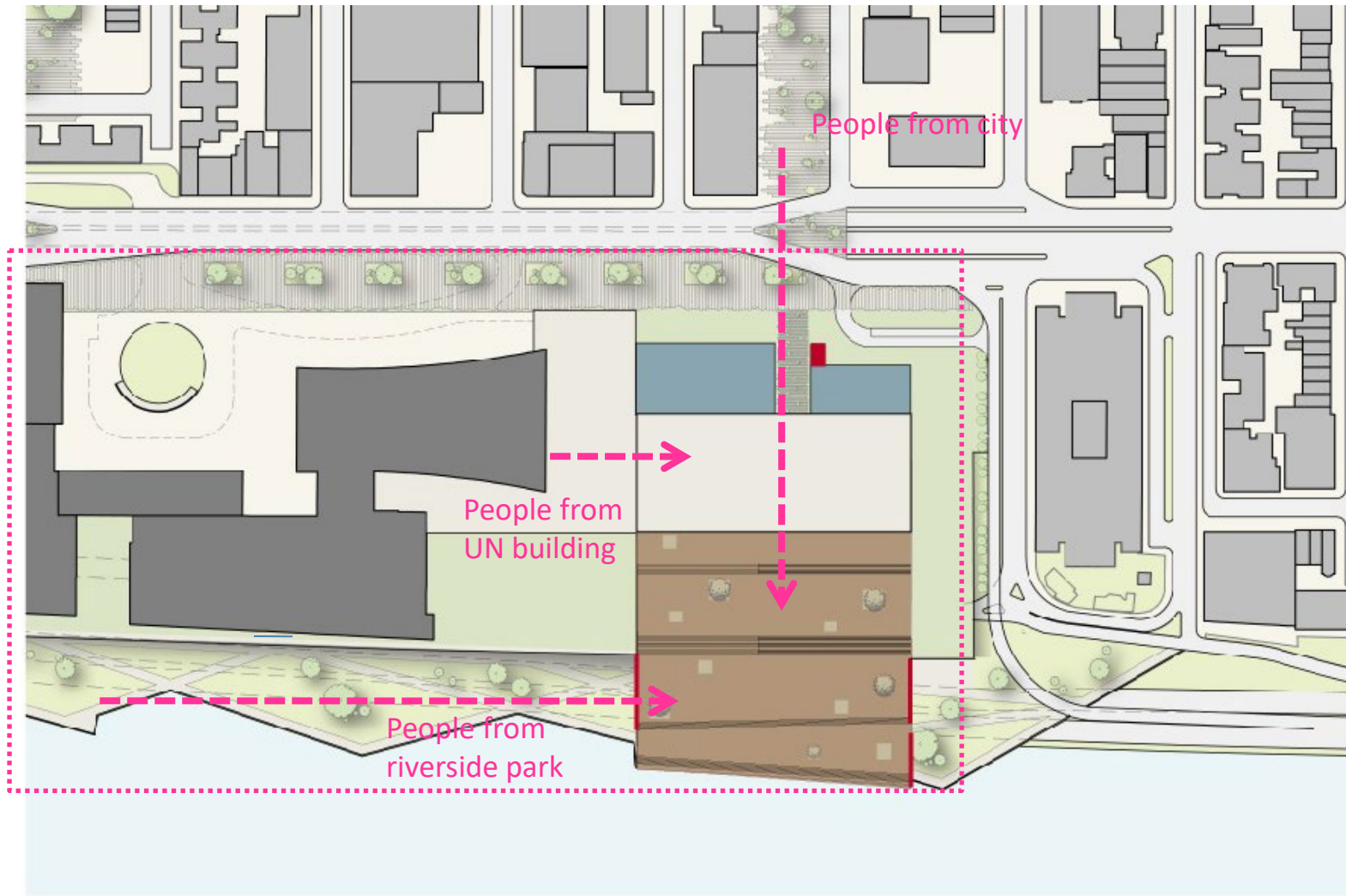
In most time of the year, UN site is open to the public.

In the conference time, security pavillion near the pool and guards at the short wall ensure safety



connection to old building----- square





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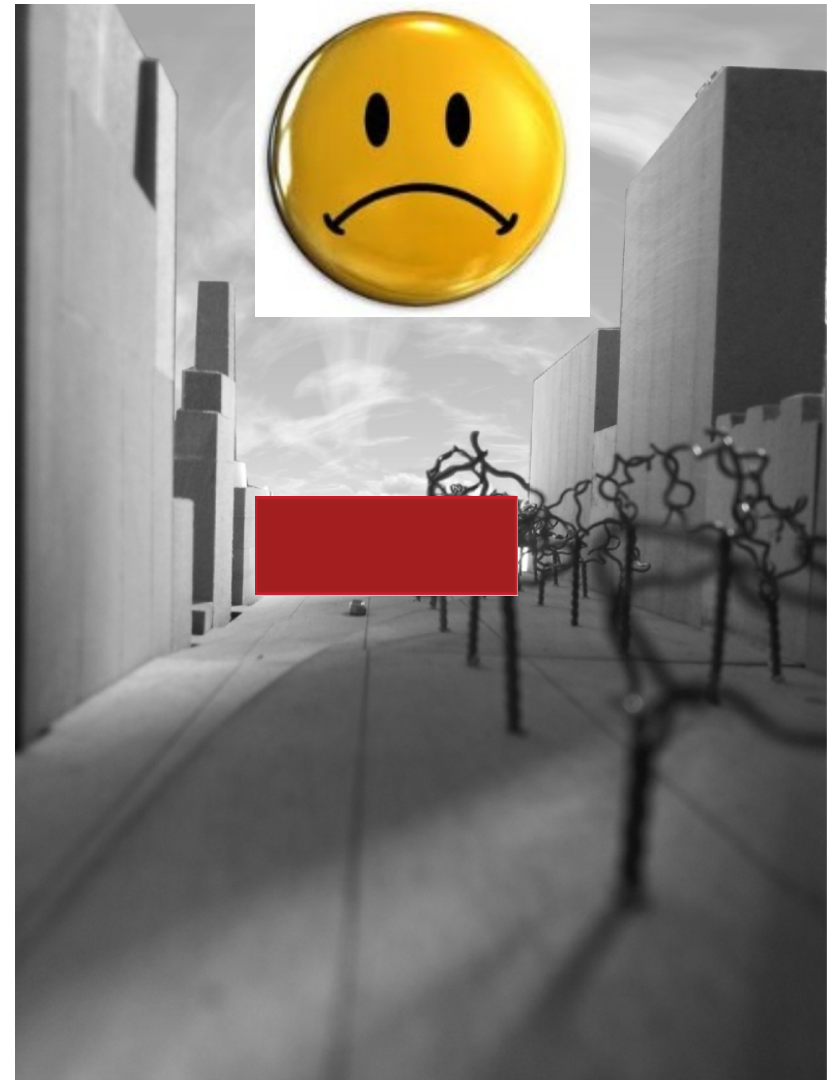
Facade design

- **Climate control**

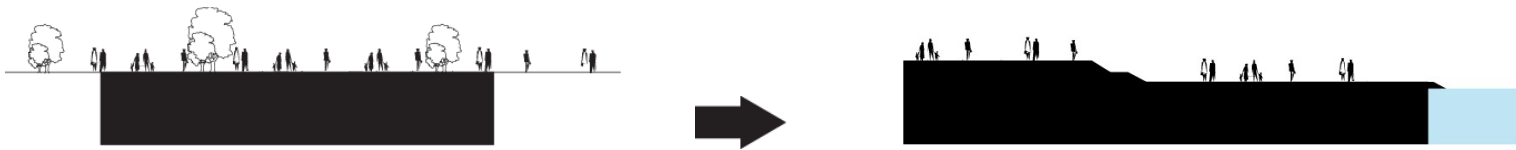
Ventilation

Heating and cooling

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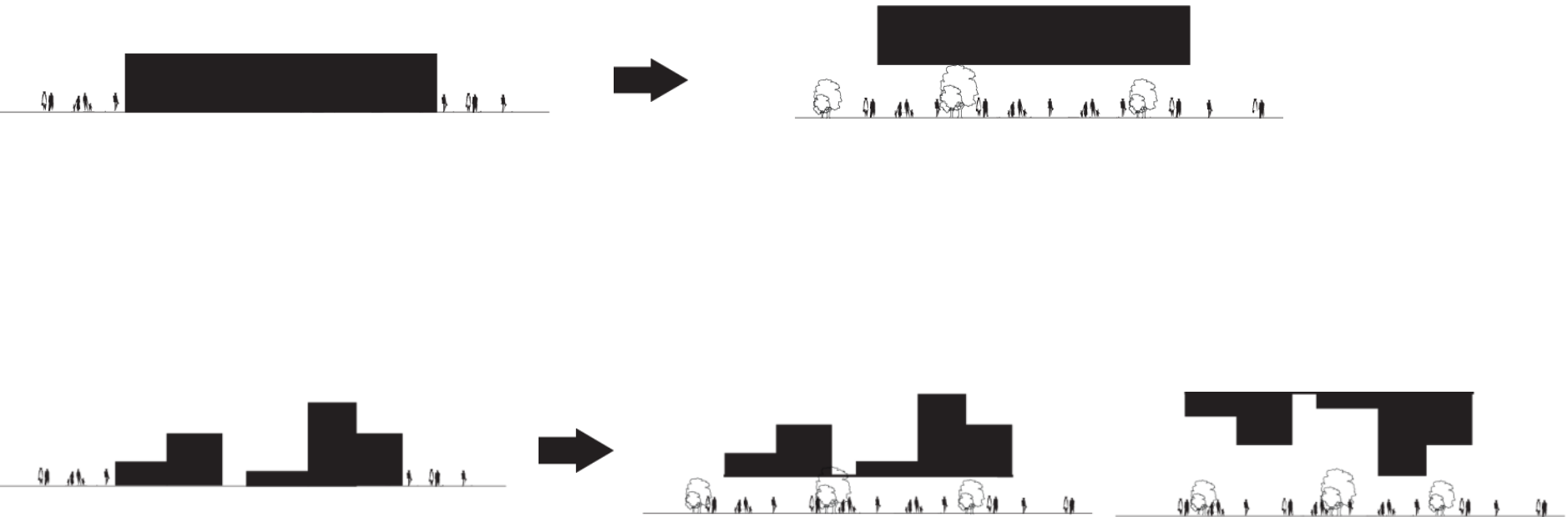


Option 1.

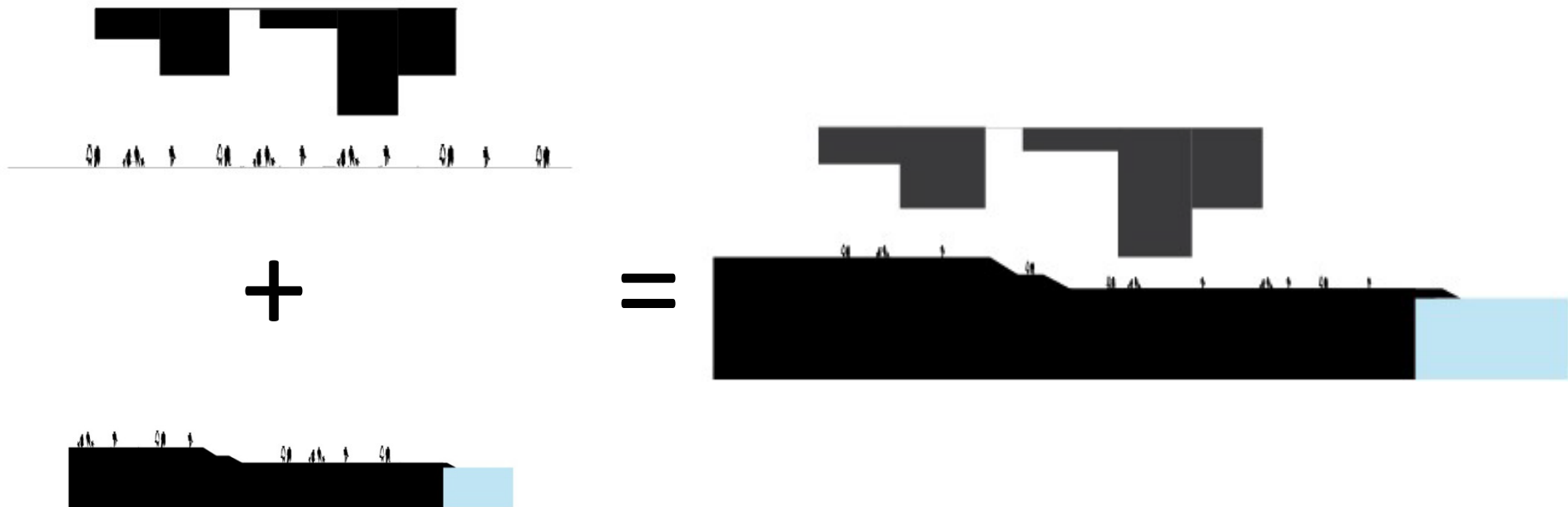


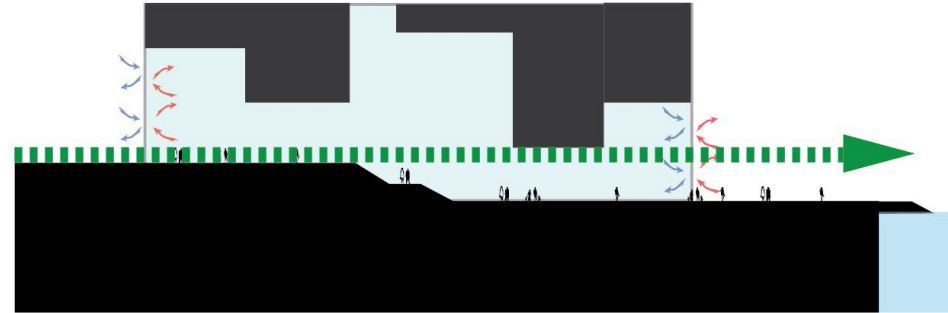
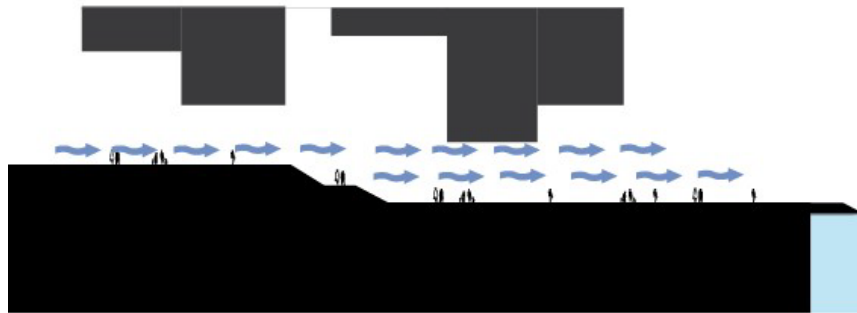
Put the building underground: the sun light problems.

Option 2.



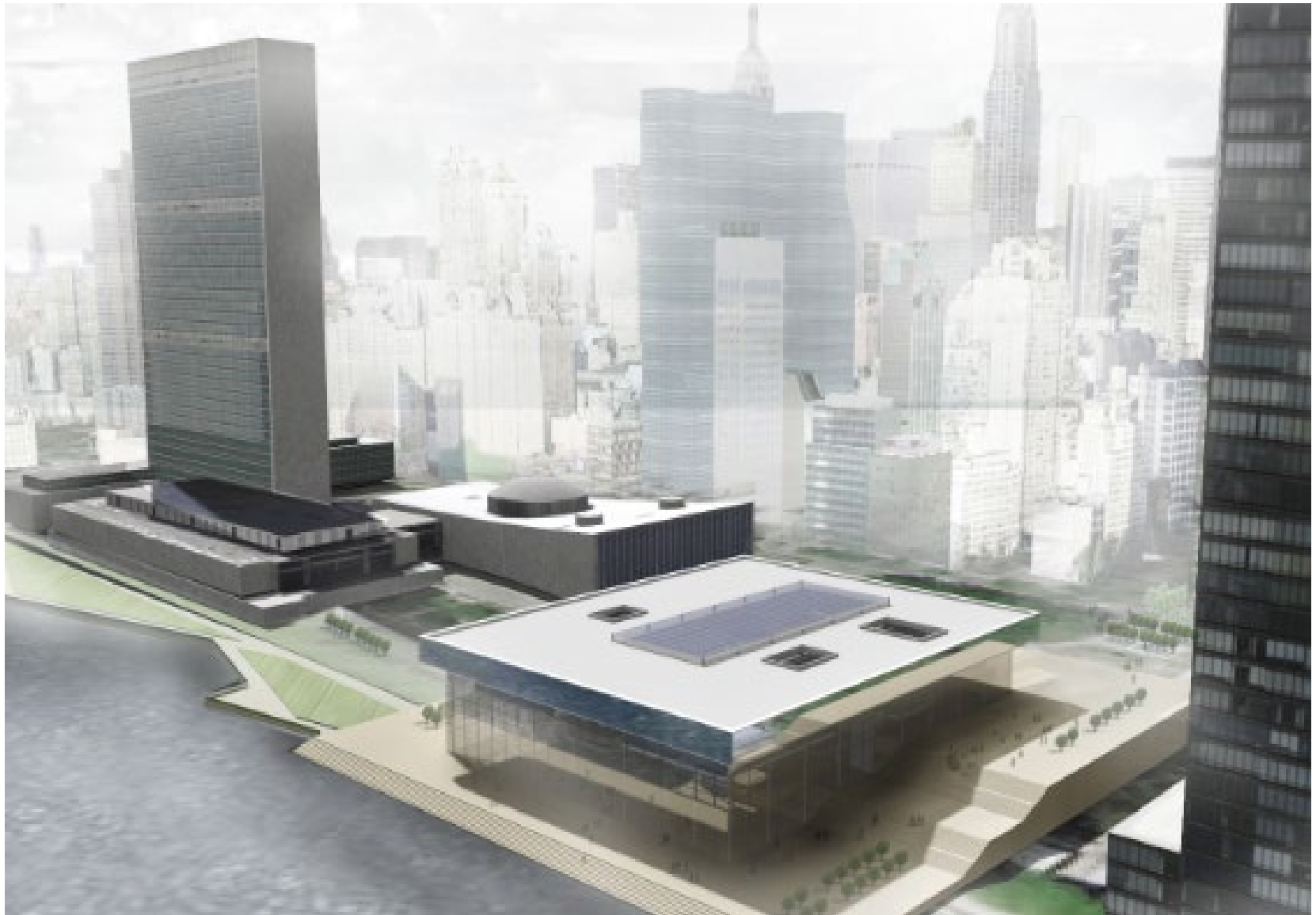
Floating: put normal building upside down





Add transparent facade to contral the climate







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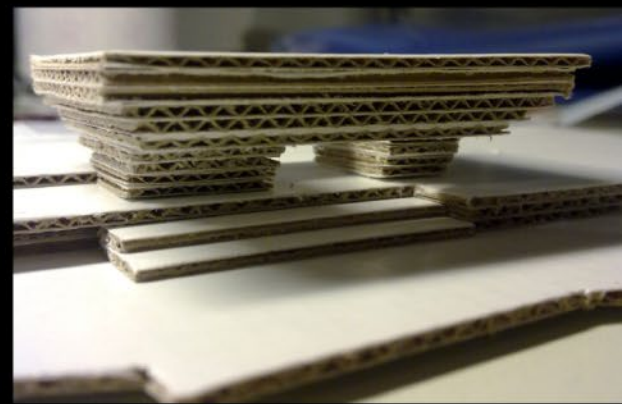
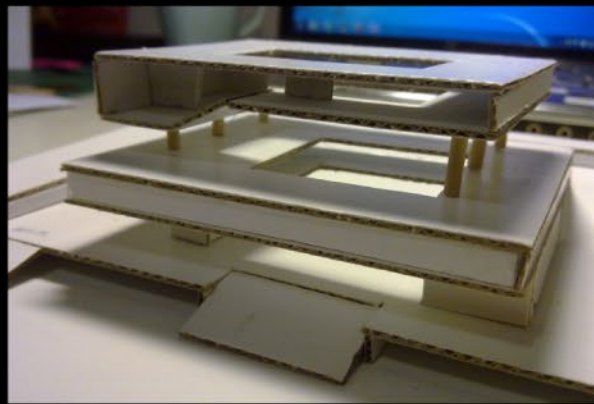
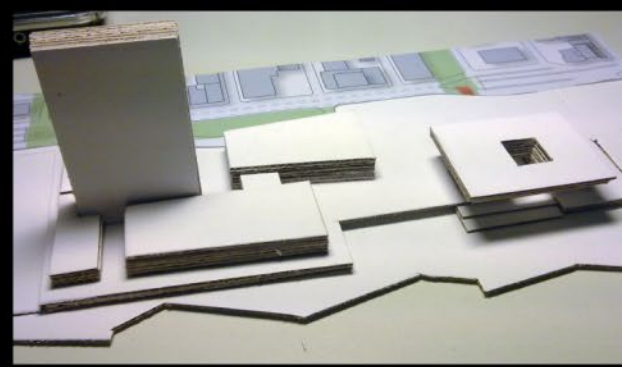
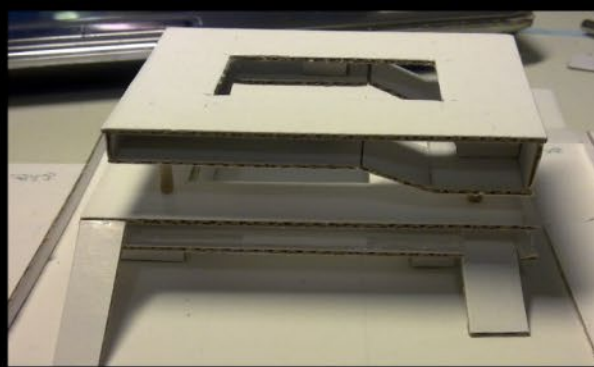
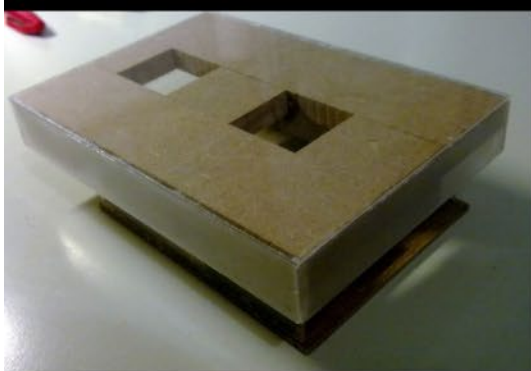
structure design

Facade design

- **Climate control**

Ventilation

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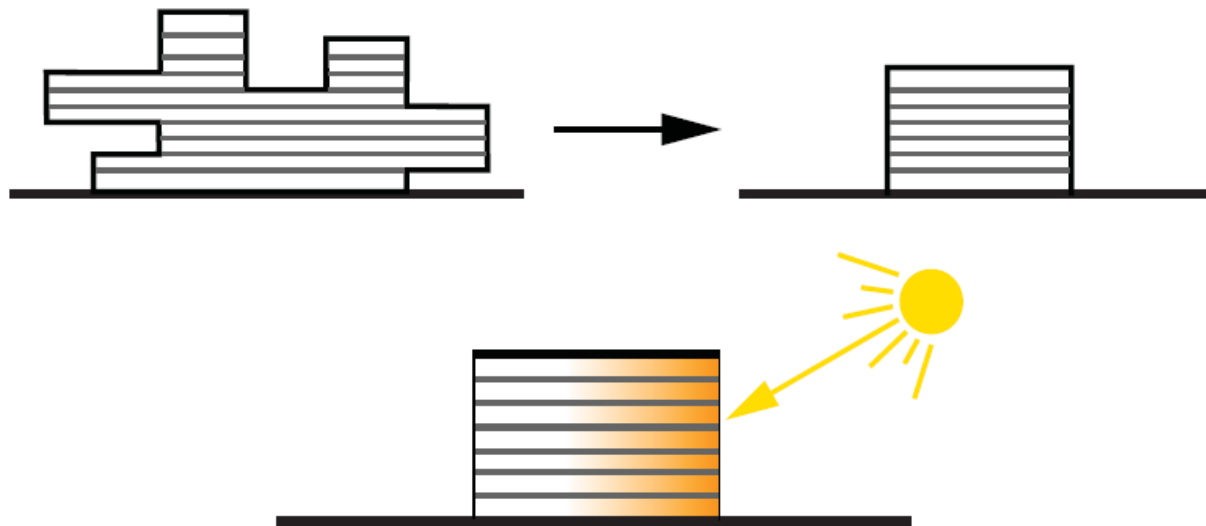


Icon or not?

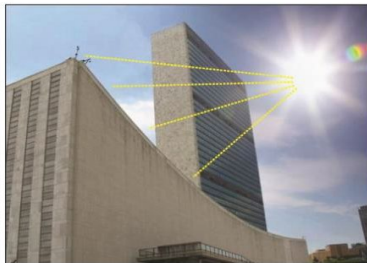
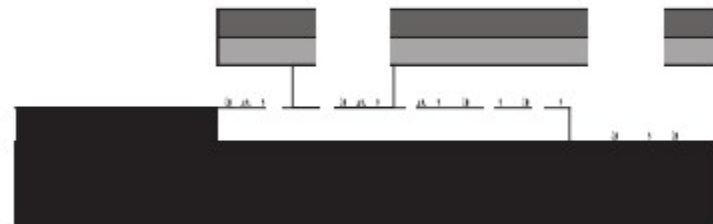
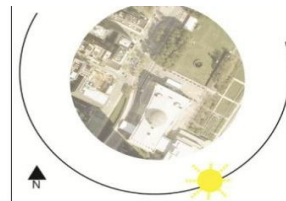
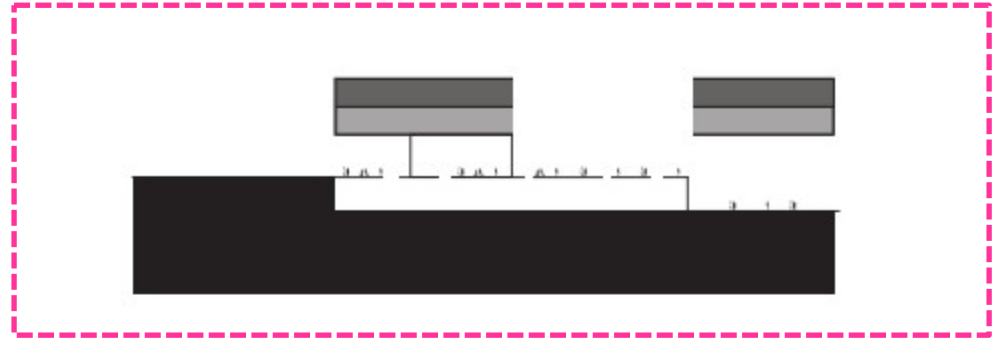


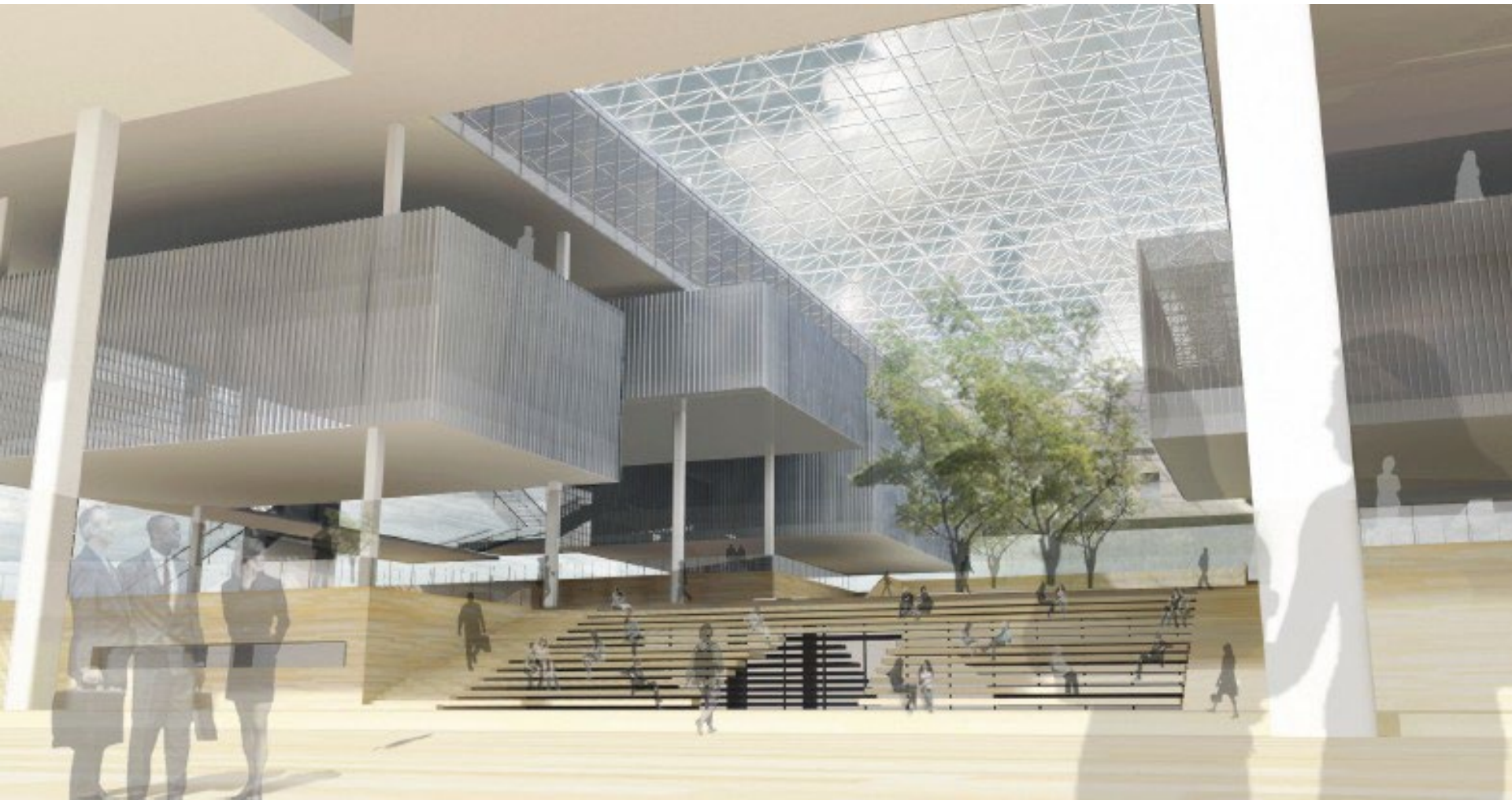
SUSTAINABLE PRINCIPLES

LIMIT THE AMOUNT OF FACADE AREA



Atriums







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Collect	Propagate	Exchange	Produce	General office space	Facilities
1835 m2	1224 m2	3536 m2	3330 m2	2680 m2	2300 m2

USER GROUP

Delegates



press



tourists



staff





User for UNHQ

Programs

Tourists.
Press



council chamber / restaurant / bars / shops / coffee / canteen

Public

Delegates.
Professional

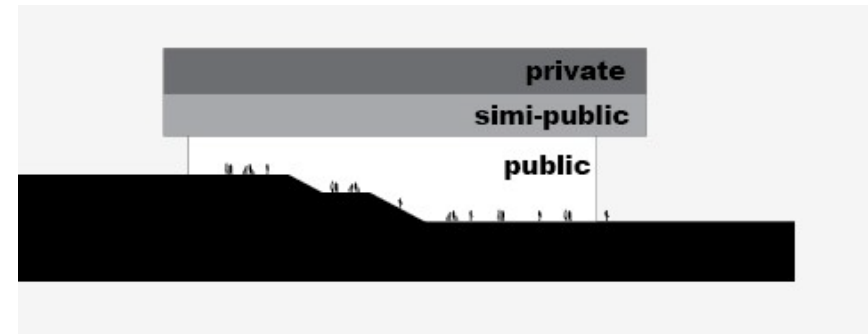
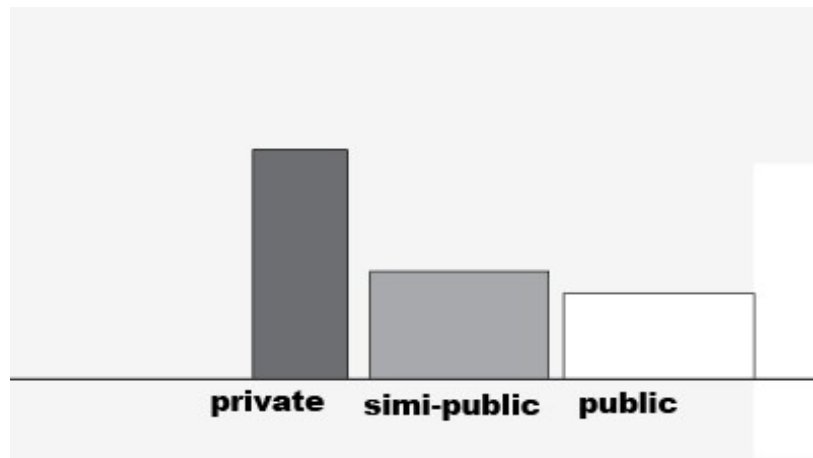
lobby / auditoriums / press room / exposition

Semi-public

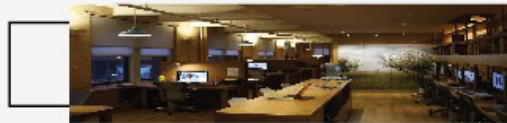
Stuff of UN

offices / library / reading room / workshop / meeting room

Private



private



Offices & workshops



Library and reading rooms

simi-public

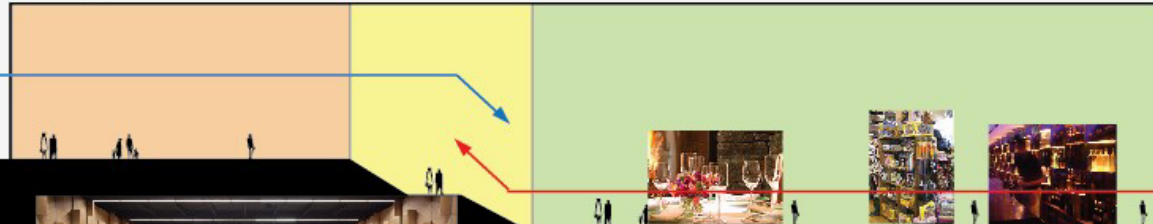


Auditoriums

Delegates entrance Atrium

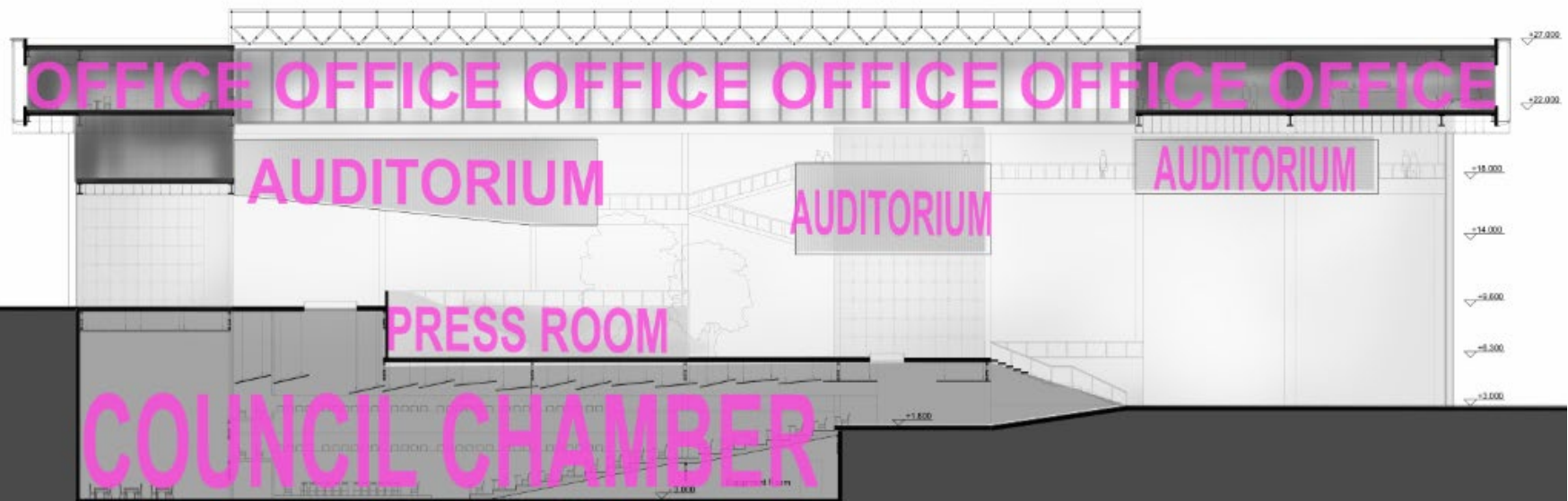
Public entrance

public



Chamber

Restaurants & Shops & press rooms



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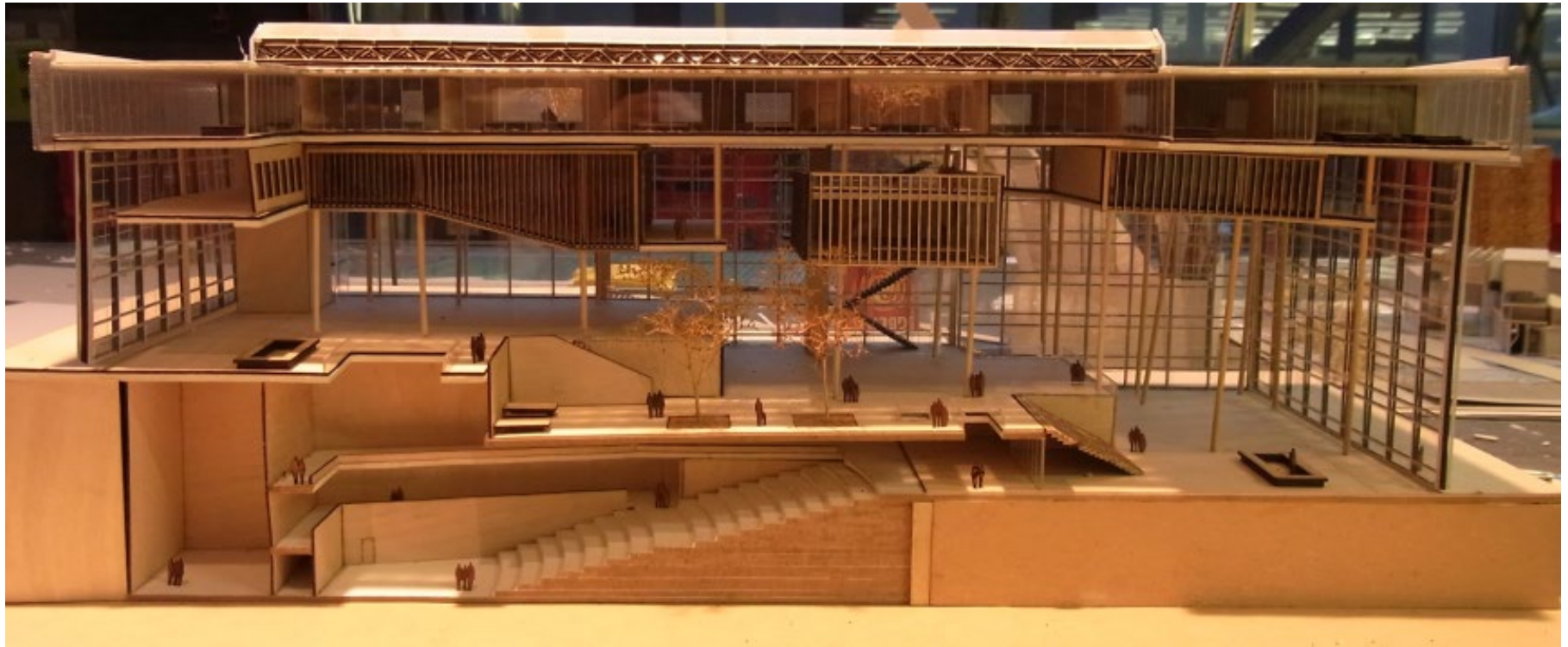
structure design

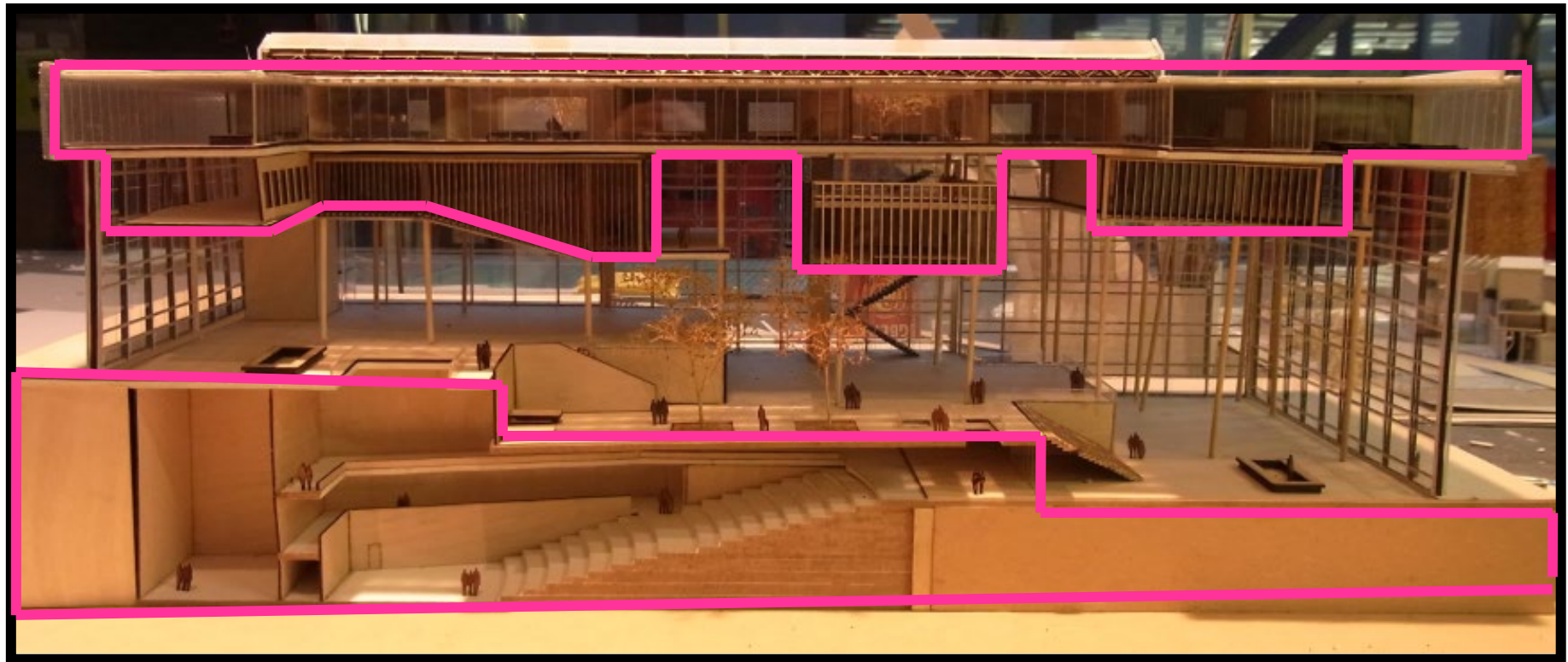
Facade design

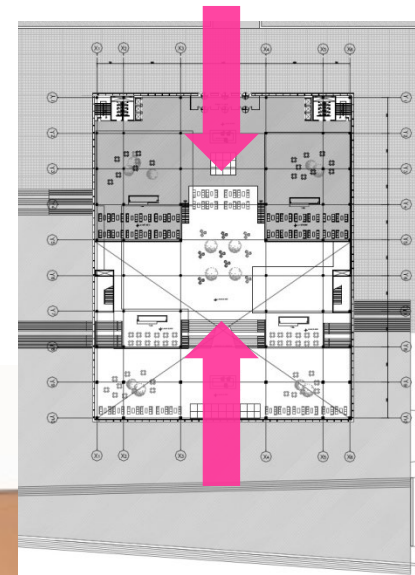
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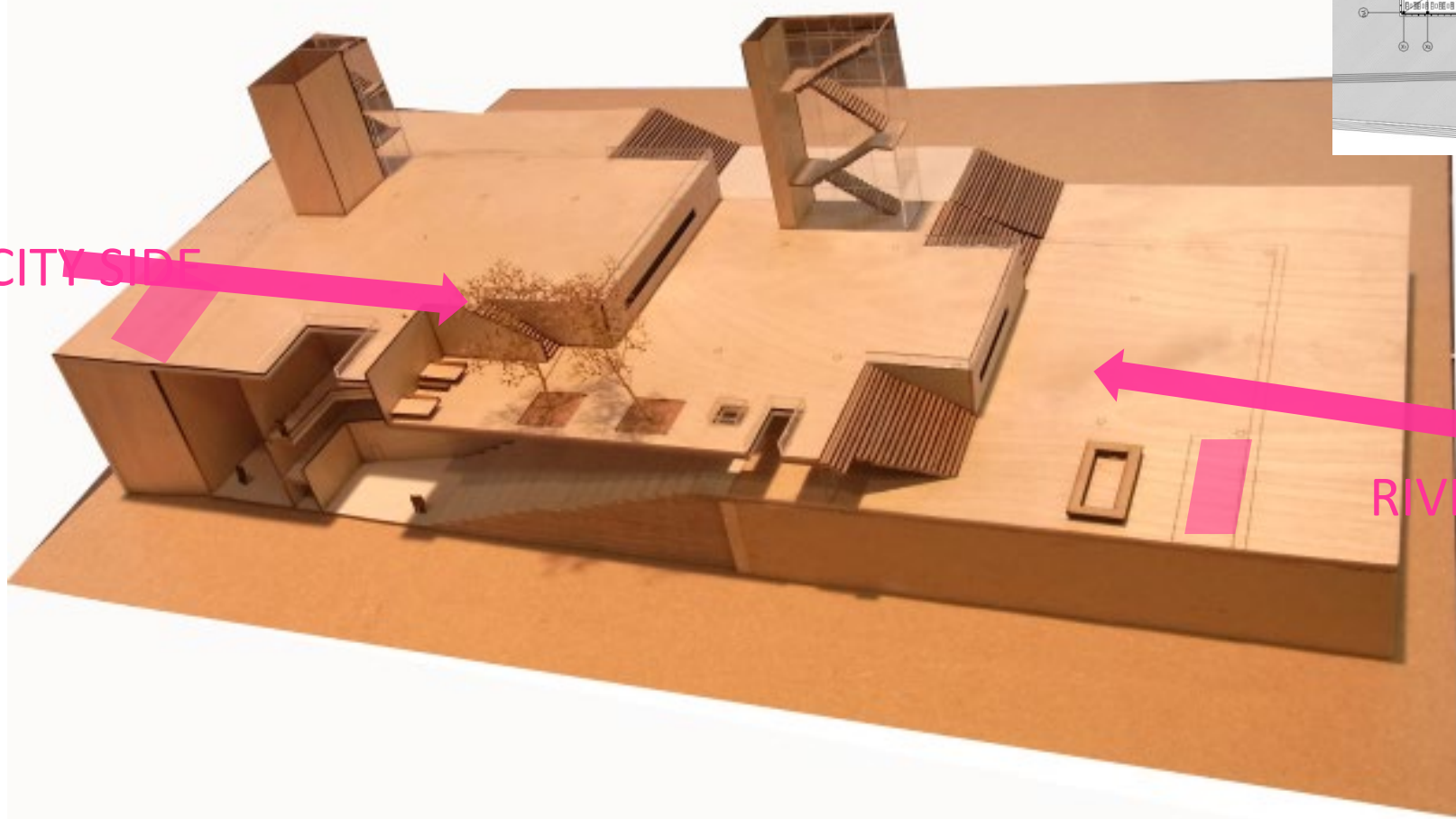






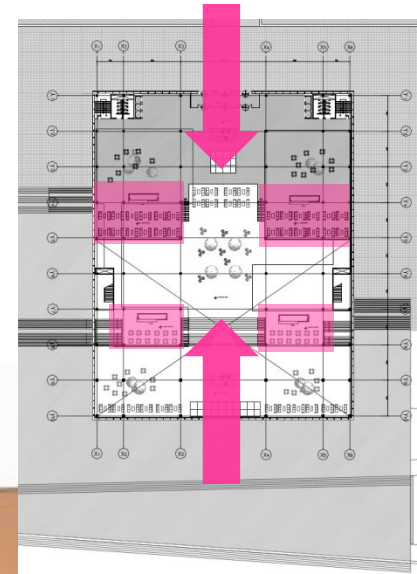
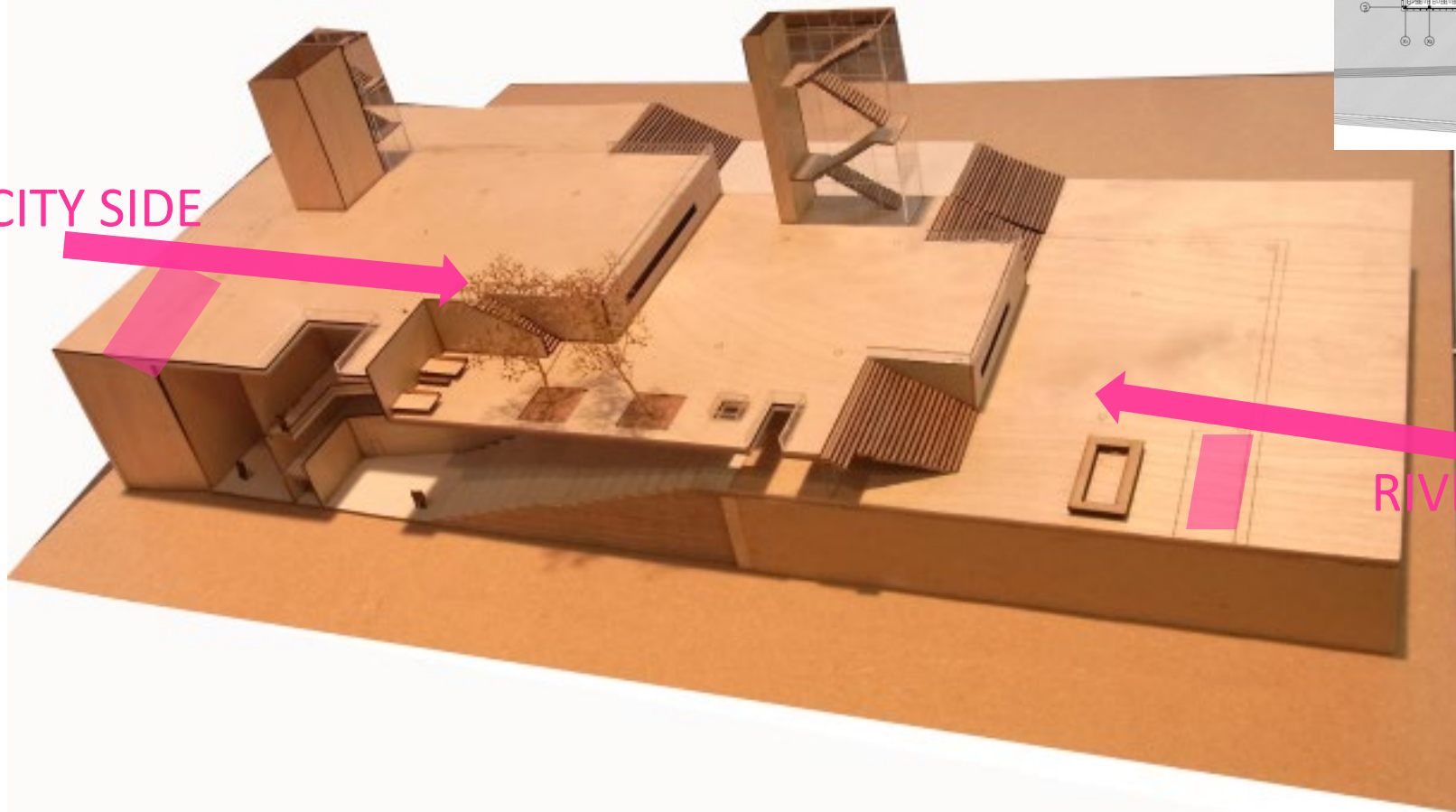
CITY SIDE

RIVER SIDE

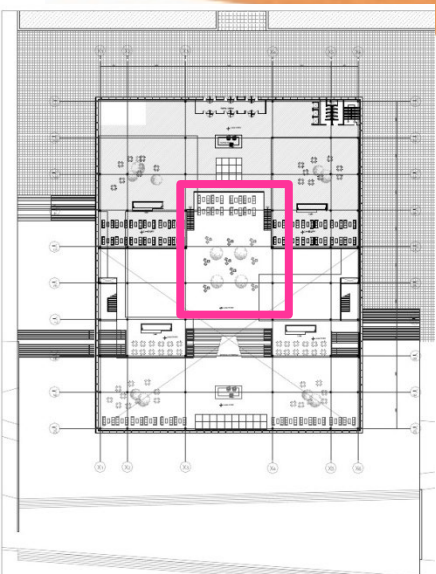
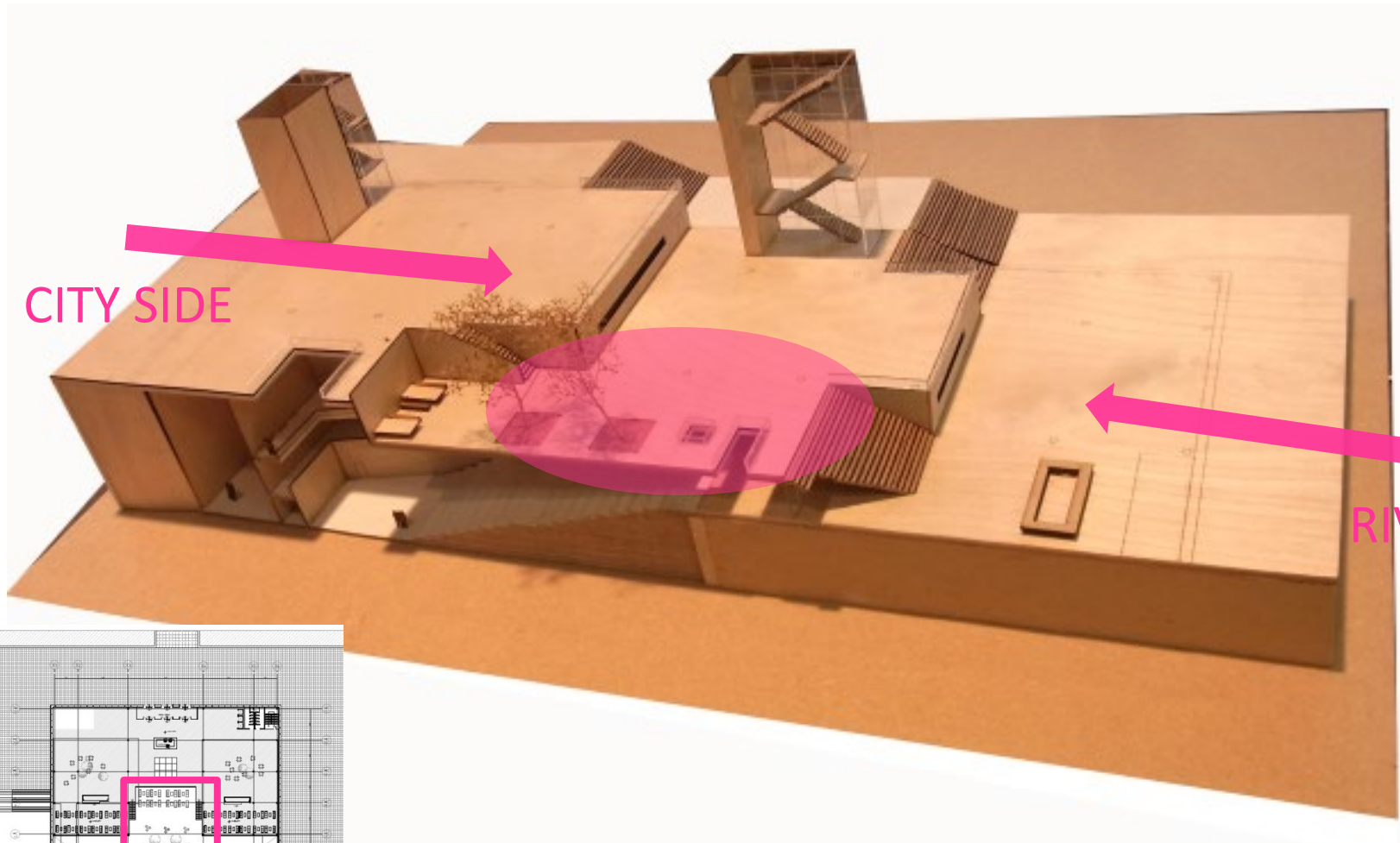


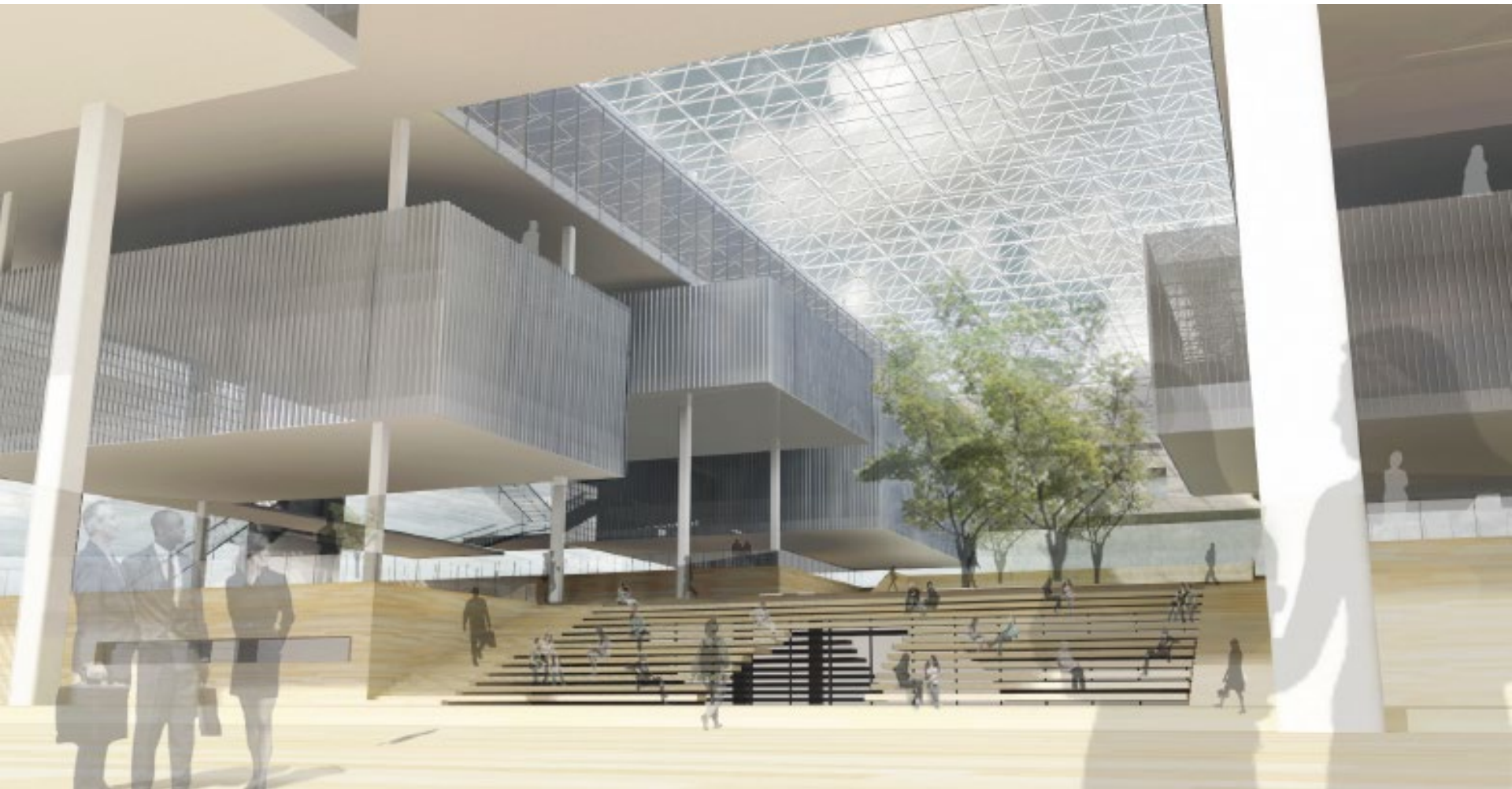


CITY SIDE

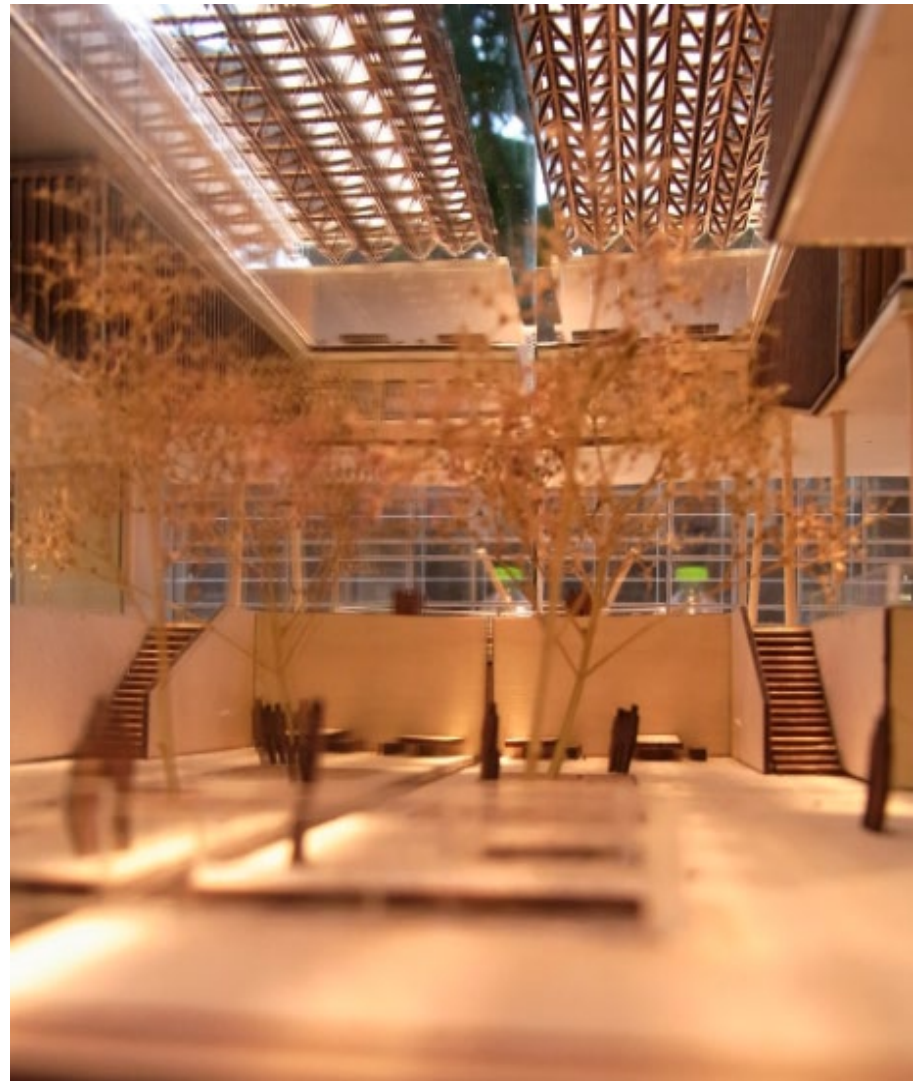


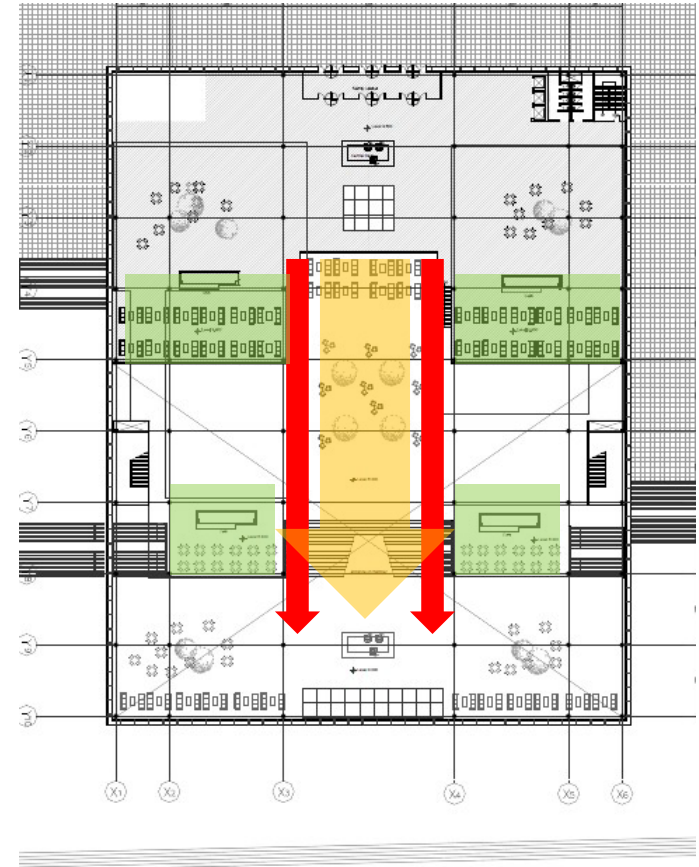
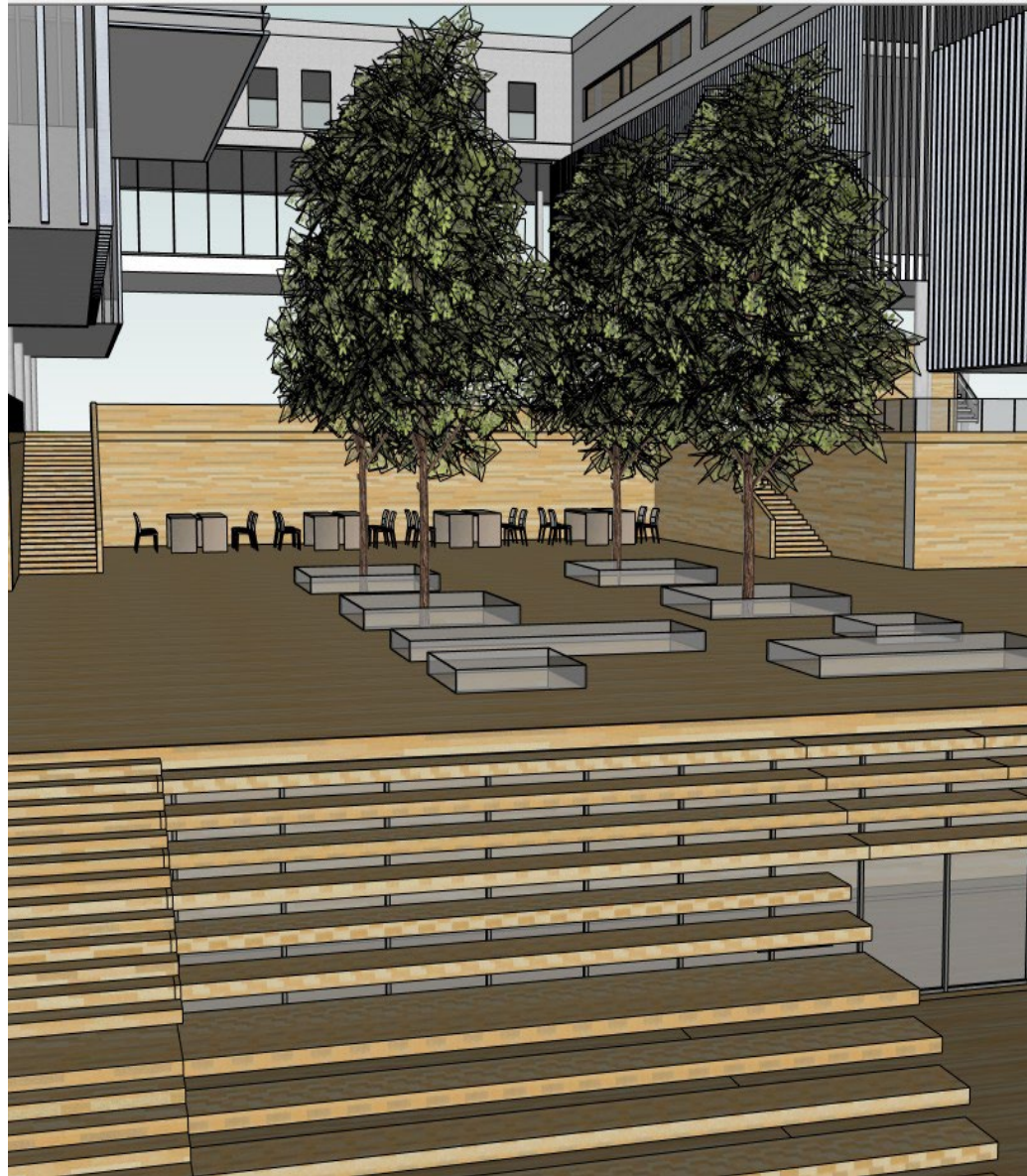
RIVER SIDE

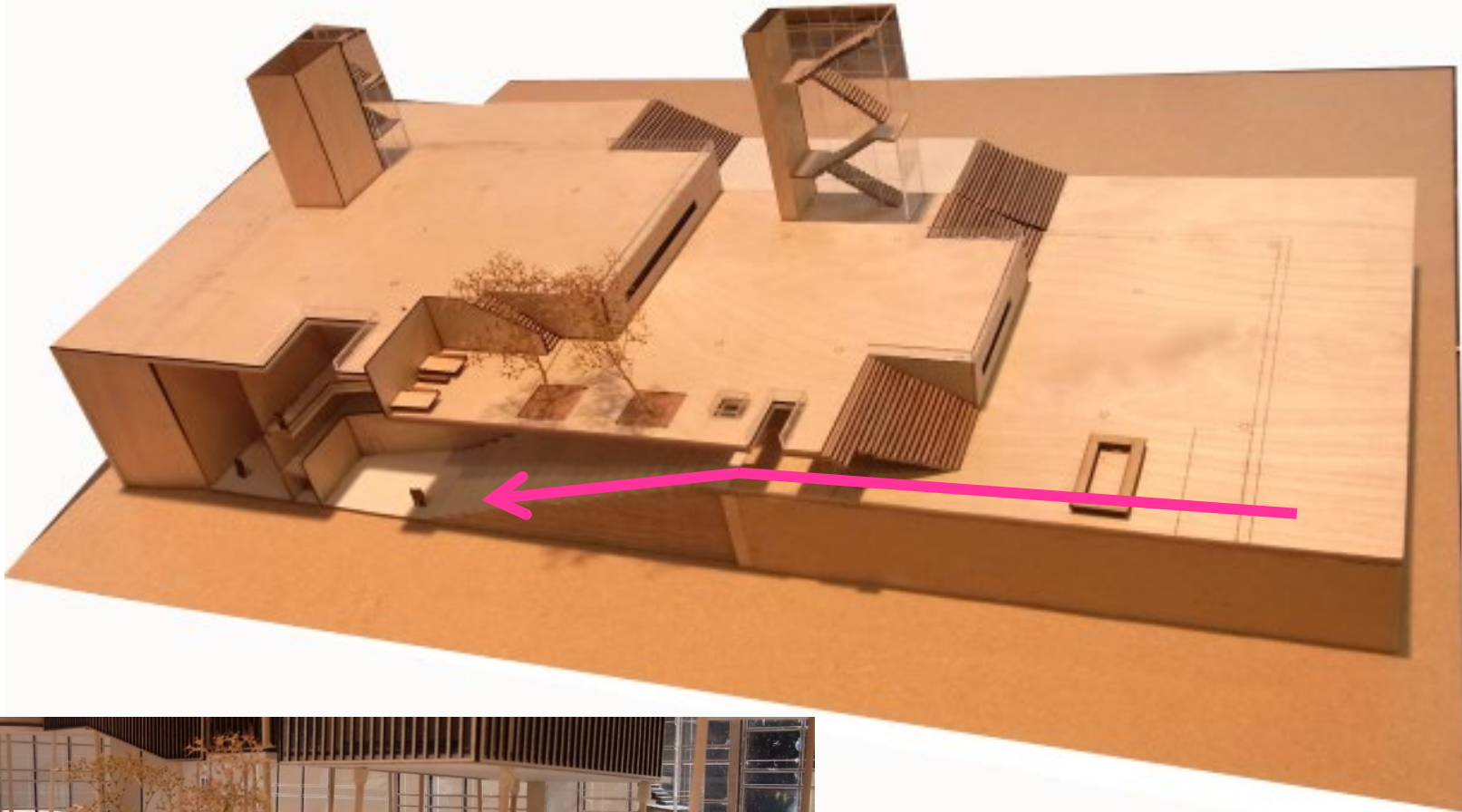


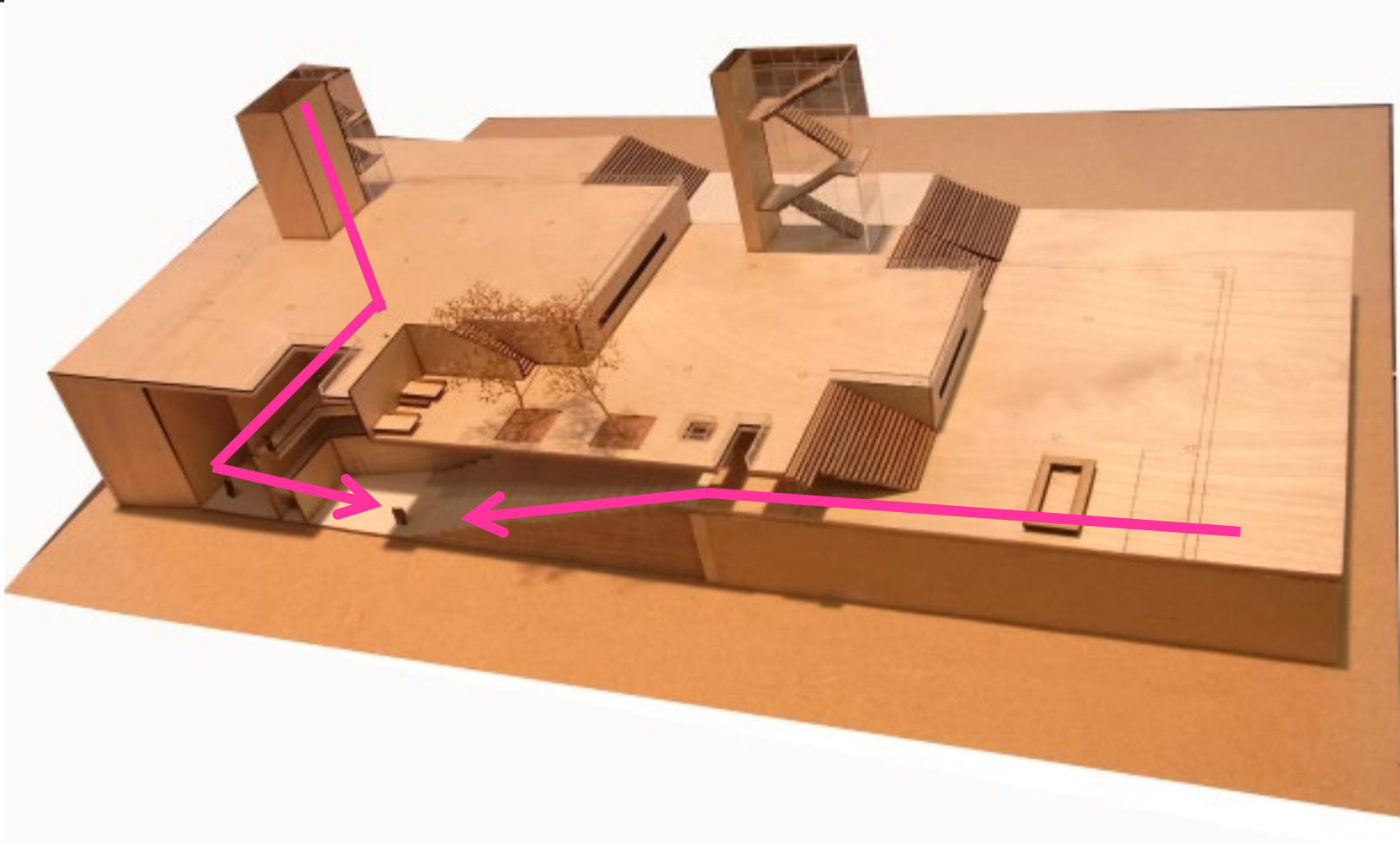


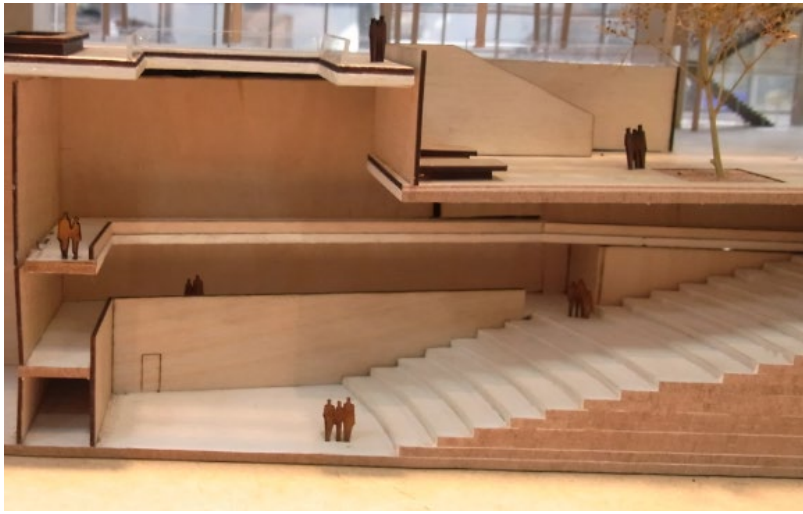


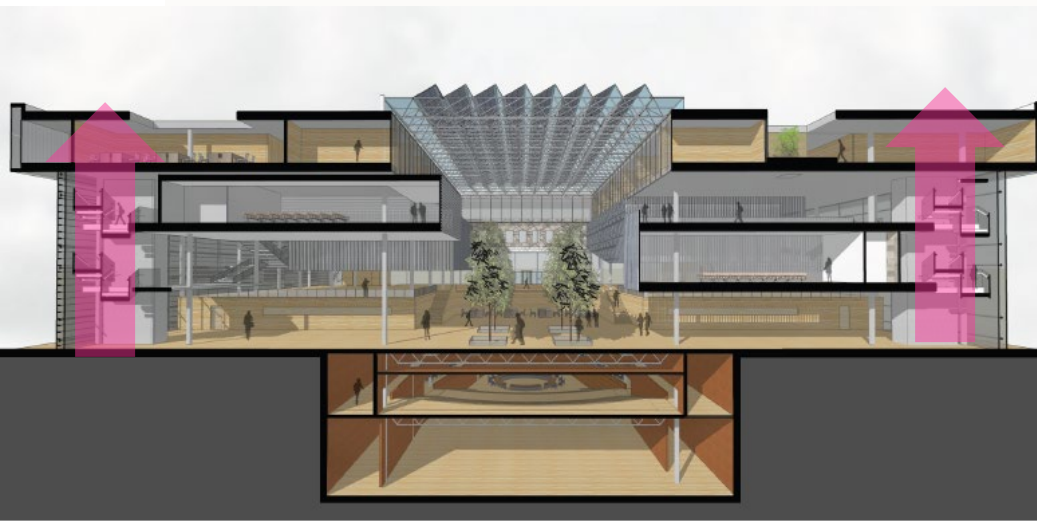
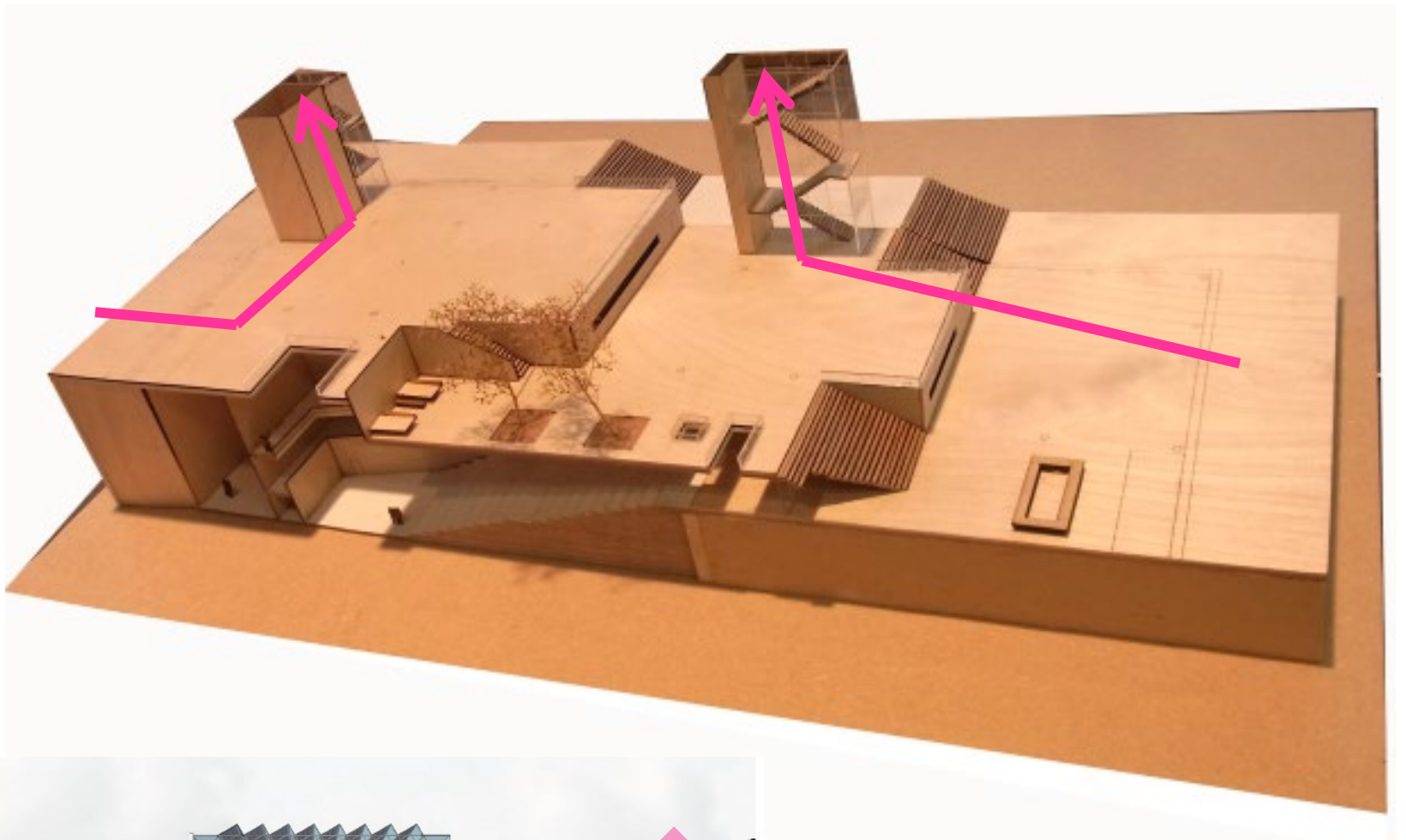


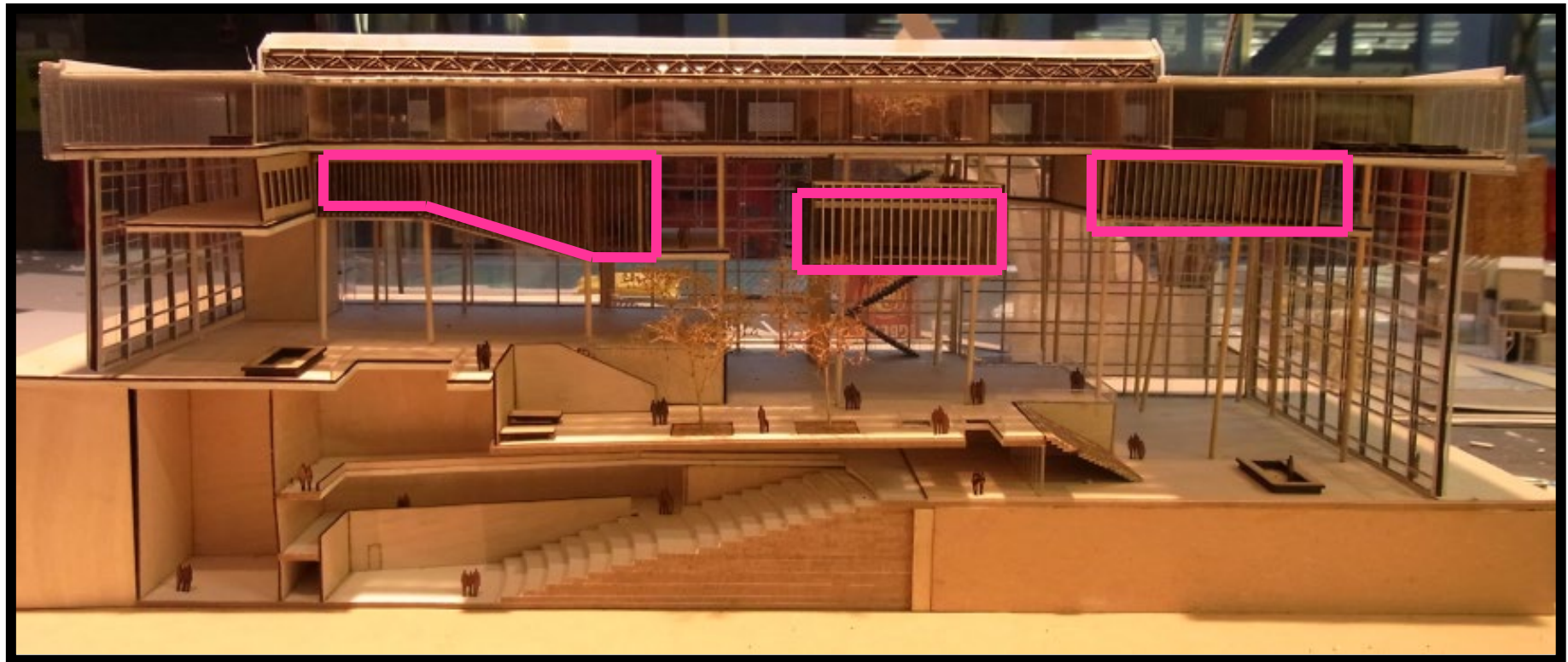


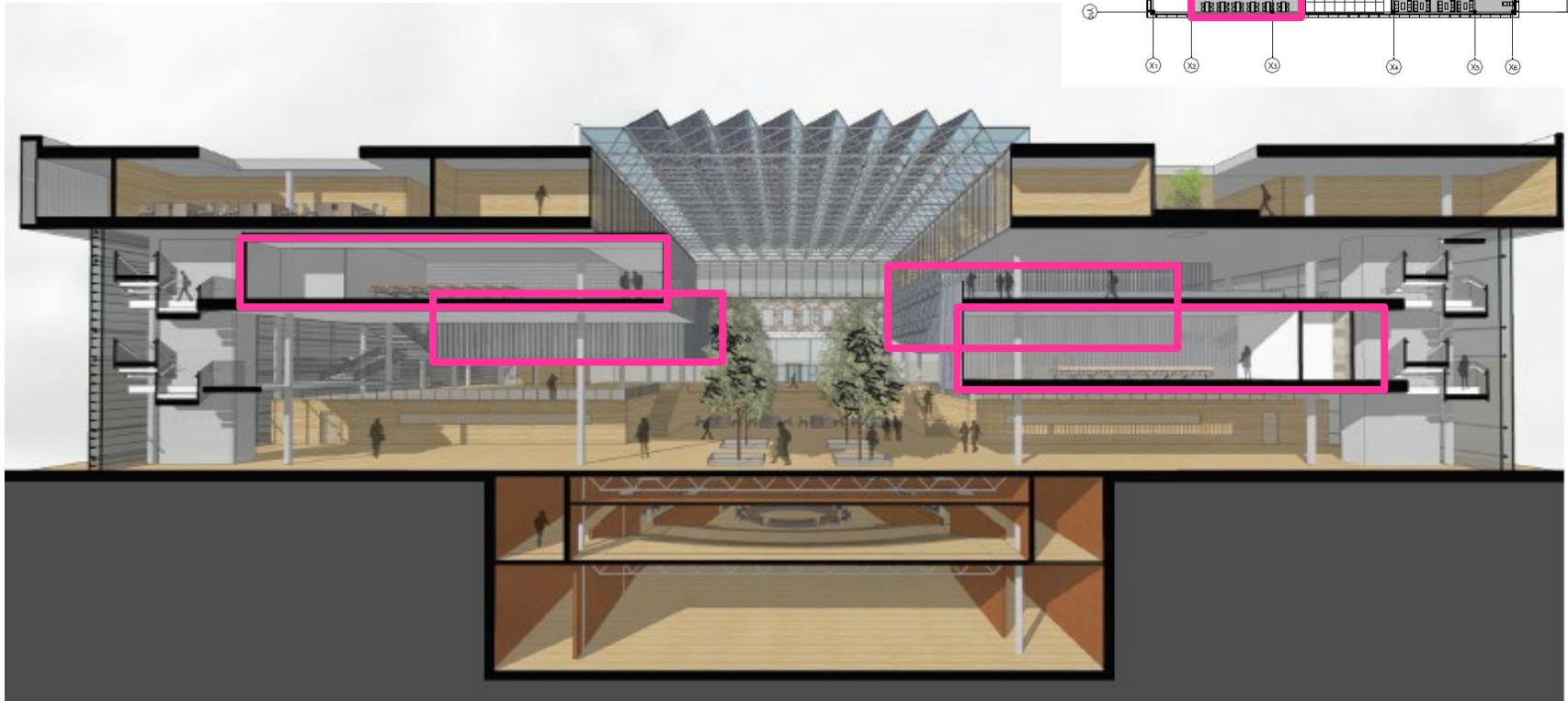
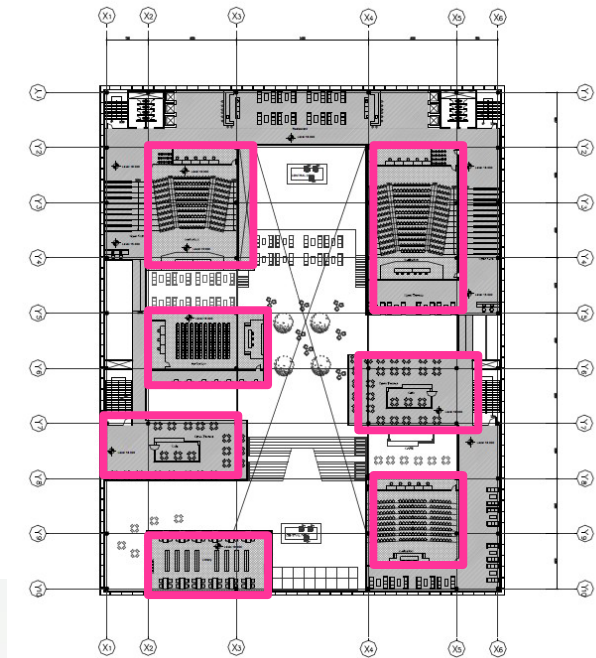




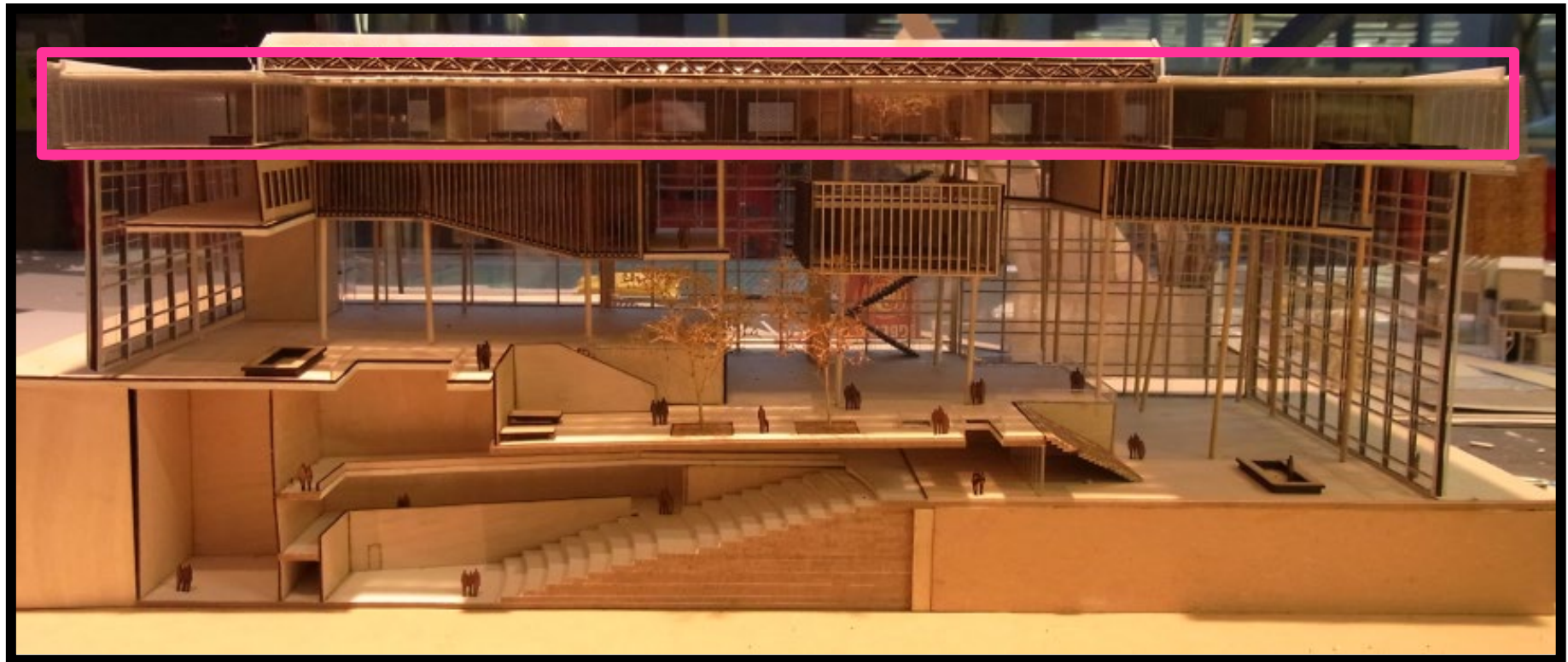




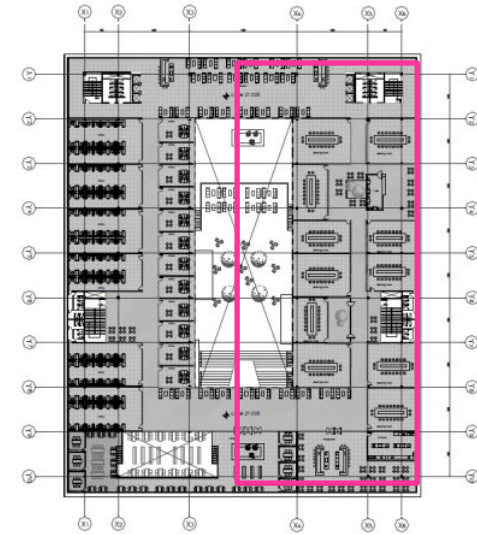


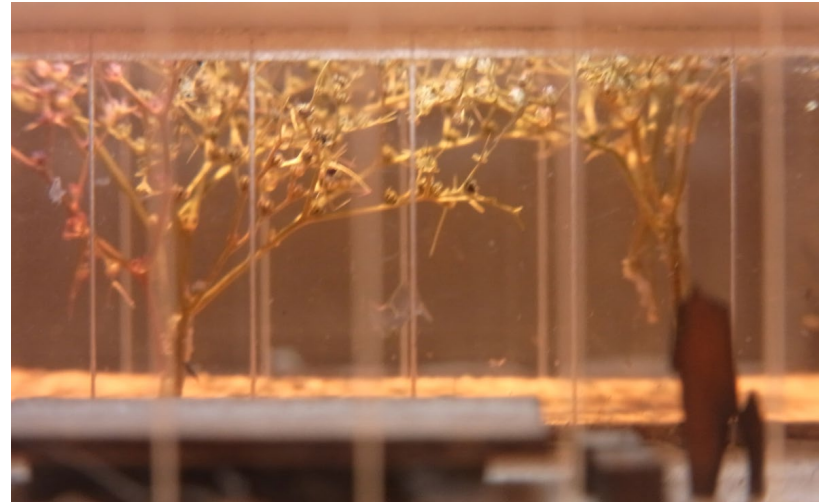


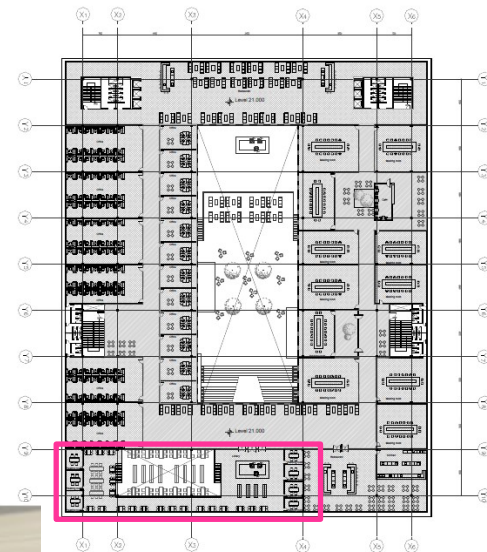


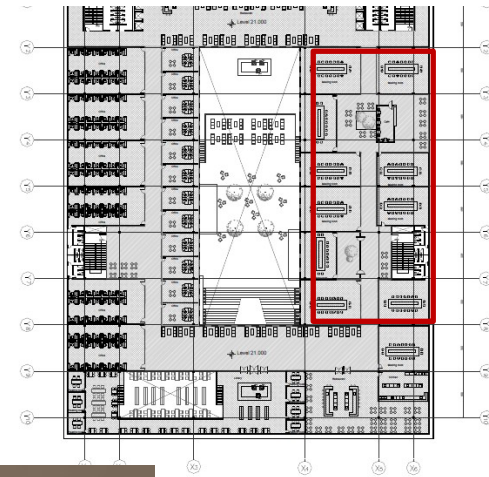












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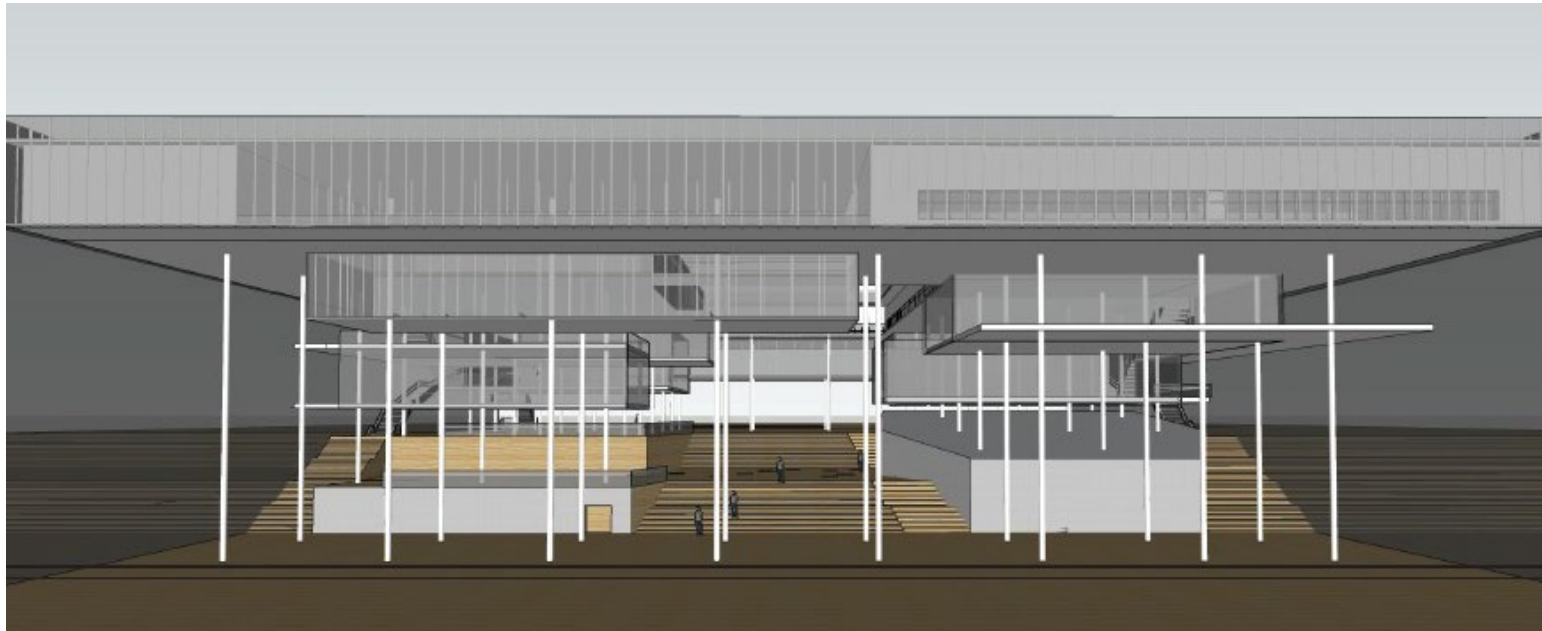
structure design

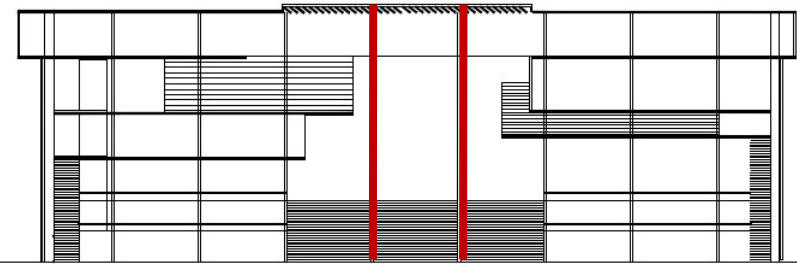
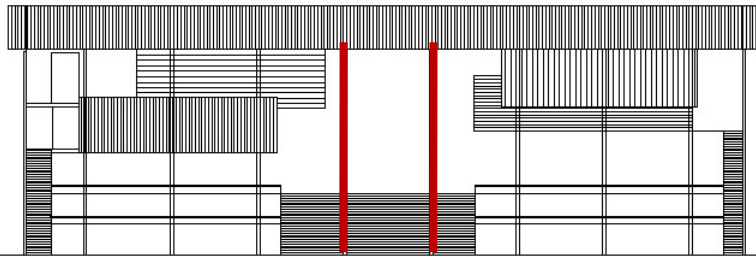
Facade design

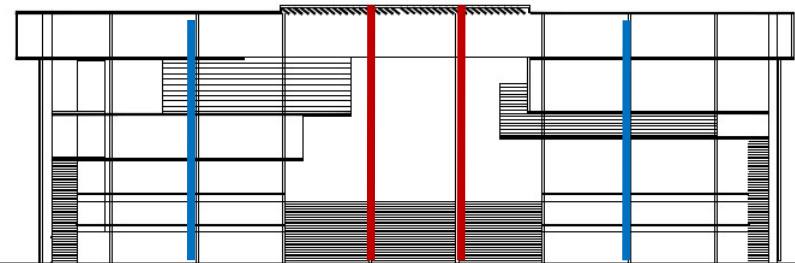
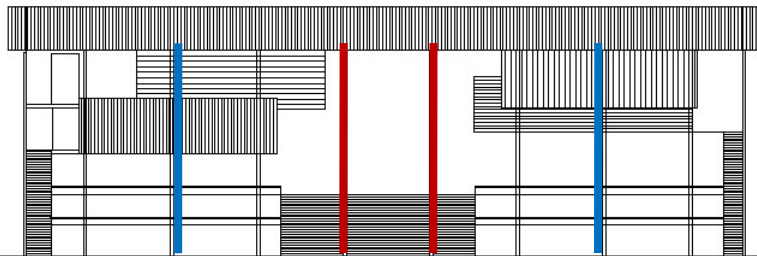
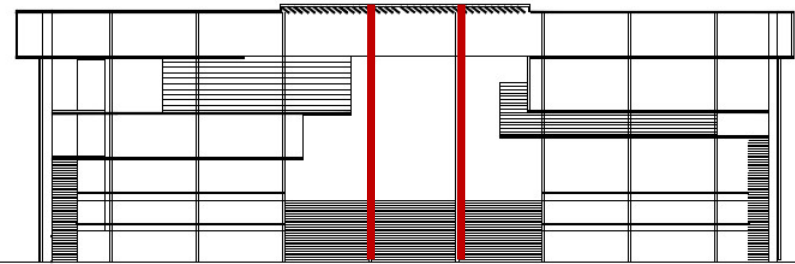
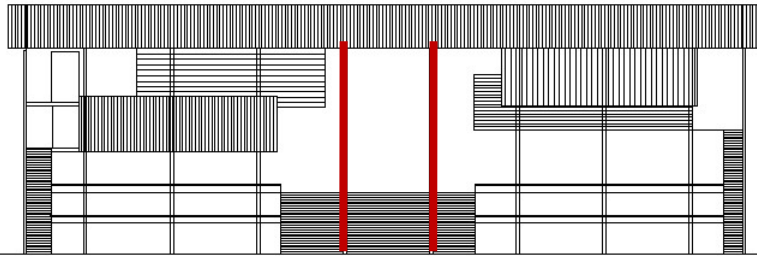
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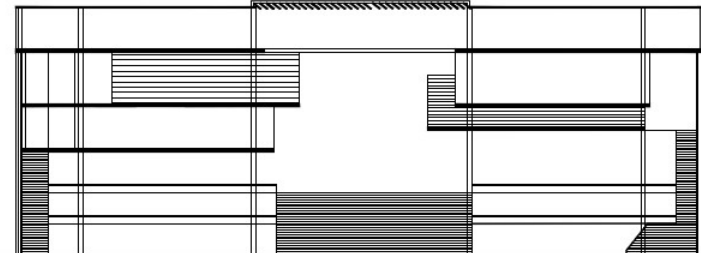
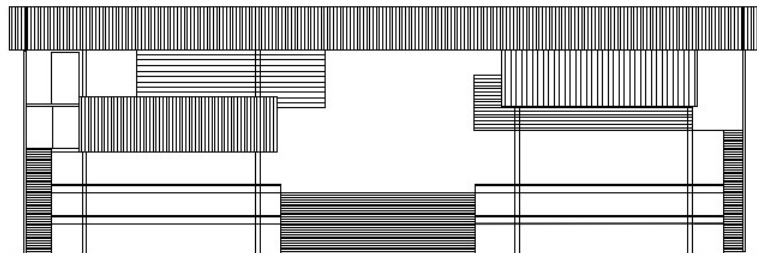
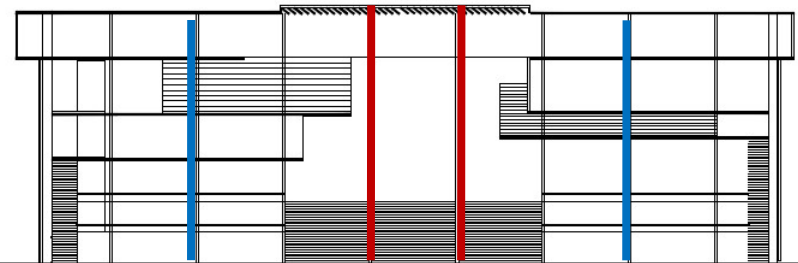
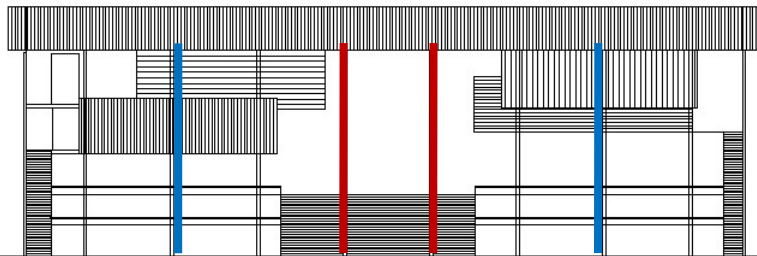
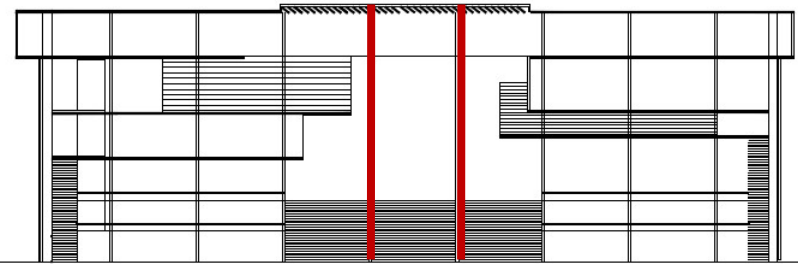
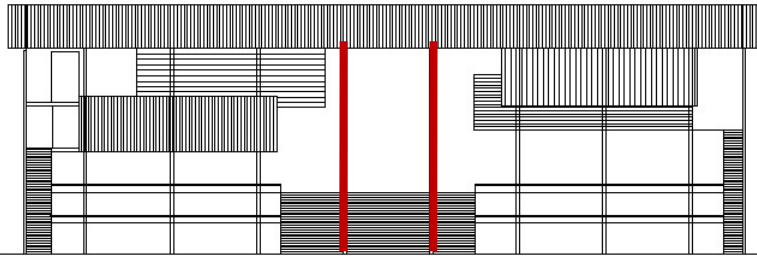
Ventilation

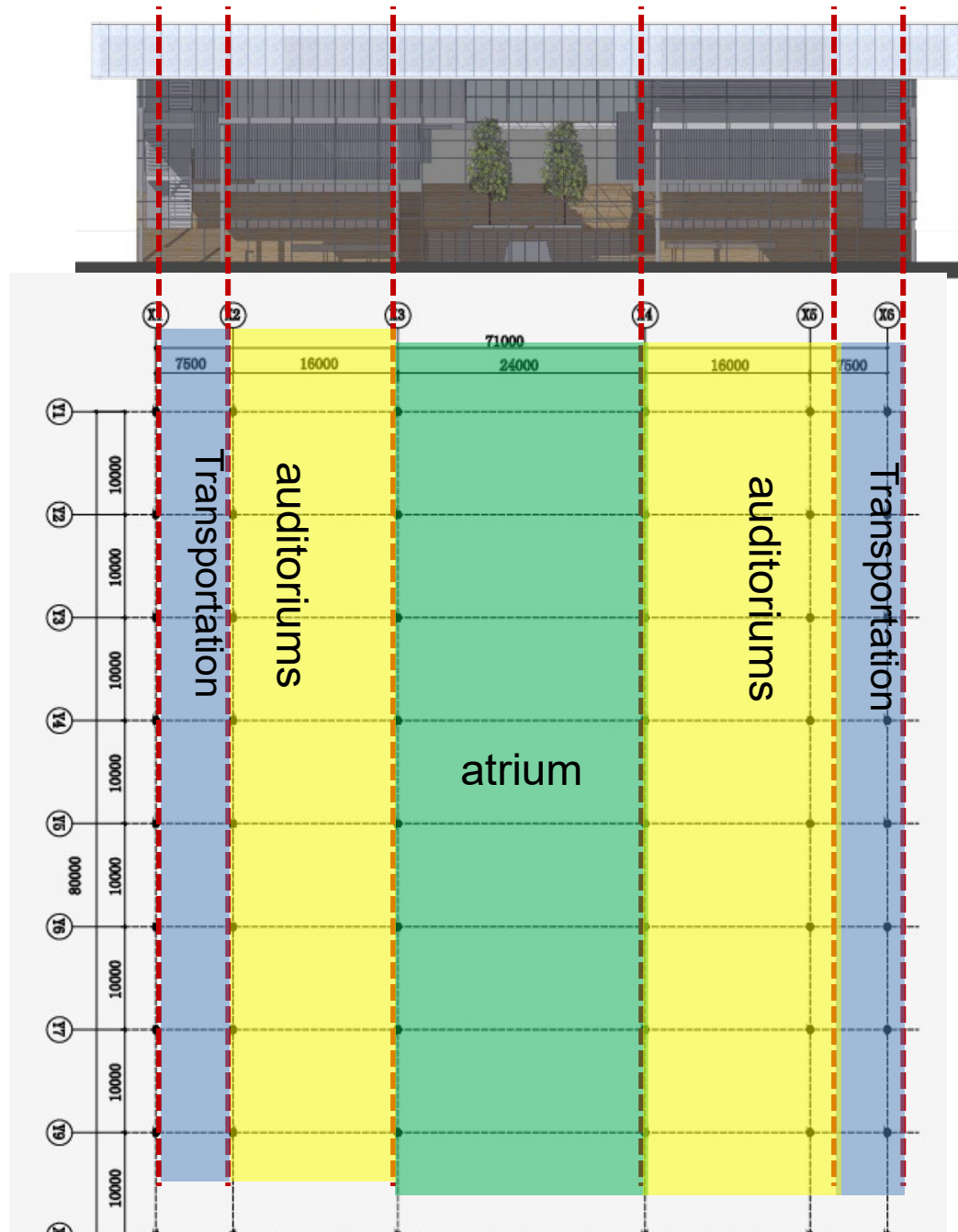
Heating and cooling

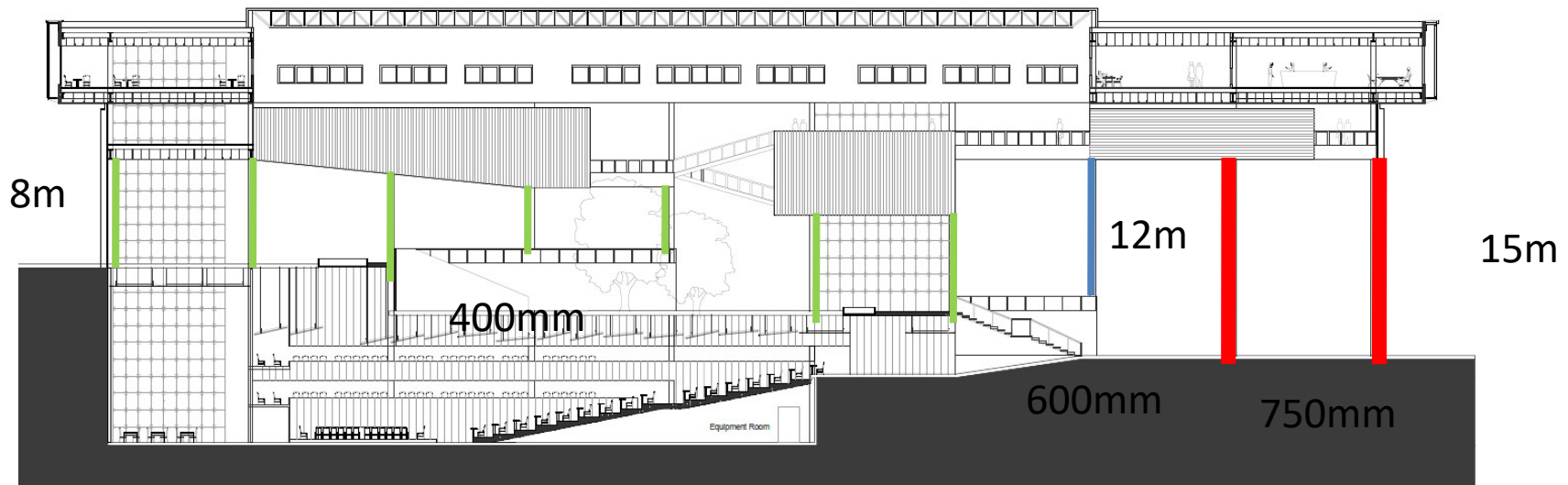
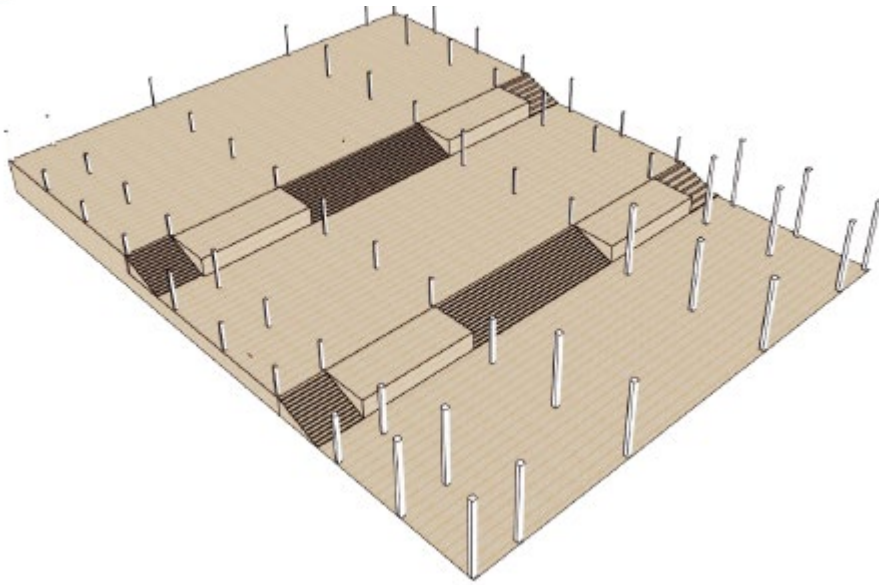


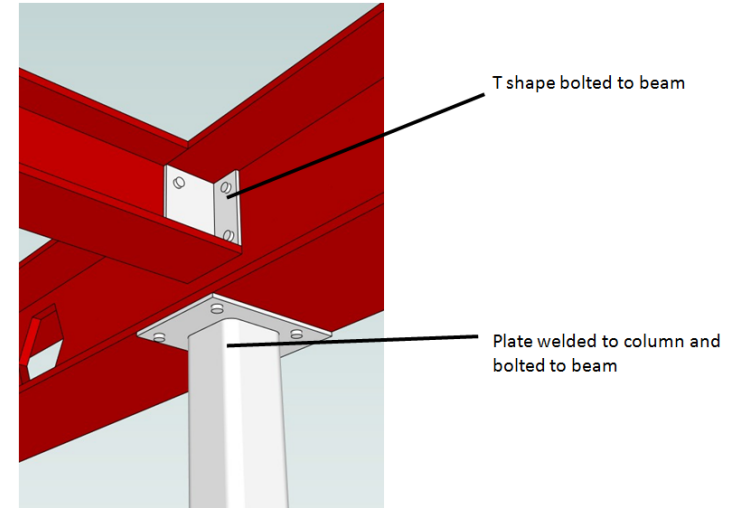
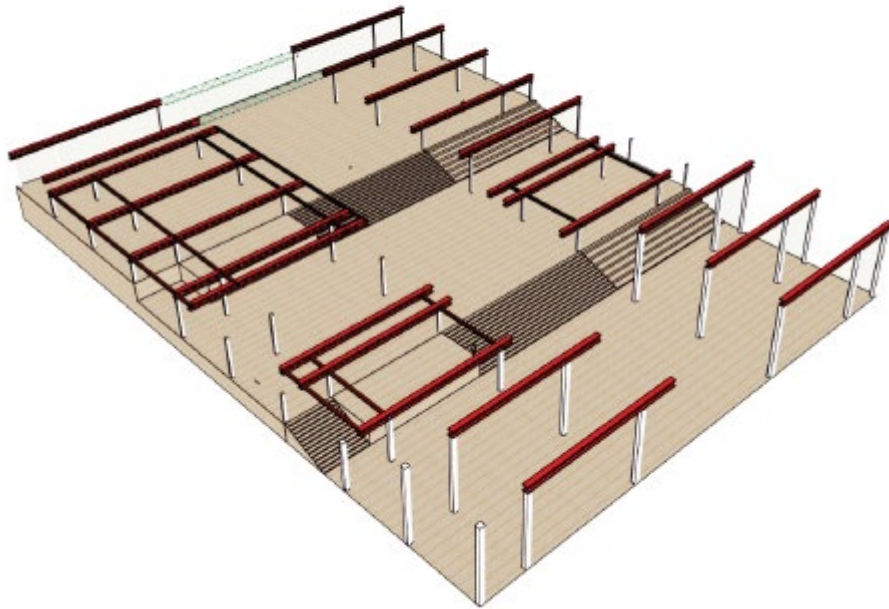






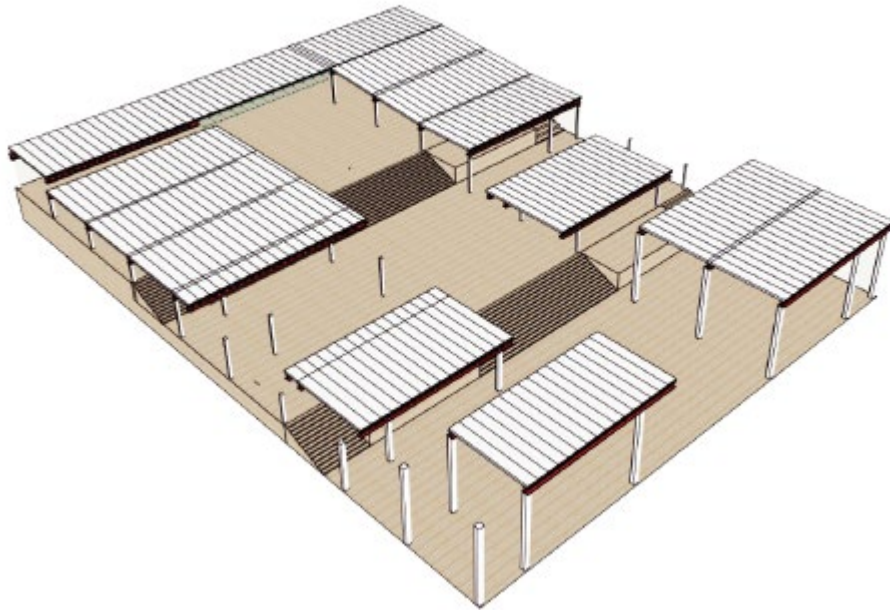


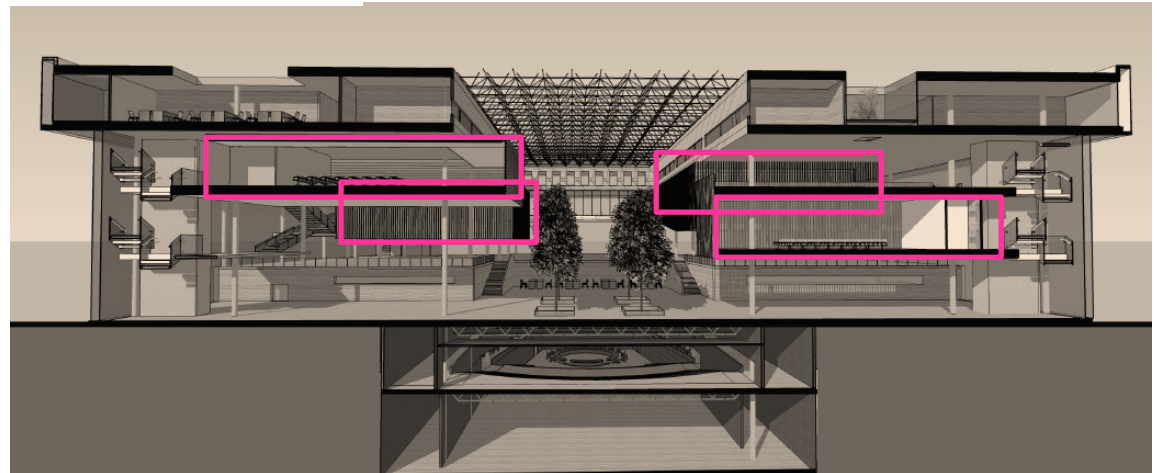
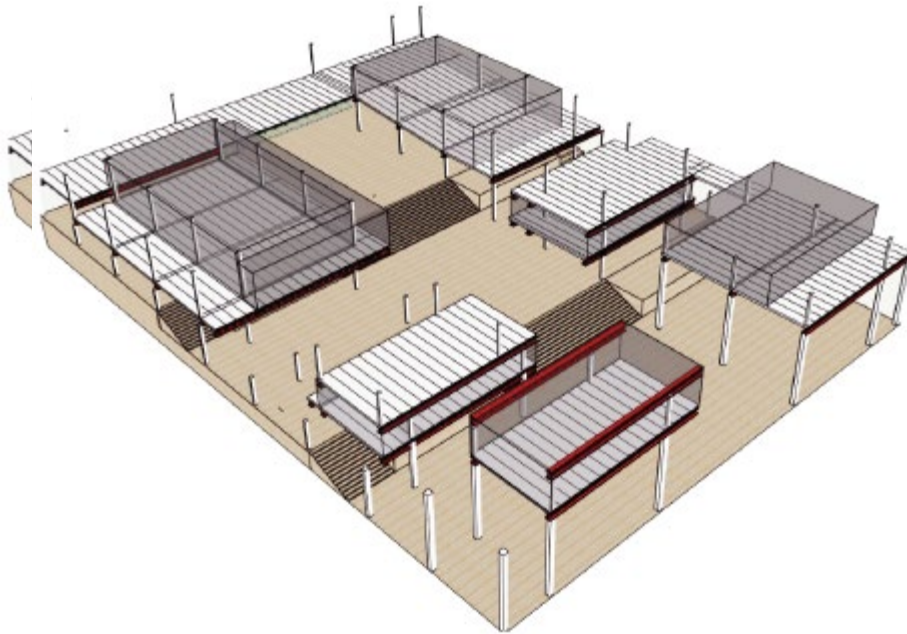


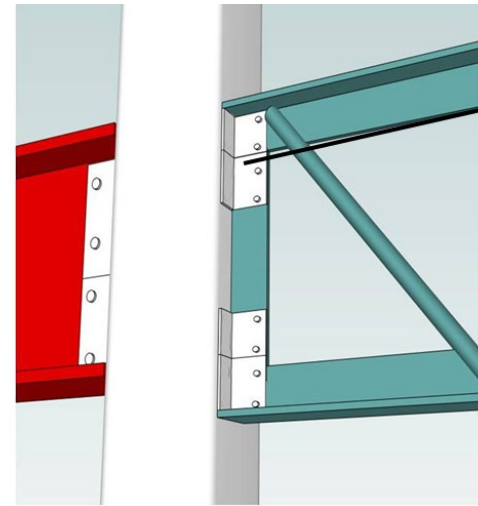
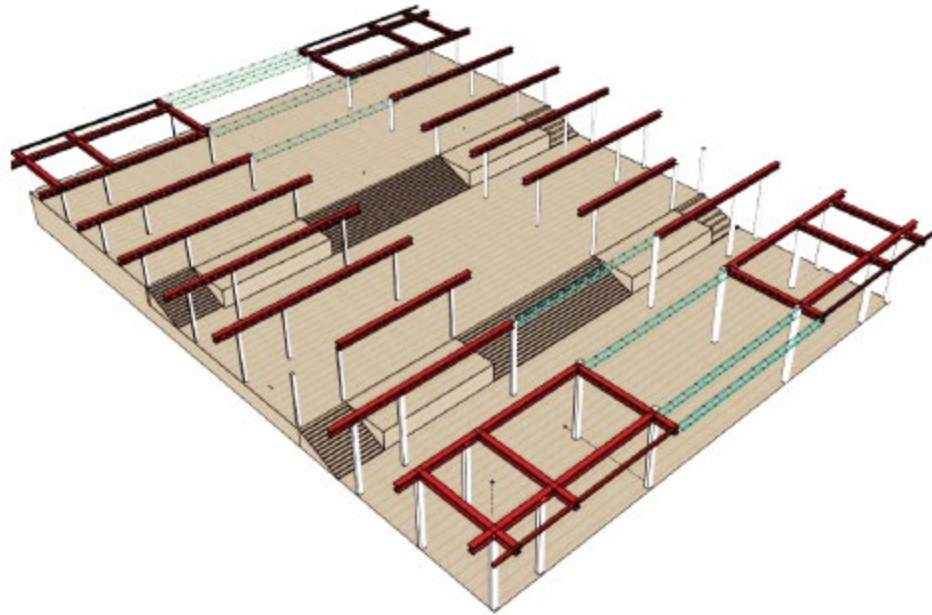


Cellular beam

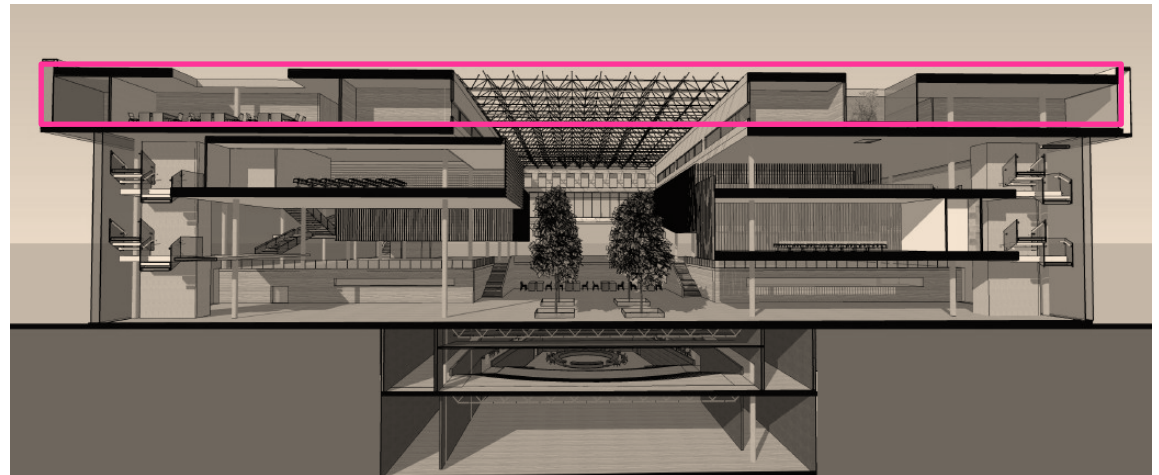


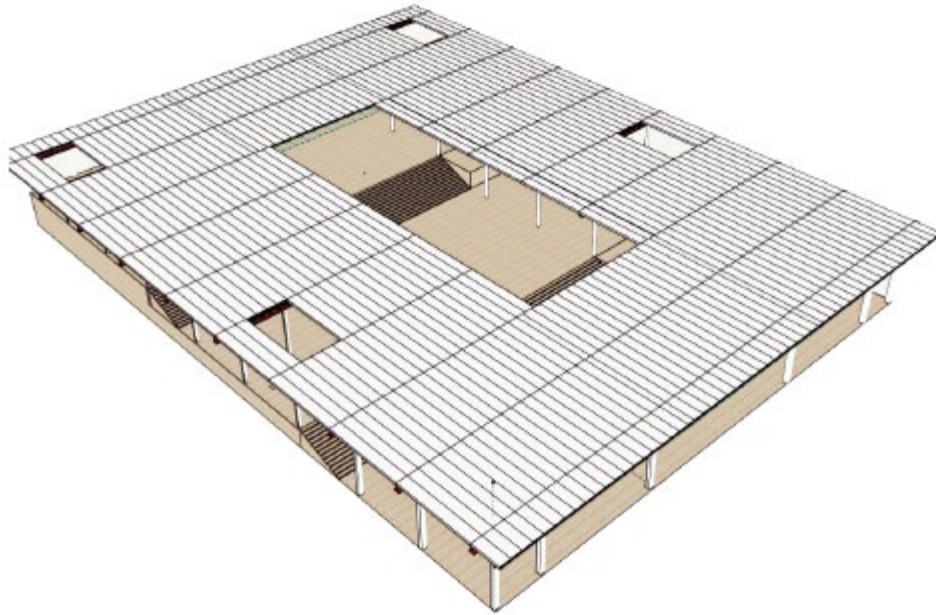


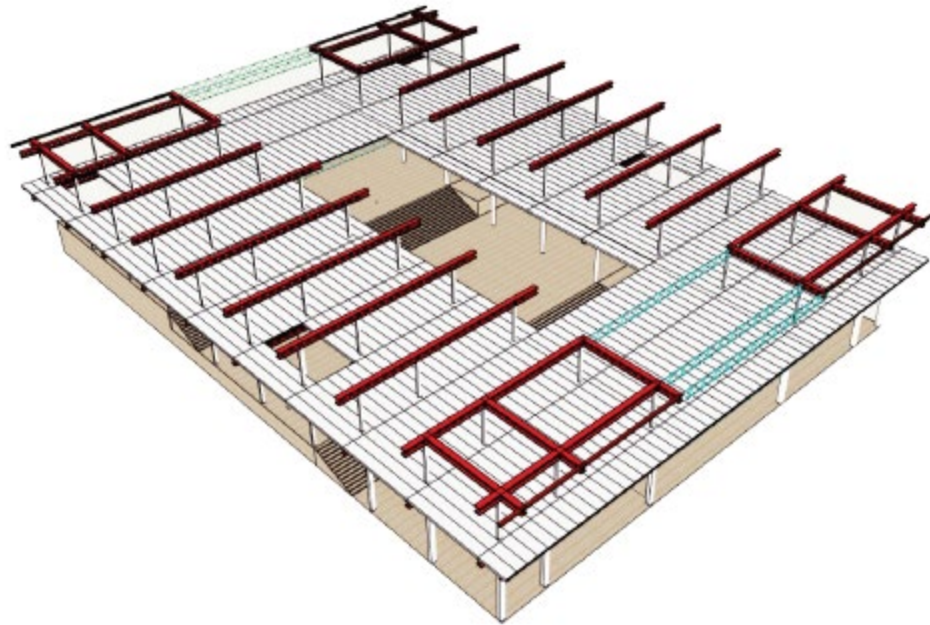


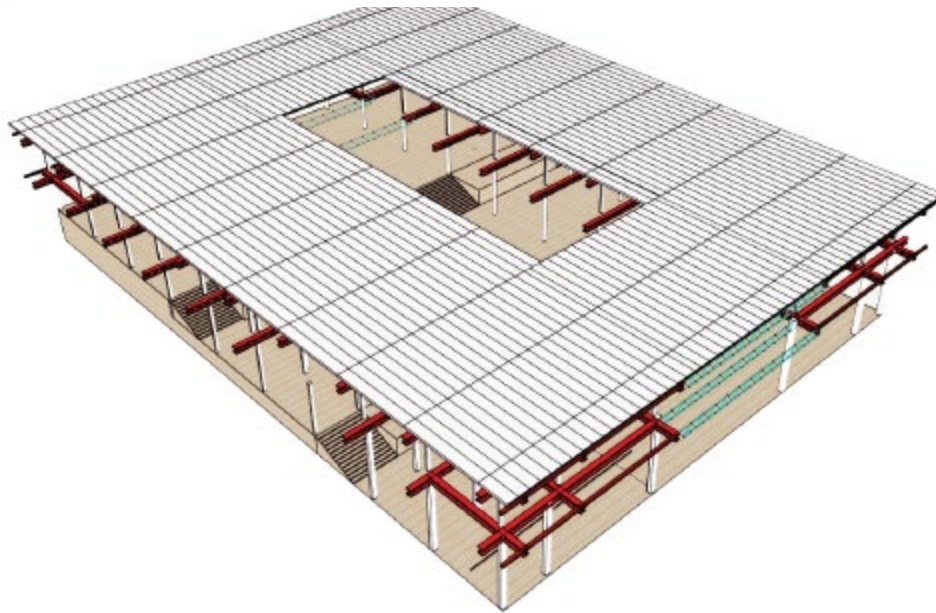


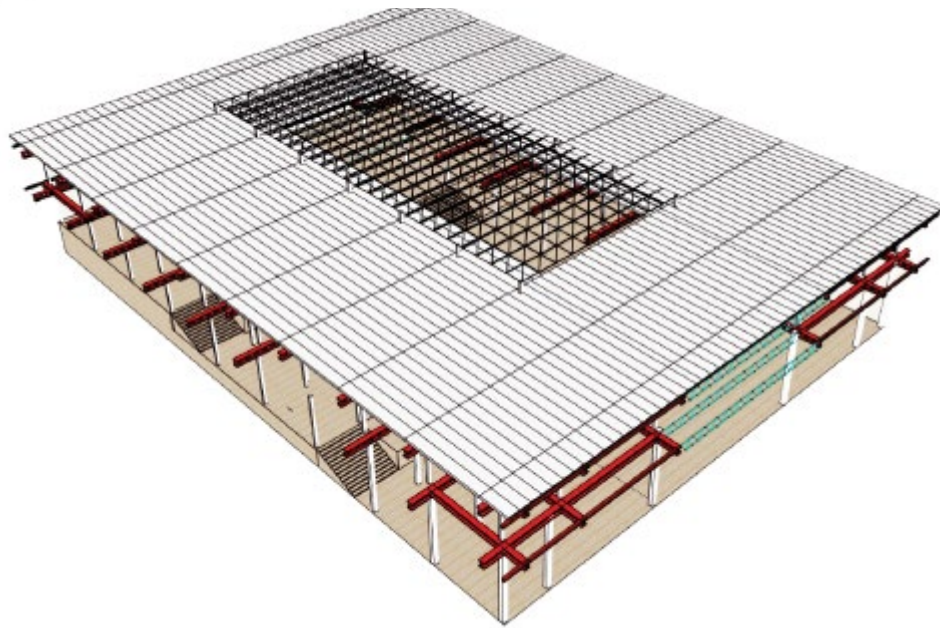
T shape welded to column
and bolted to beam





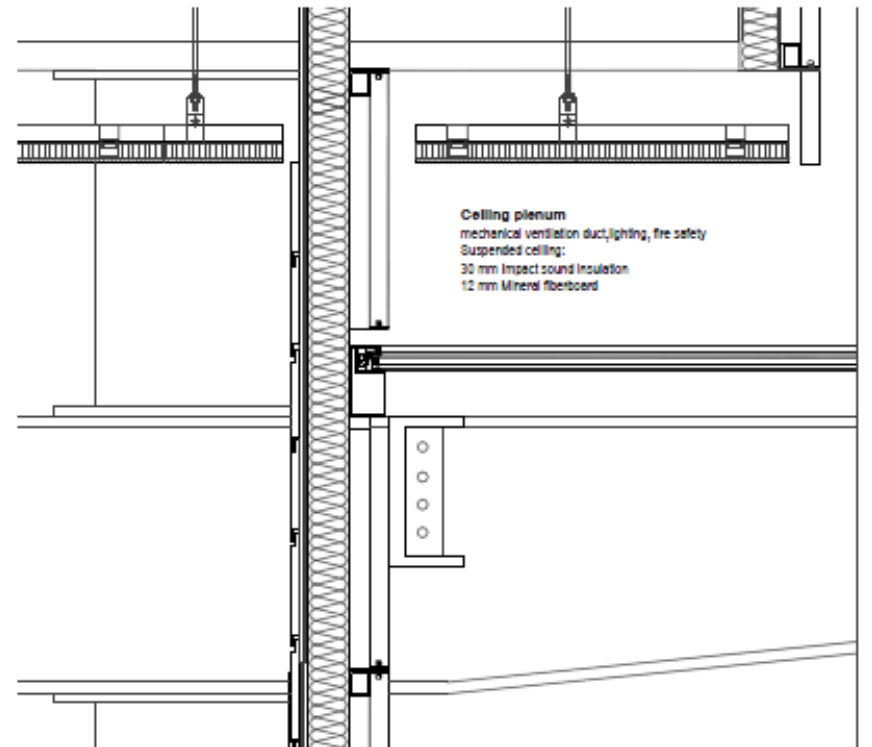
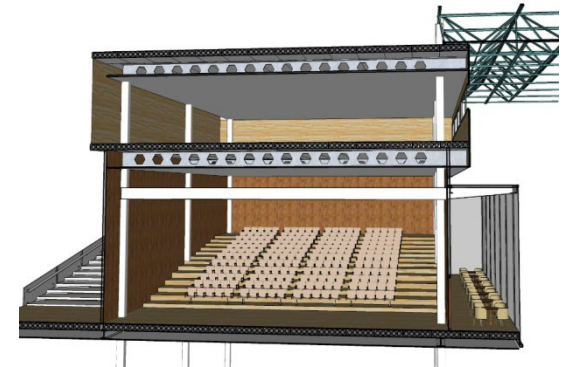
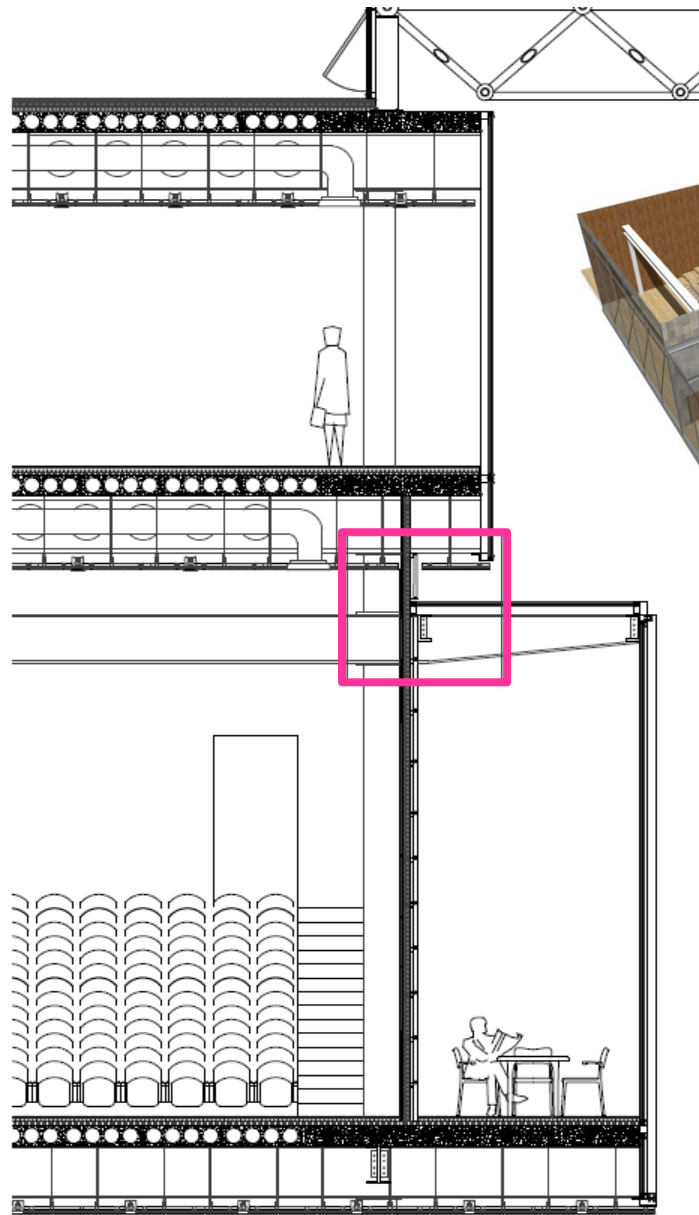












Contents

- **Idea and aims**

Urban position

site design

Architectural position

The Concept

- **Architecture design**

Form investigation

Program analysis

Floor plan design

Space design

Route analysis

structure design

Facade design

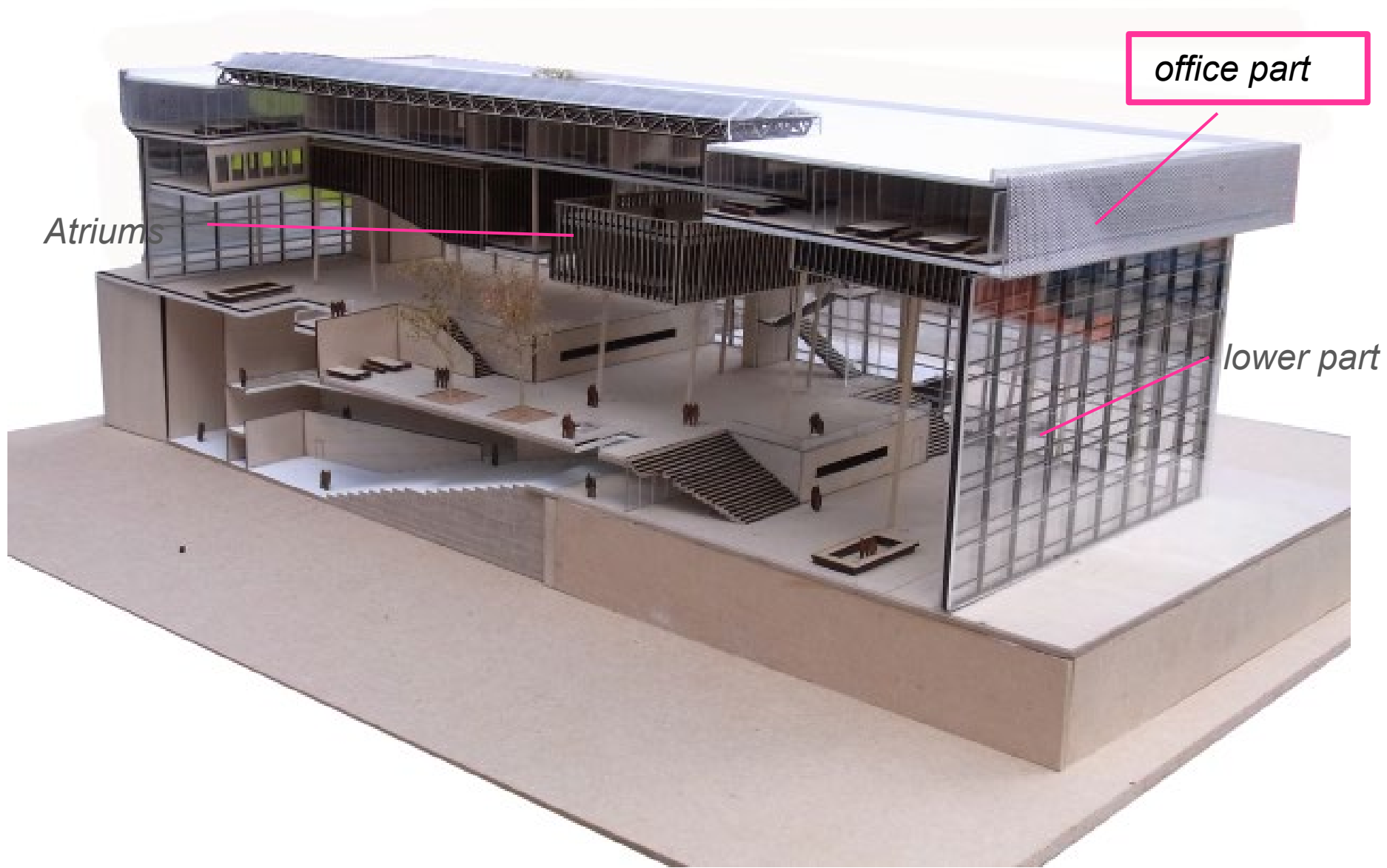
- **Climate control**

Ventilation

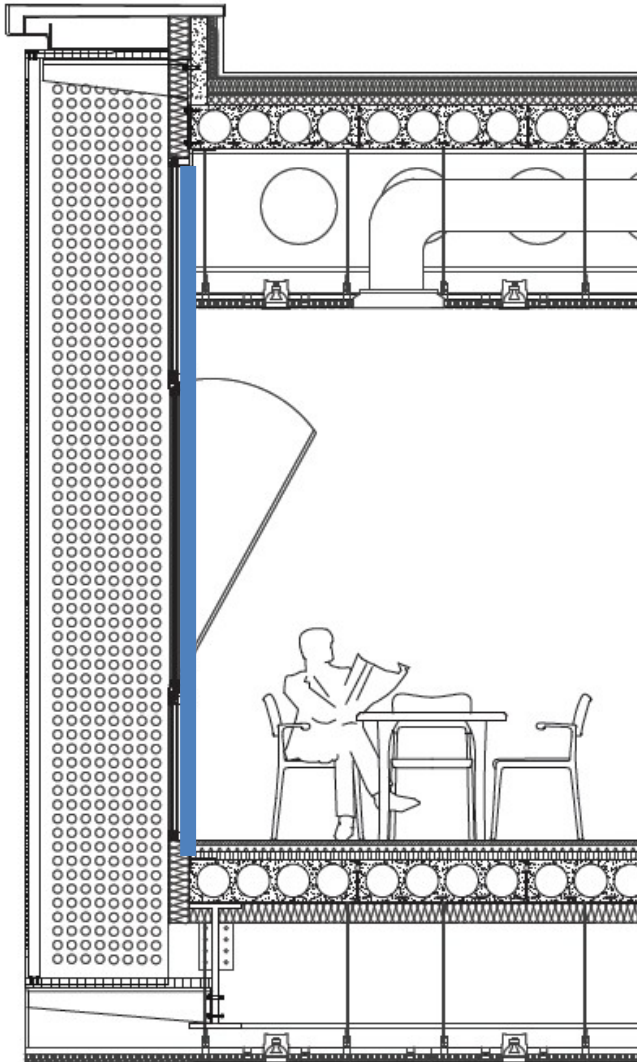
Heating and cooling

Inner facade

Outer facade

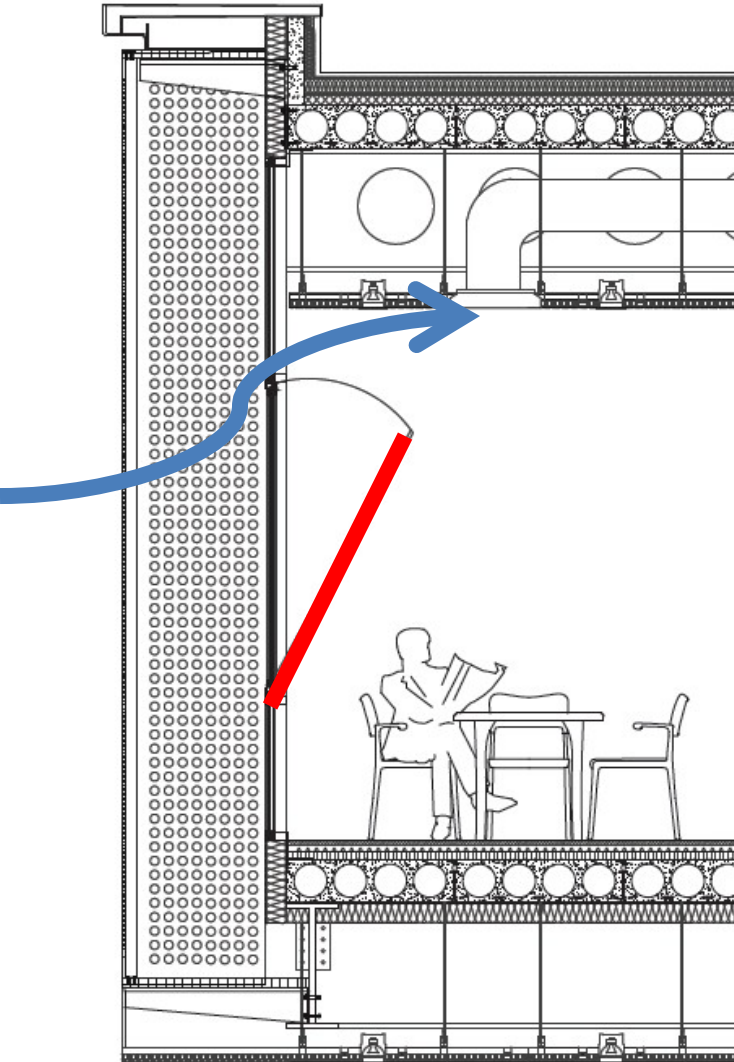


- What quality office facade should provide
- Enough sunlight -----transparent facade
- Good ventilation-----openable windows
- Sun protecting -----sun shading pannel
- Good view to outside
- private

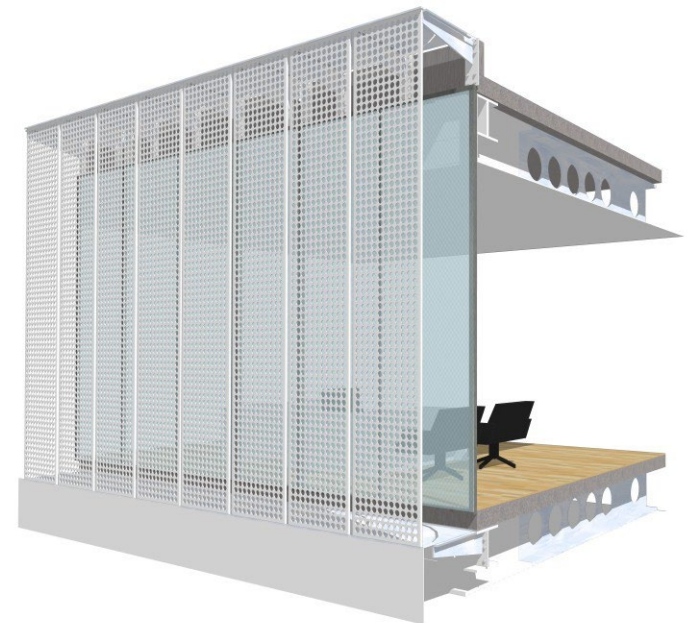
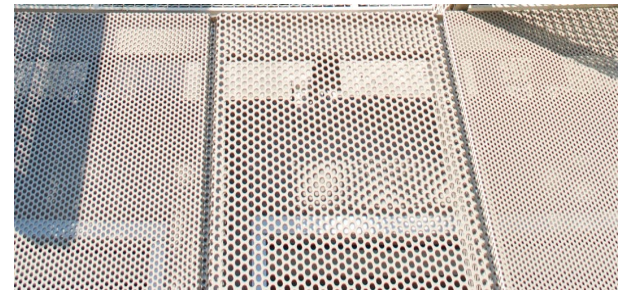
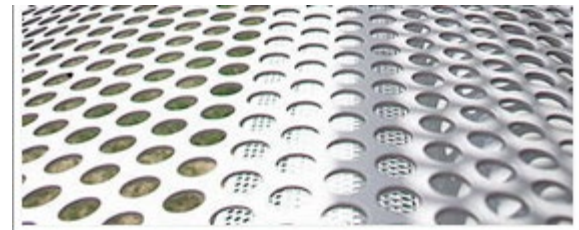
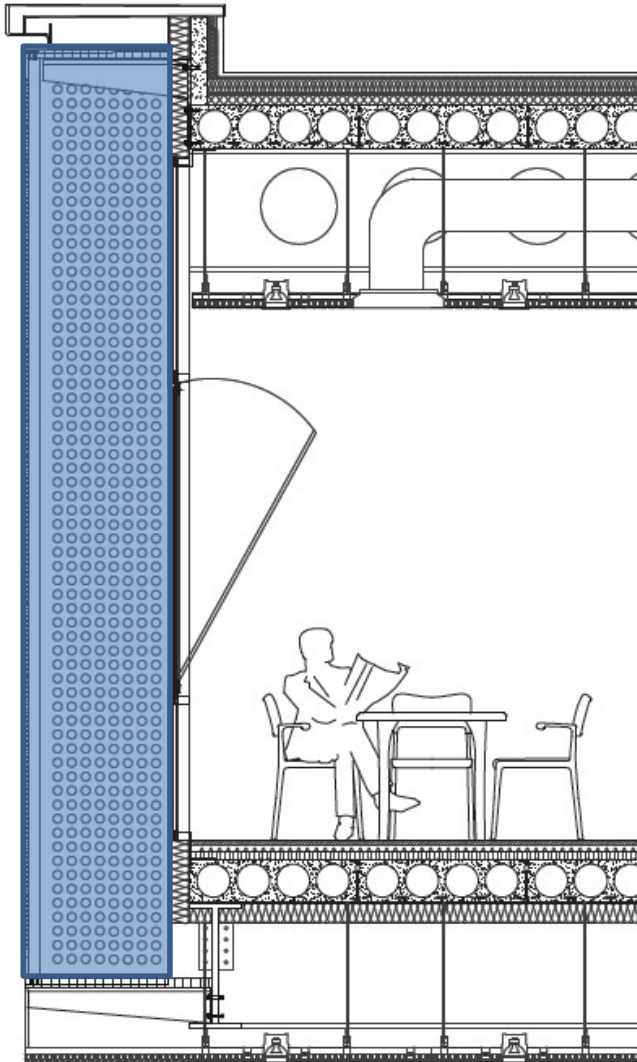


- Enough sunlight -----transparent facade

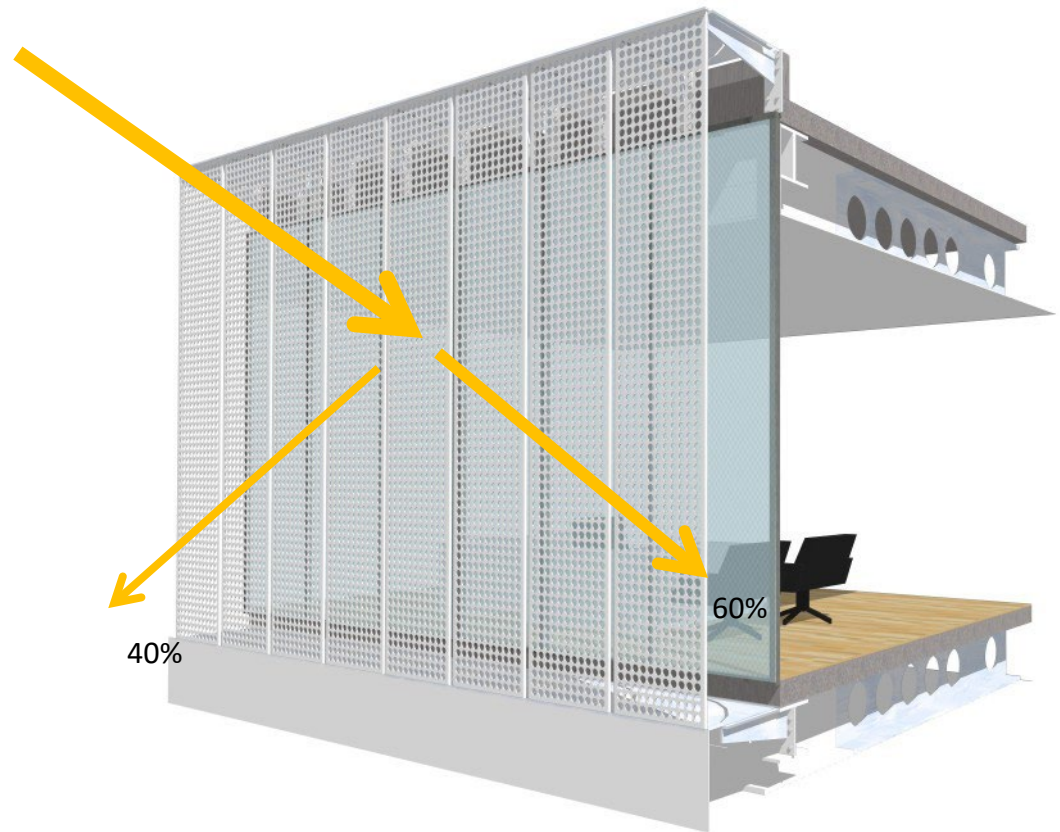
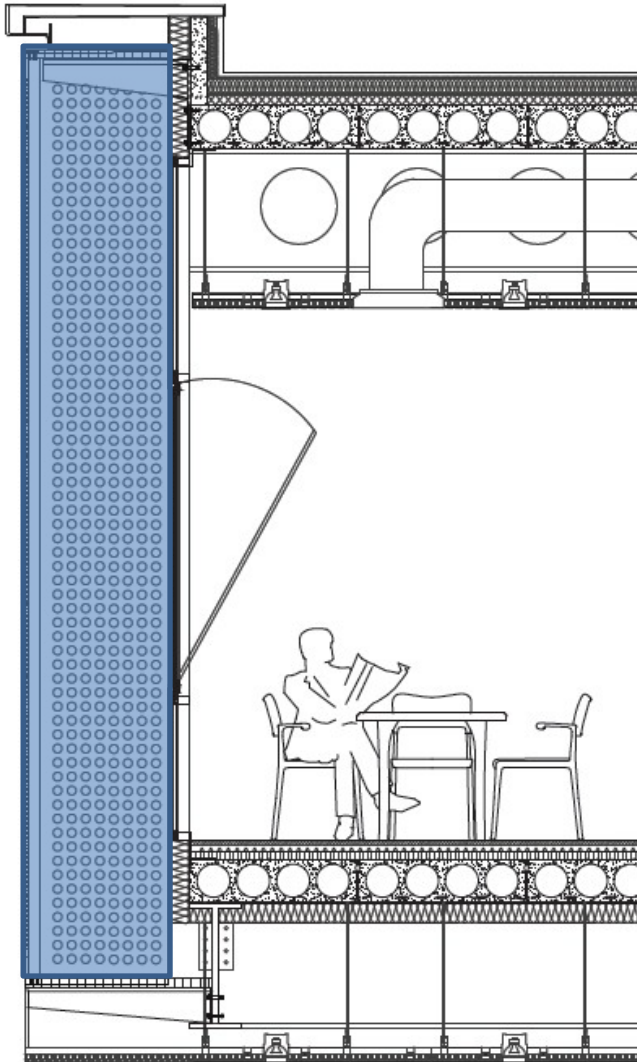
WINDOWS

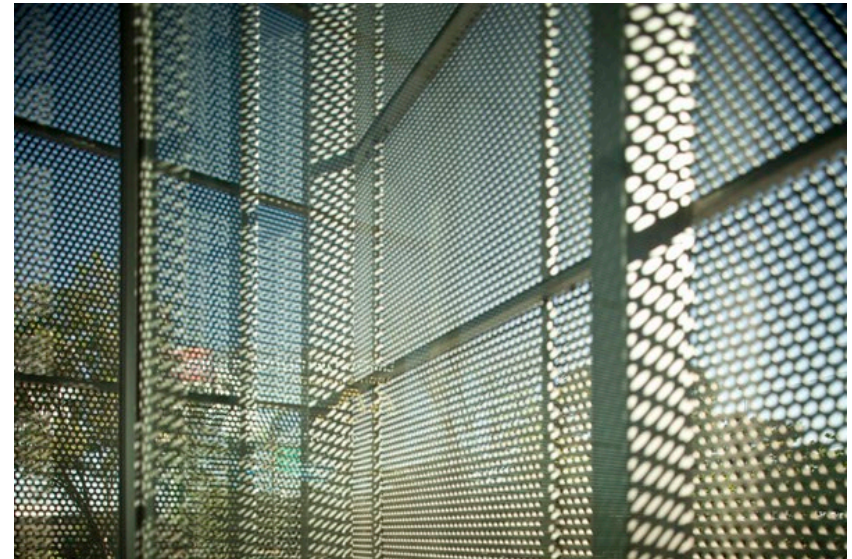
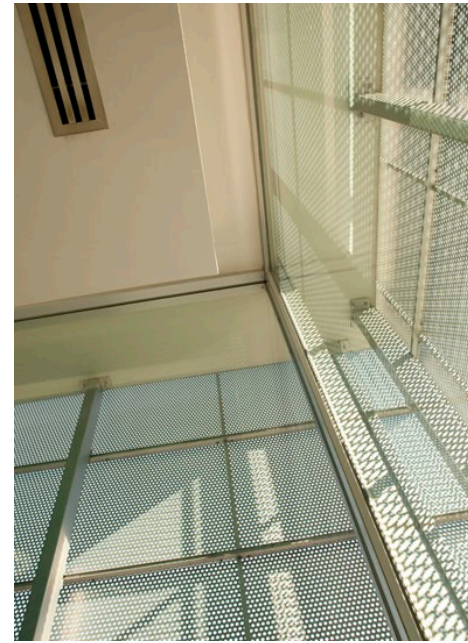
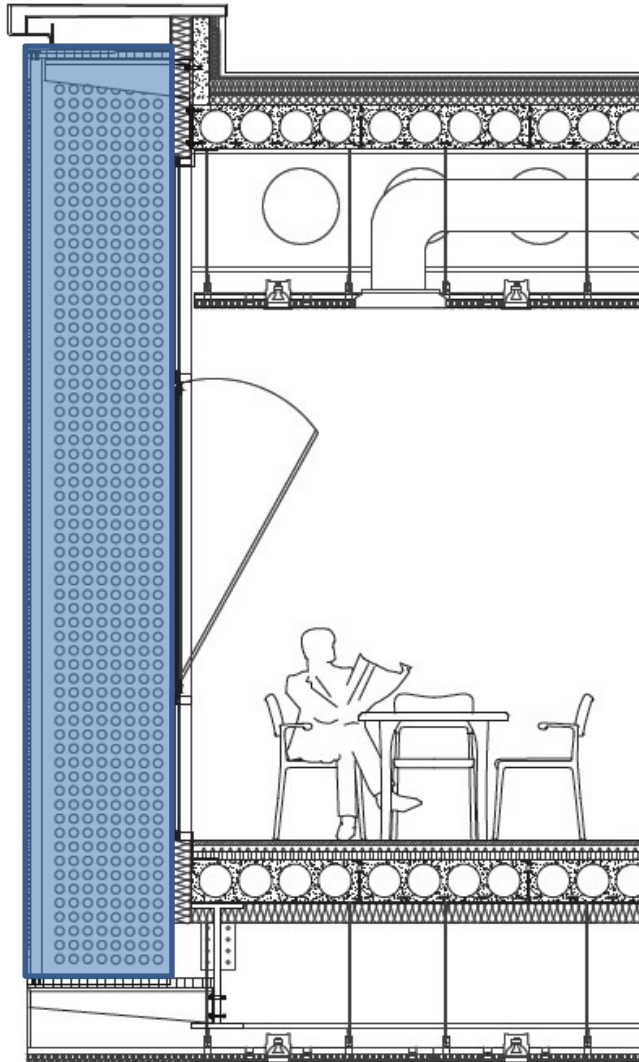


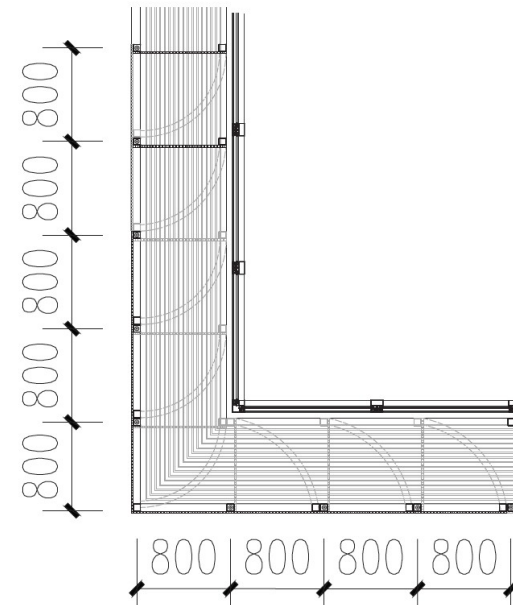
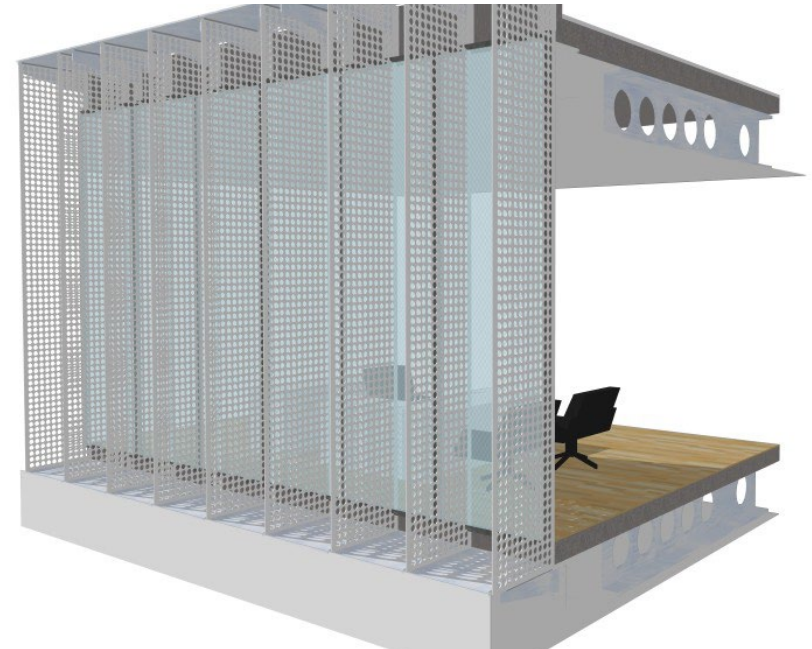
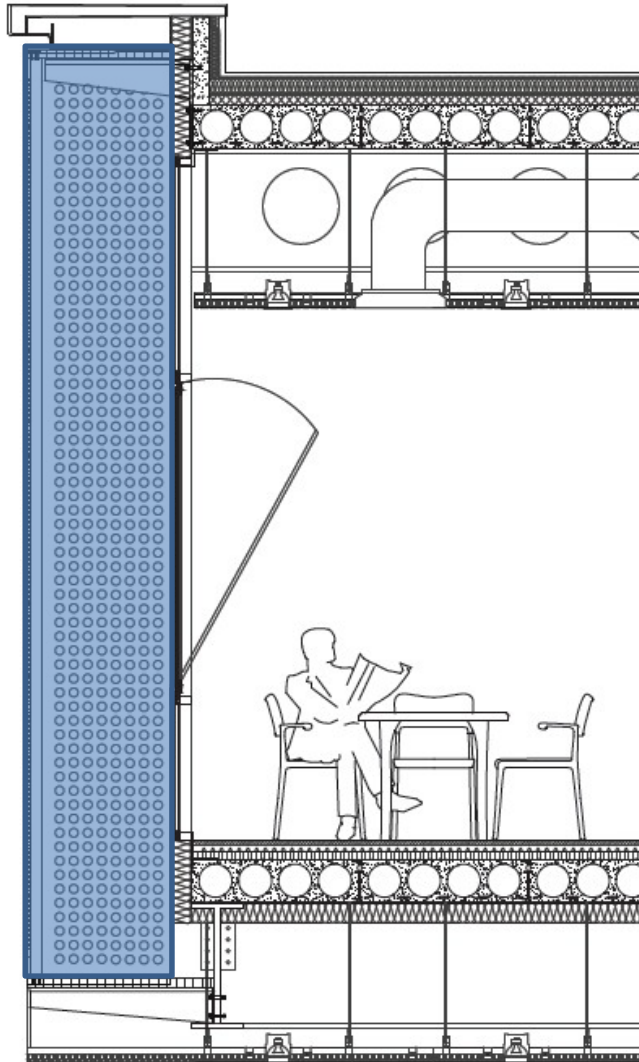
- Good ventilation-----openable windows

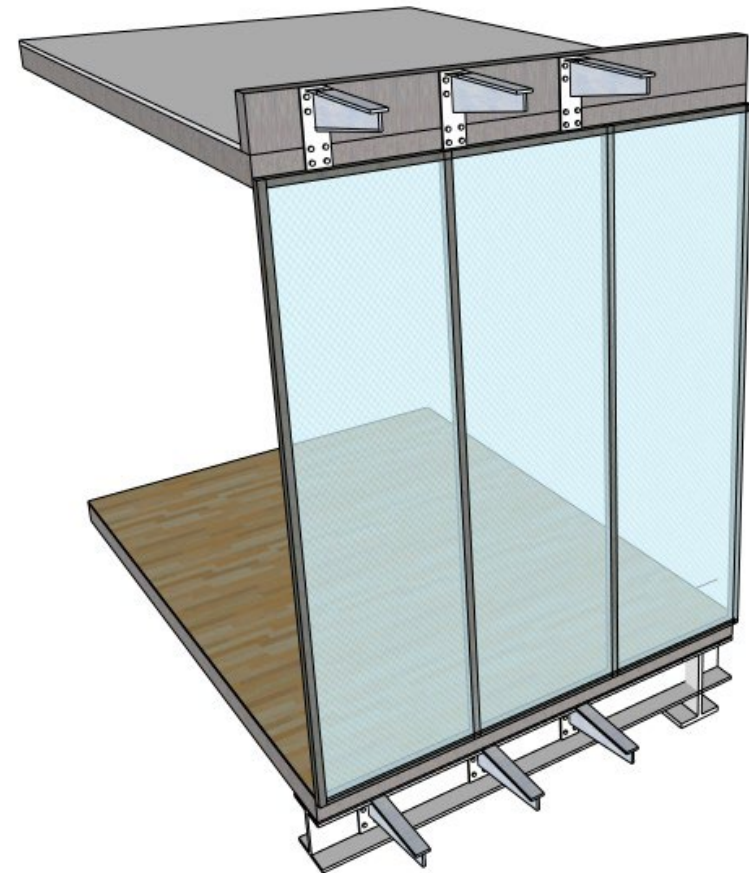
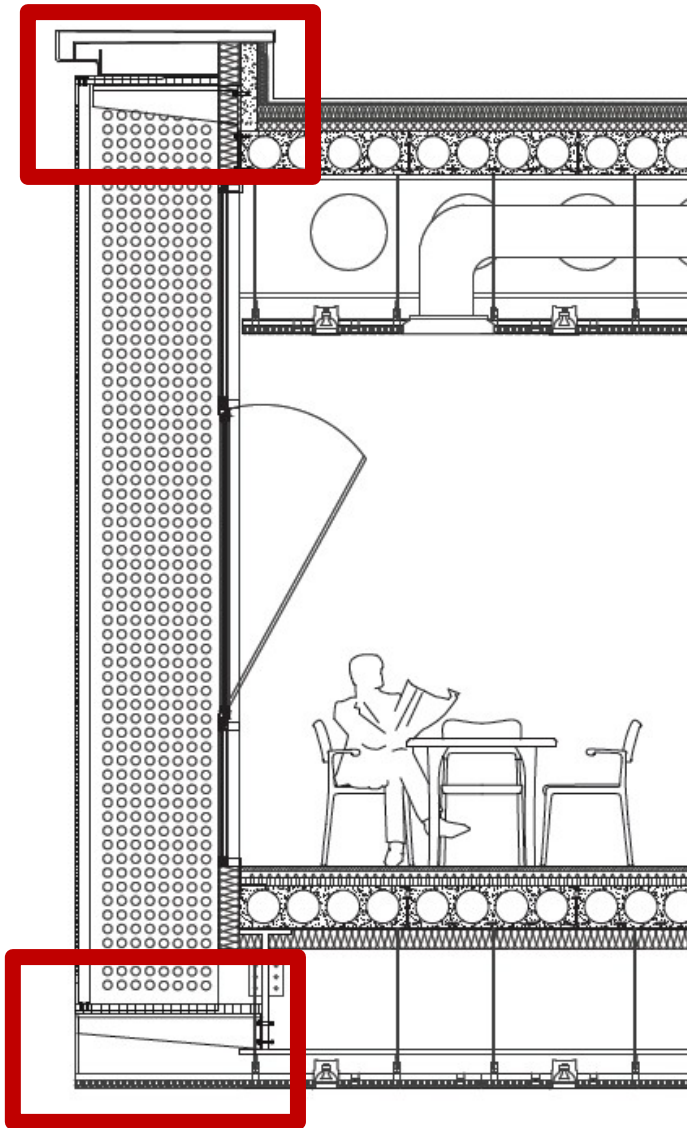


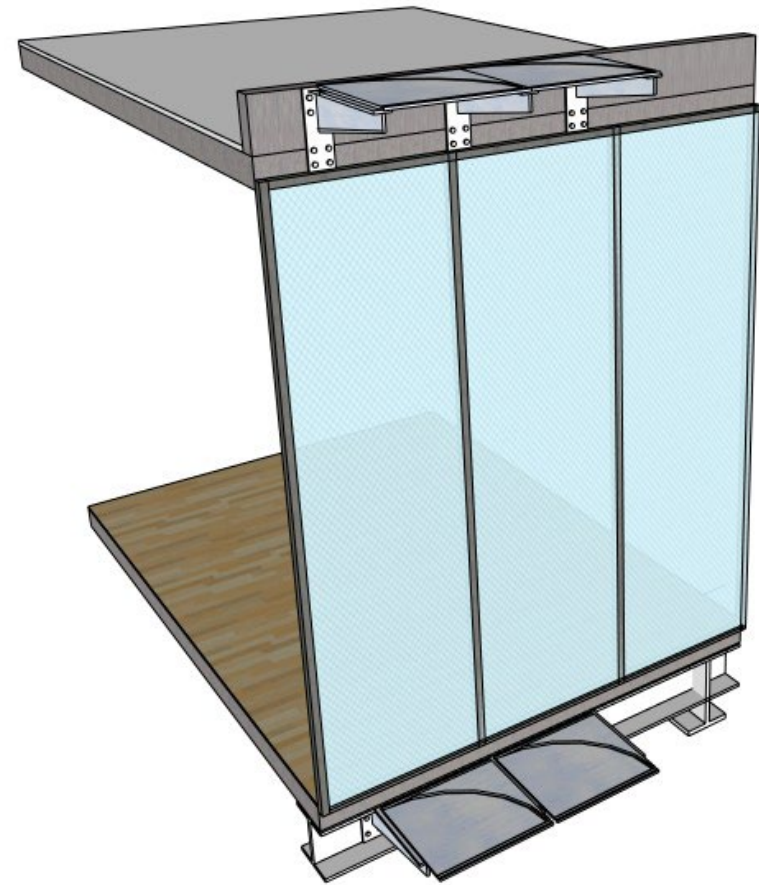
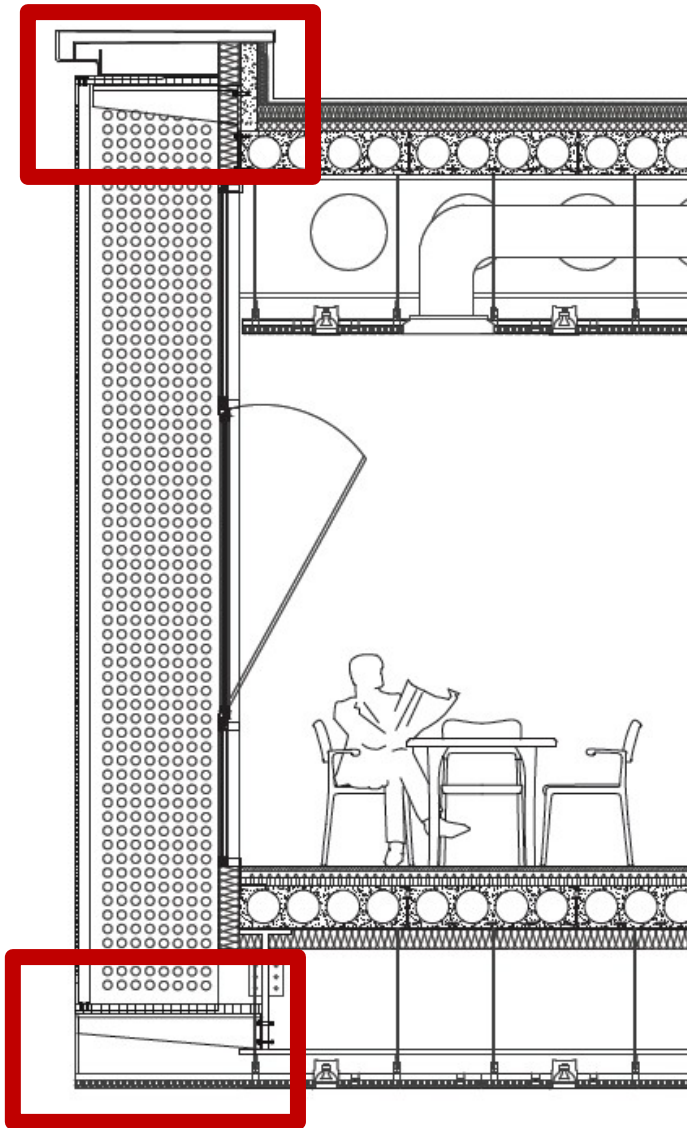
- Sun protecting
- Good view to outside and private

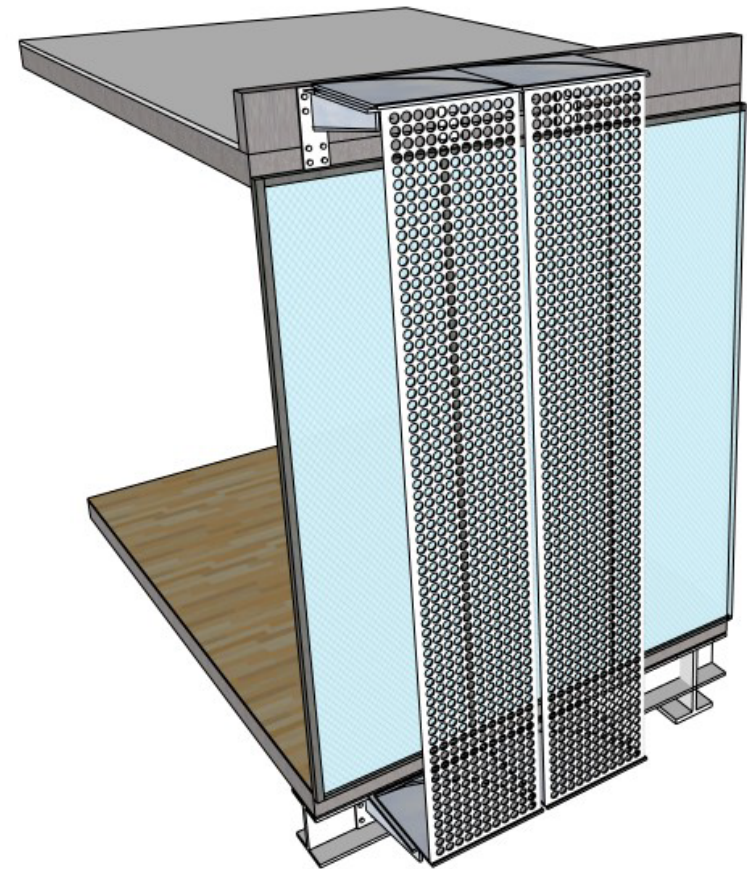
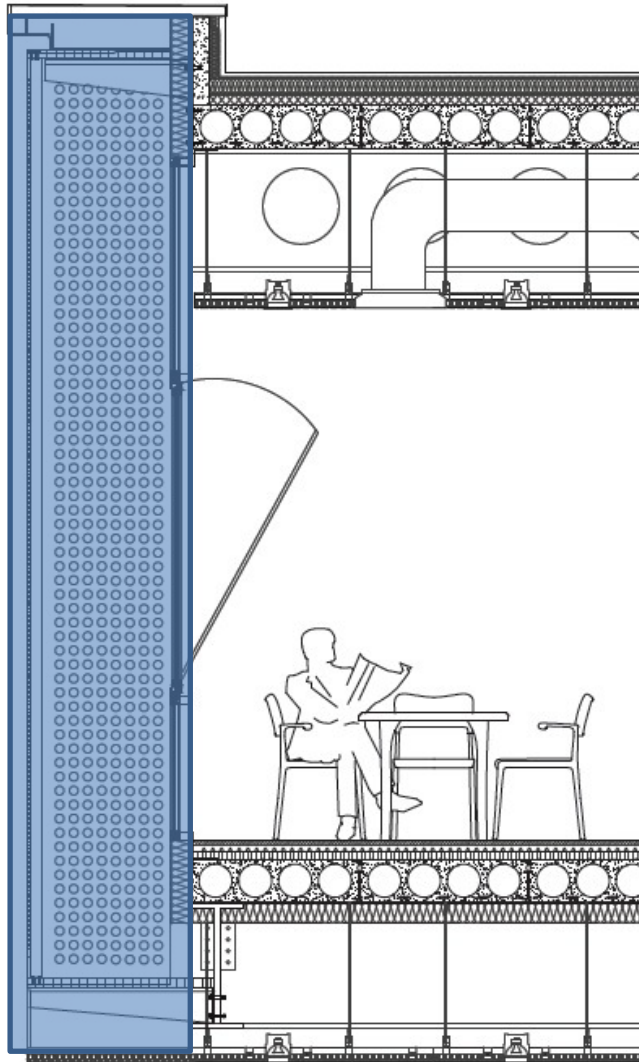


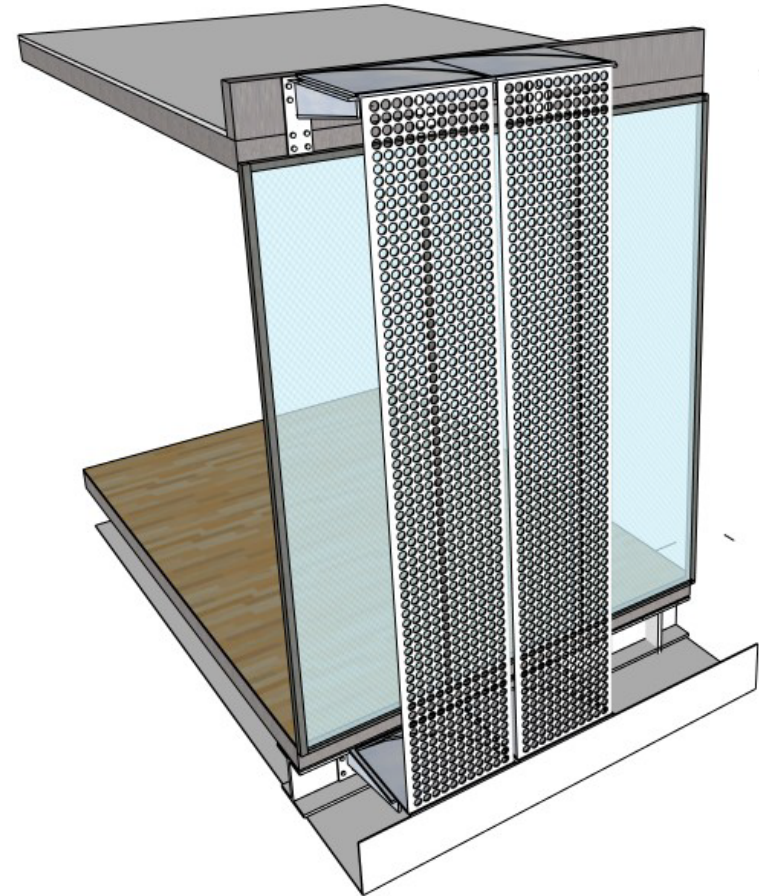
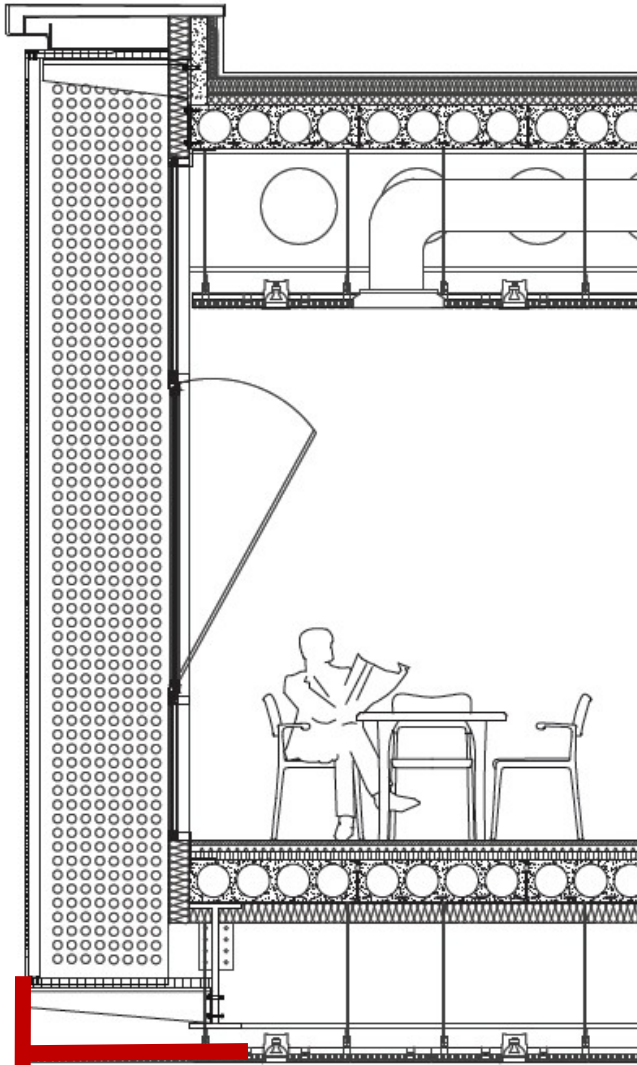












Inner facade

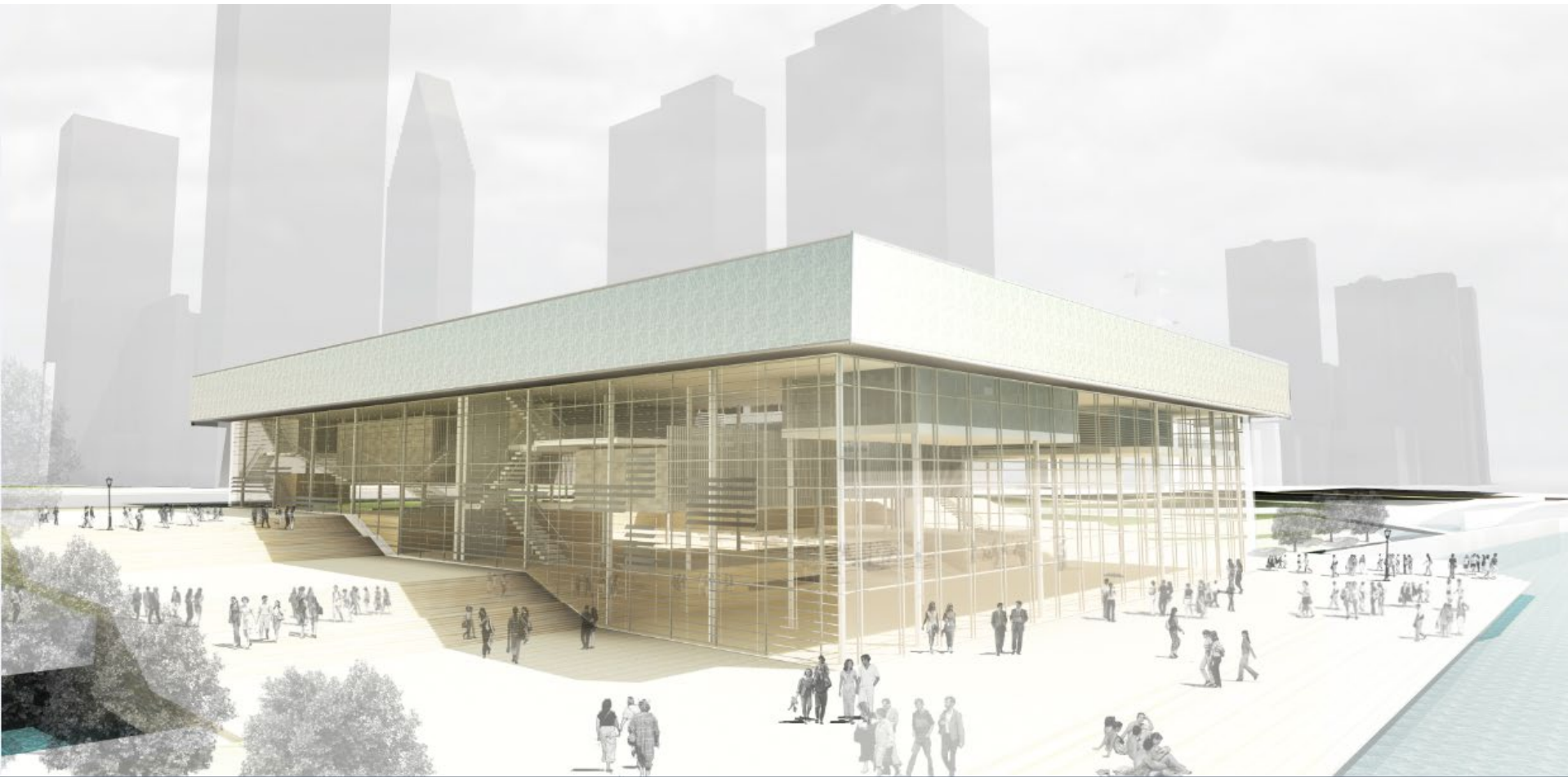
Outer facade

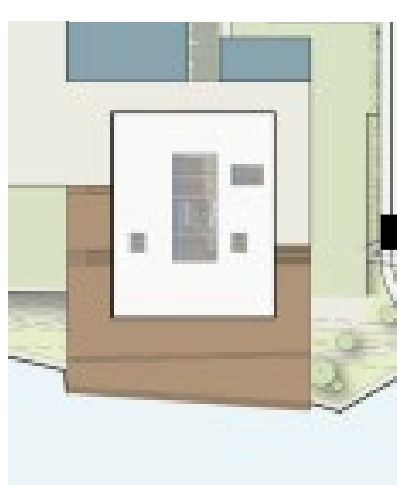
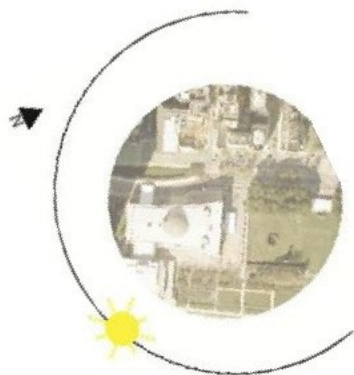
office part

Atriums

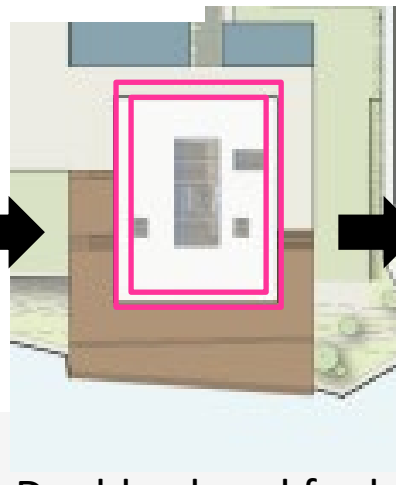
lower part



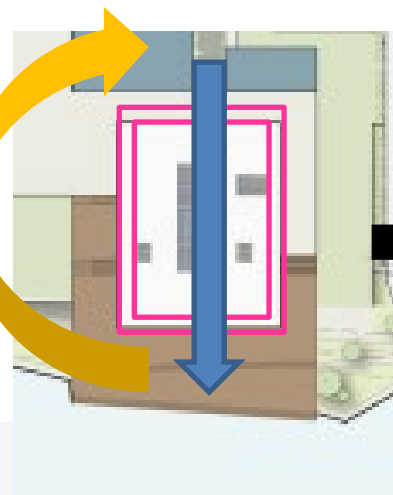




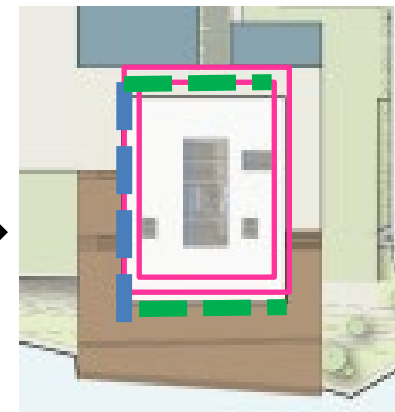
Glass curtain wall



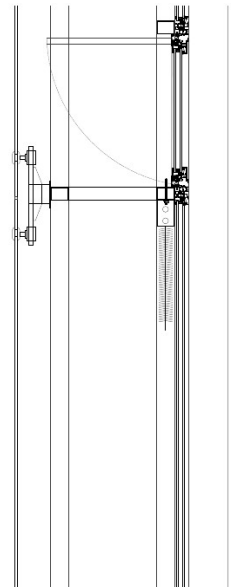
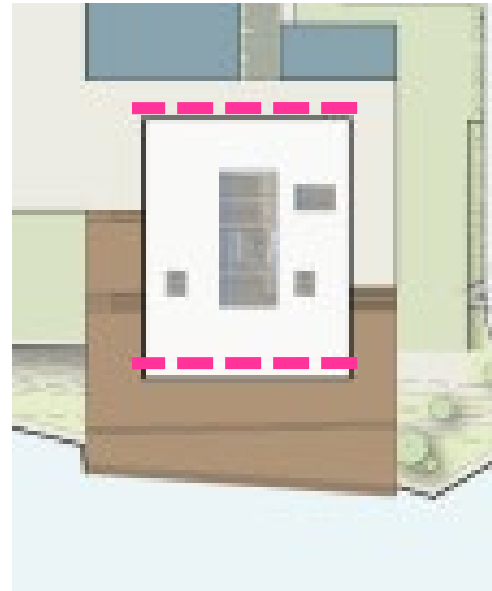
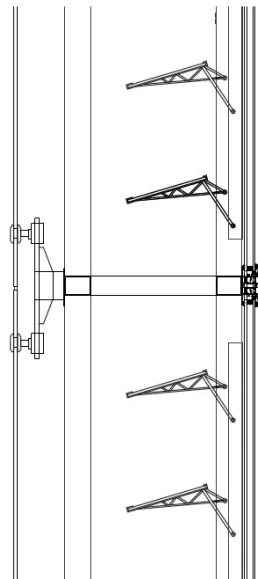
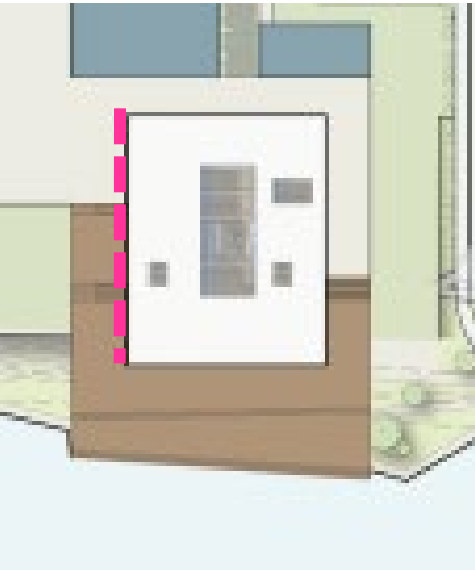
Double glazed for lower Energy loss



Oritation of sun and Idea of connection



Two ways of sun protecting

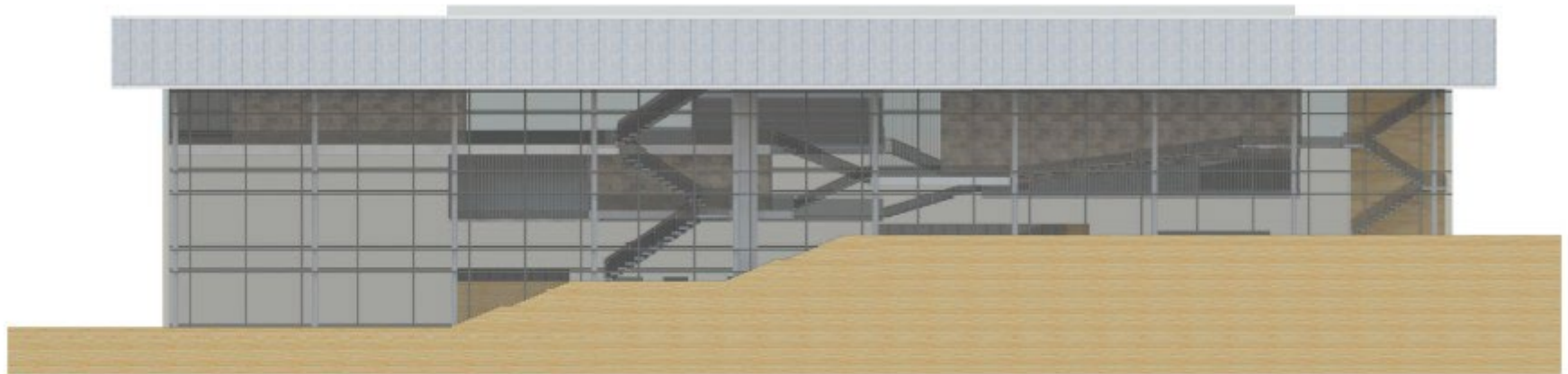




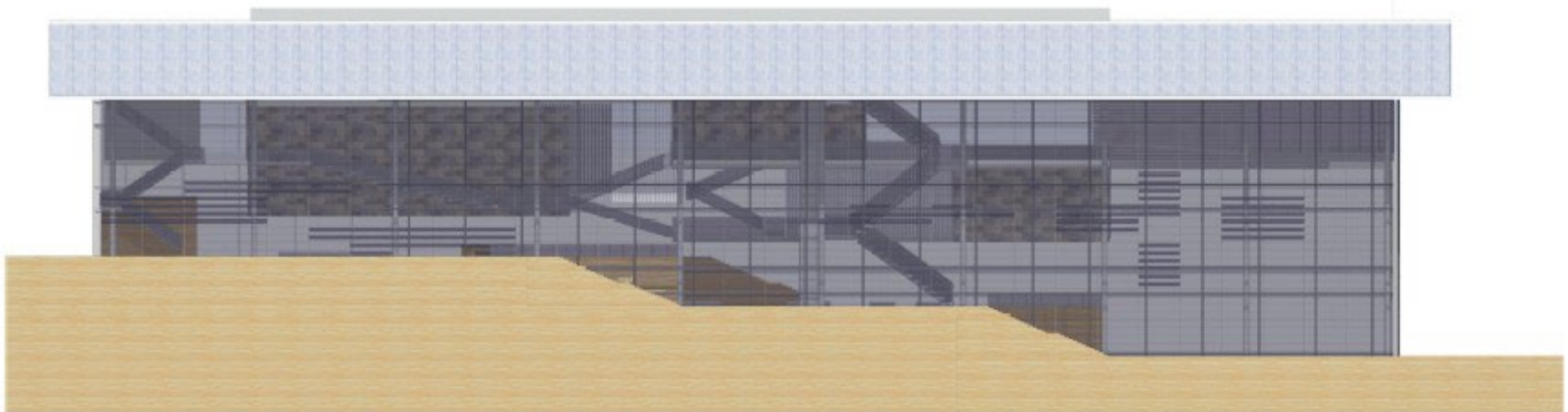
FACADE A | SCALE 1:200



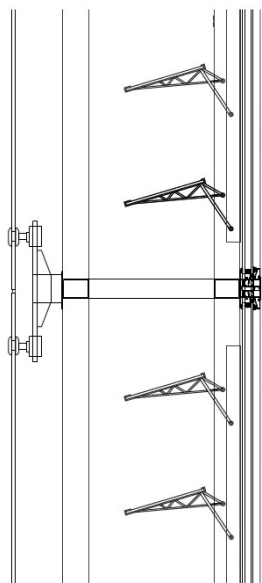
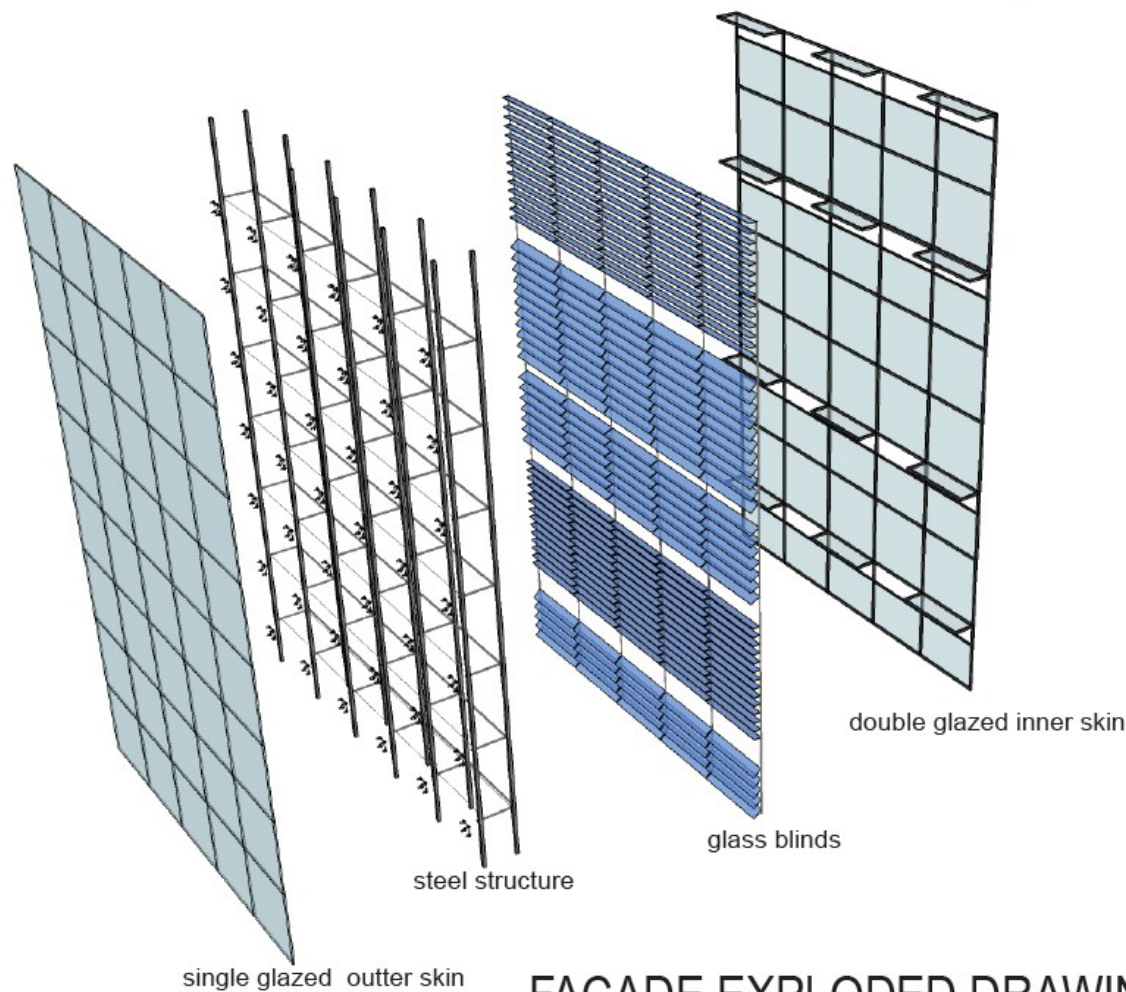
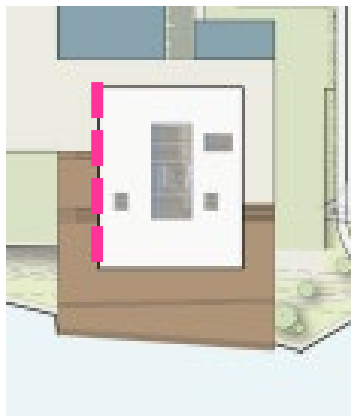
FACADE B | SCALE 1:200



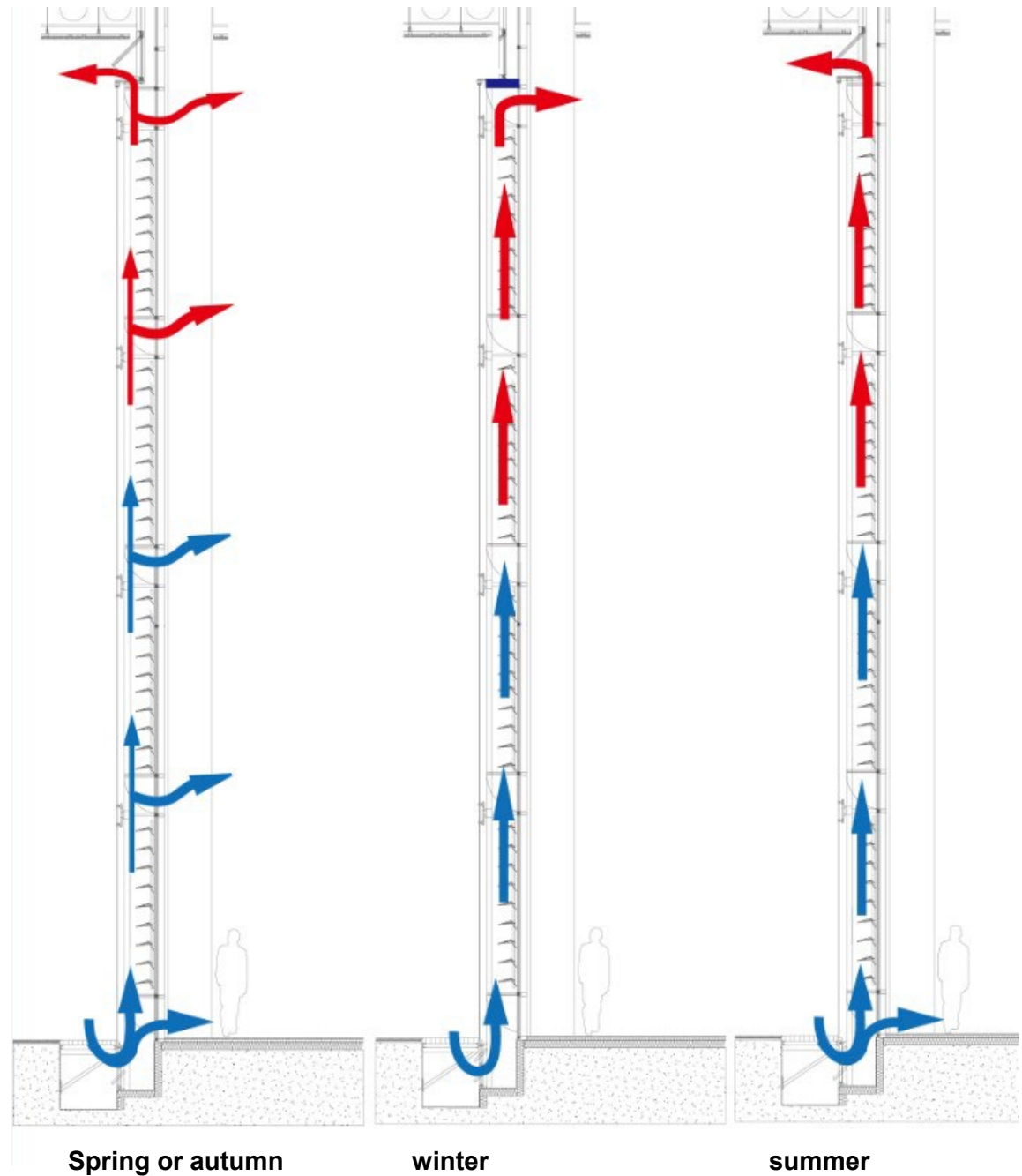
FACADE C | SCALE 1:200

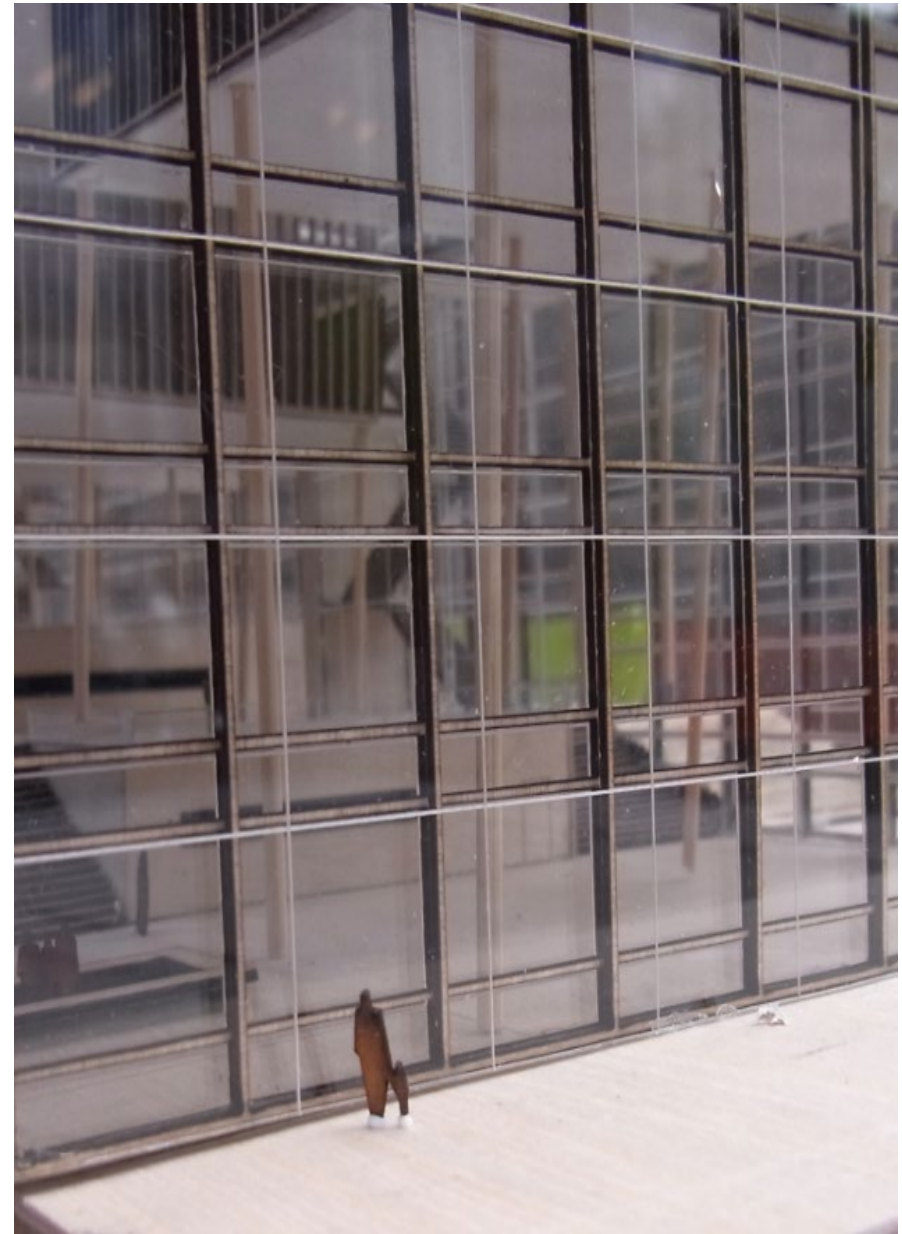


FACADE D | SCALE 1:200

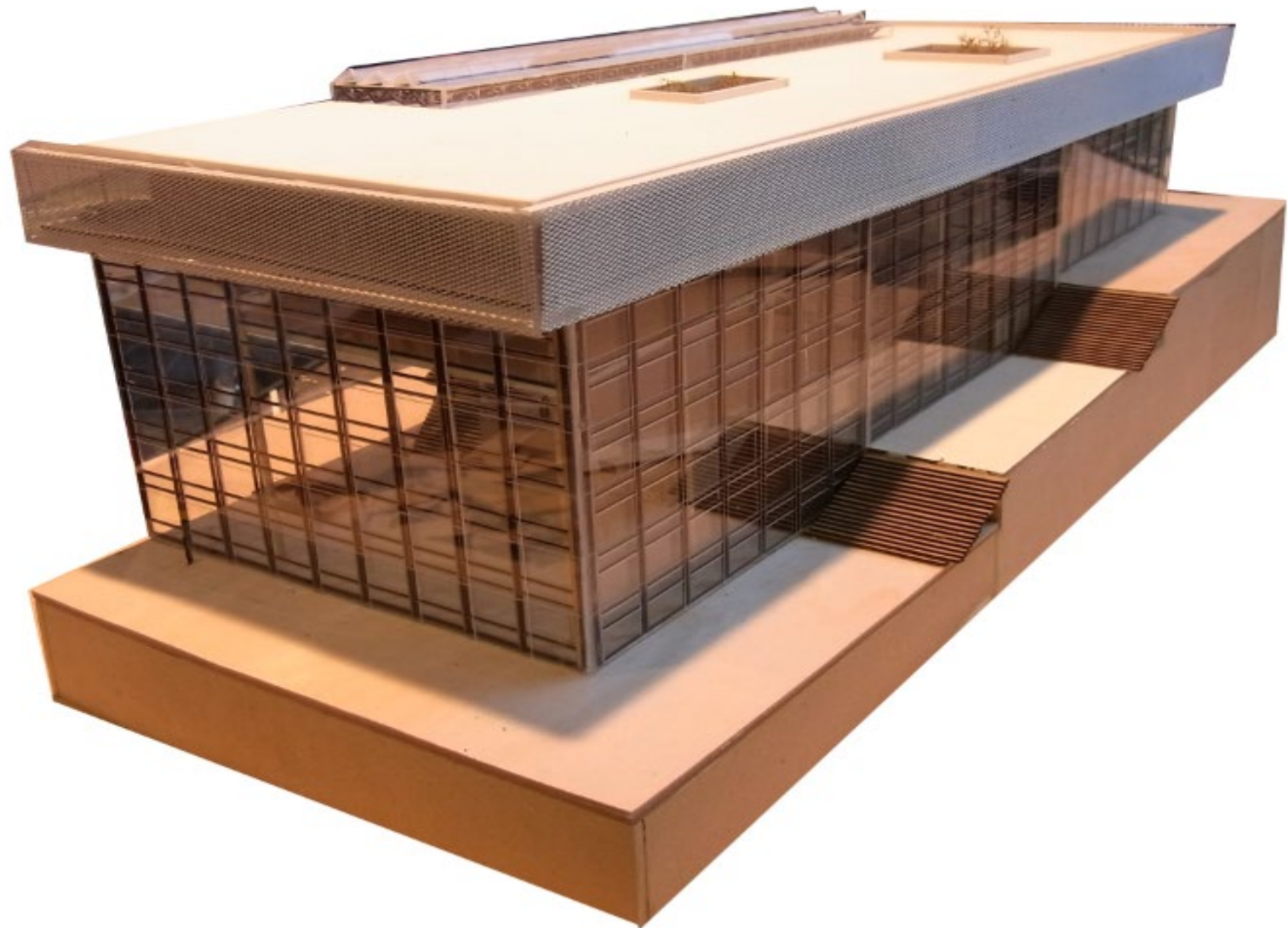


FACADE EXPLODED DRAWING









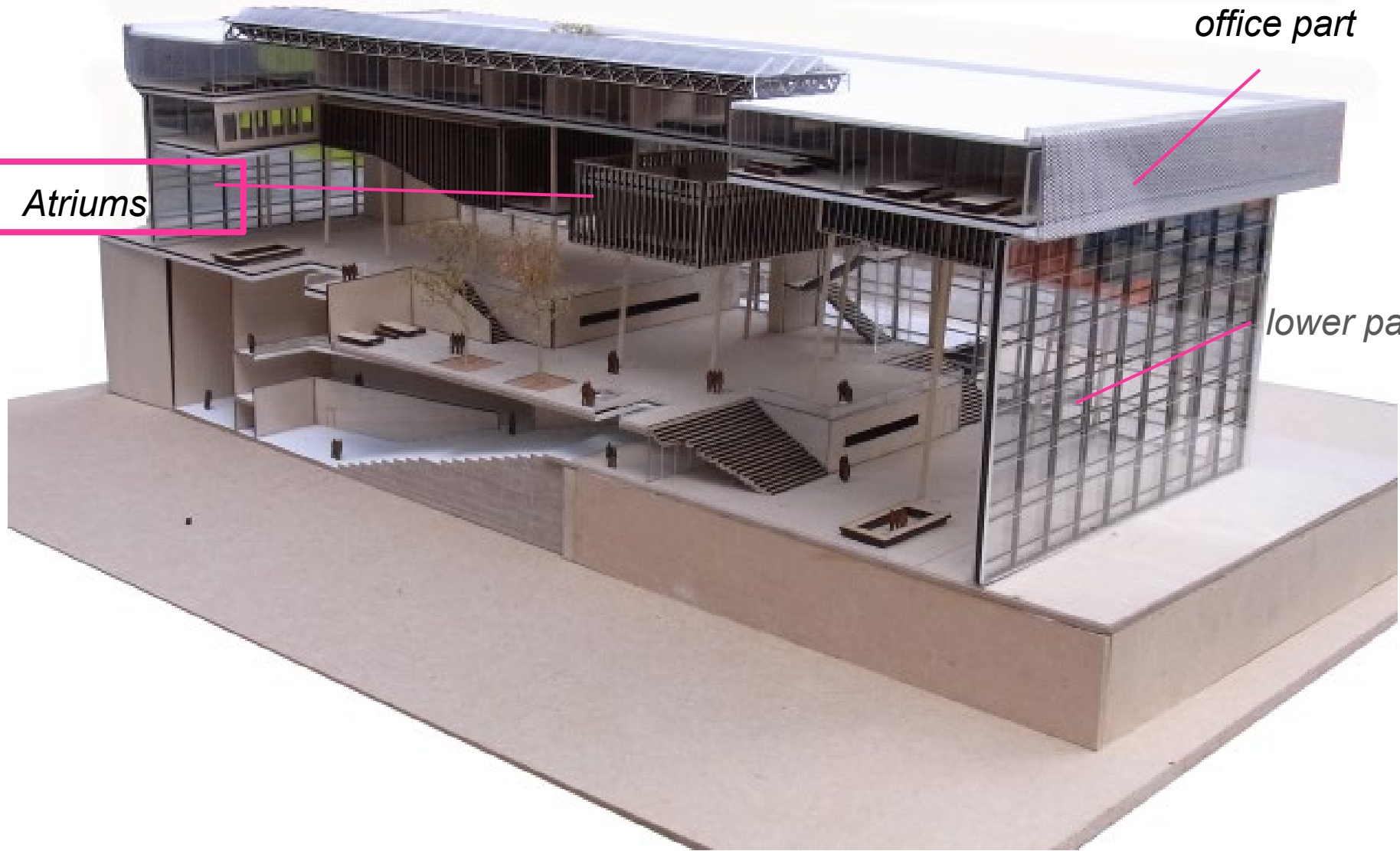
Inner facade

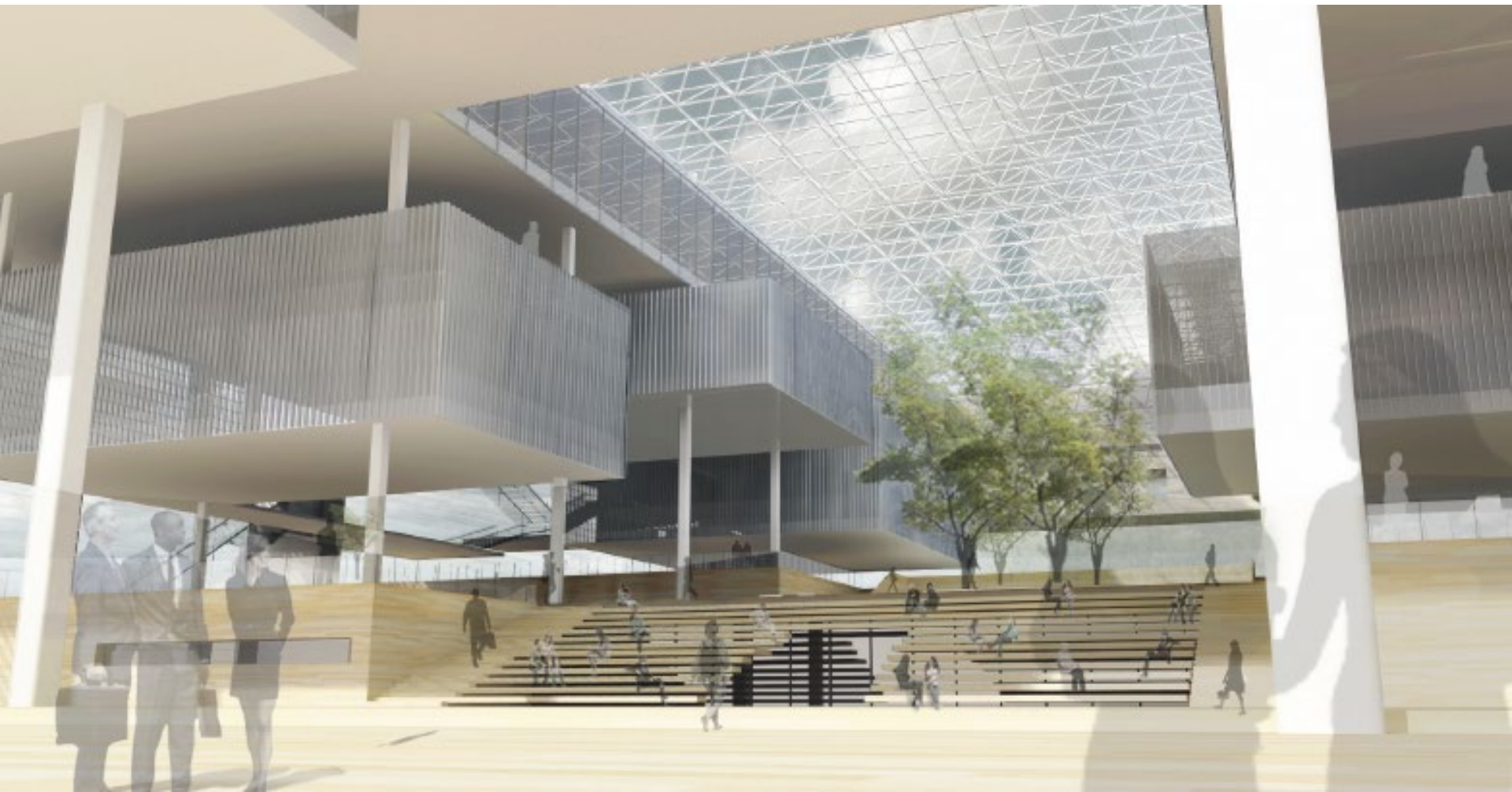
Outer facade

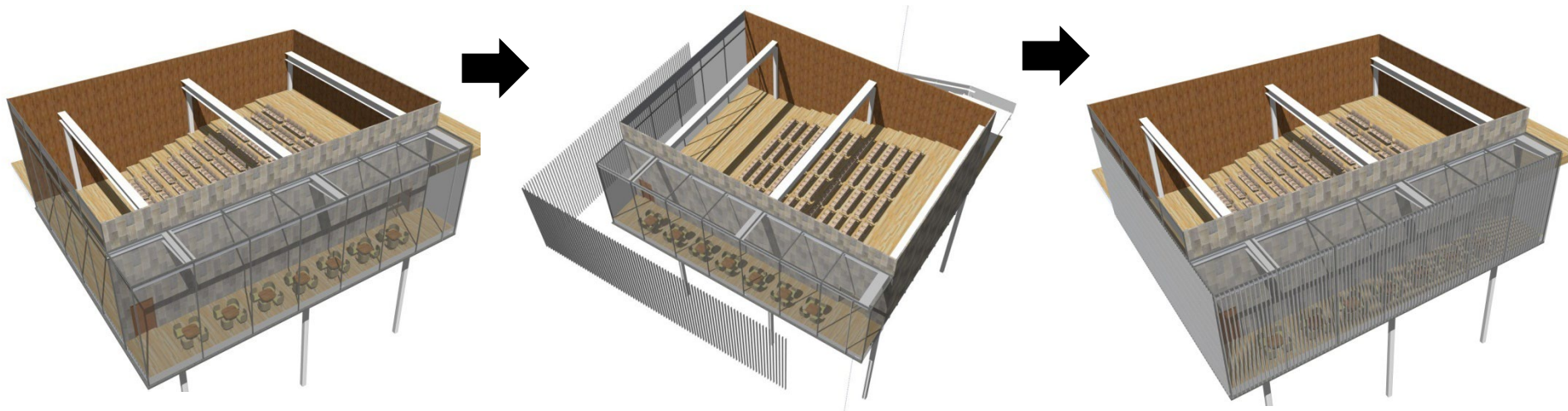
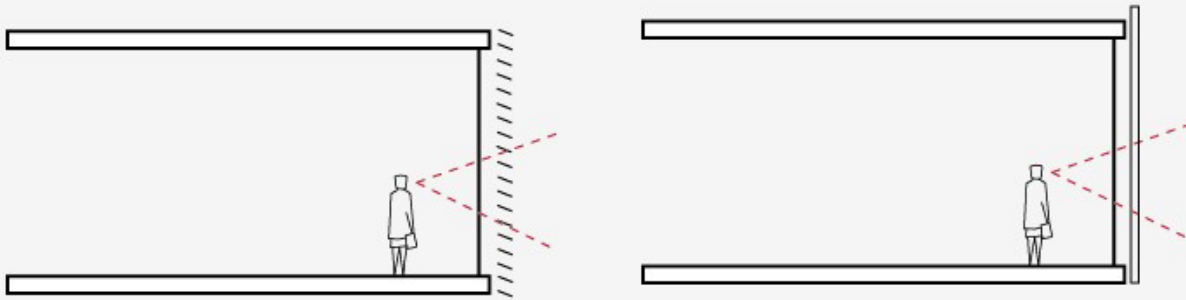
office part

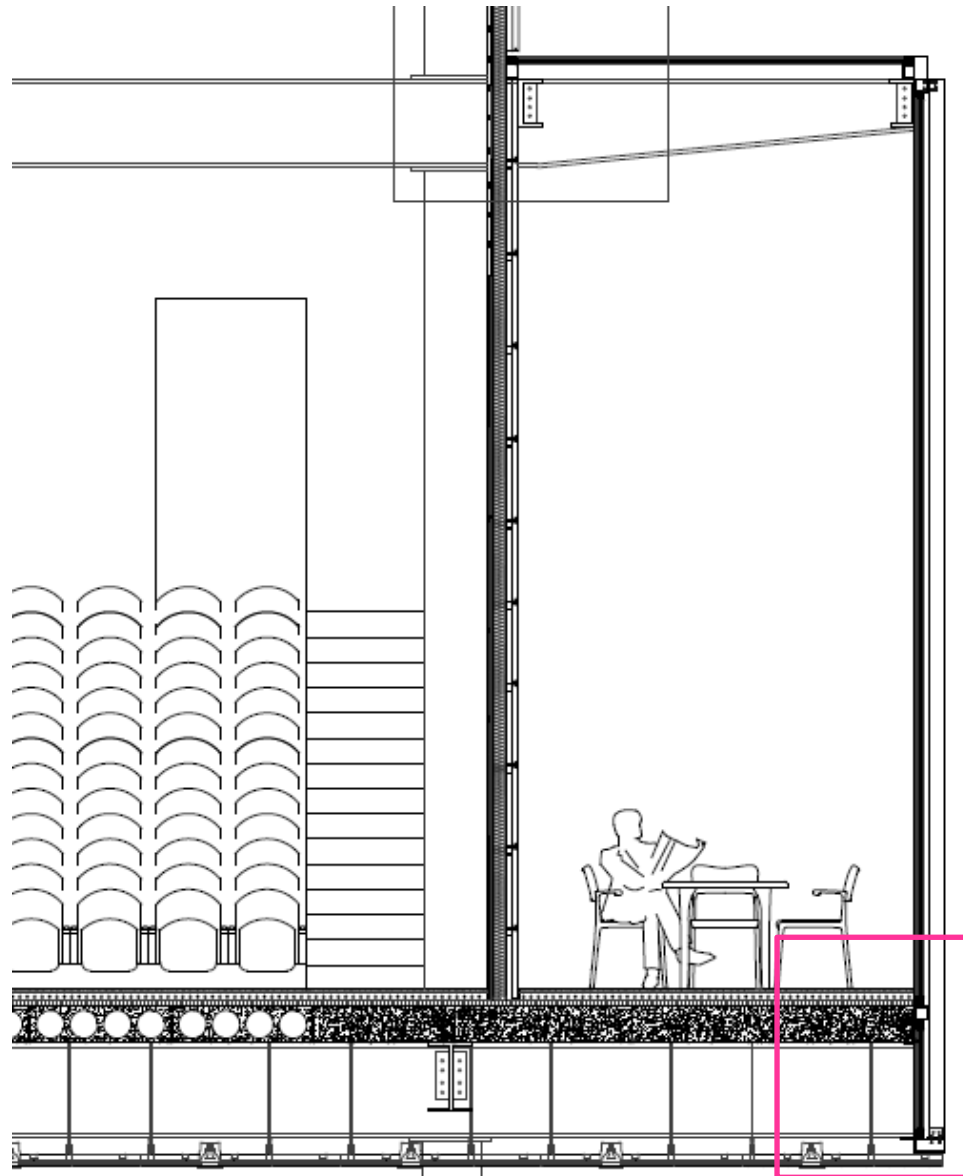
Atriums

lower part



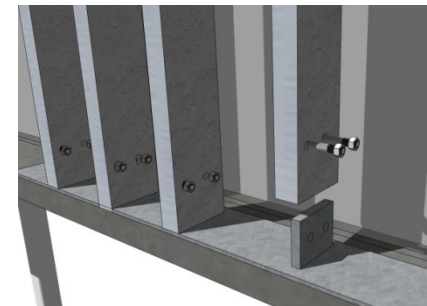
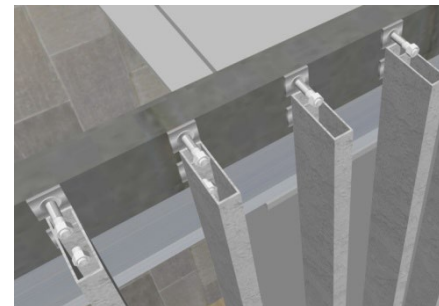
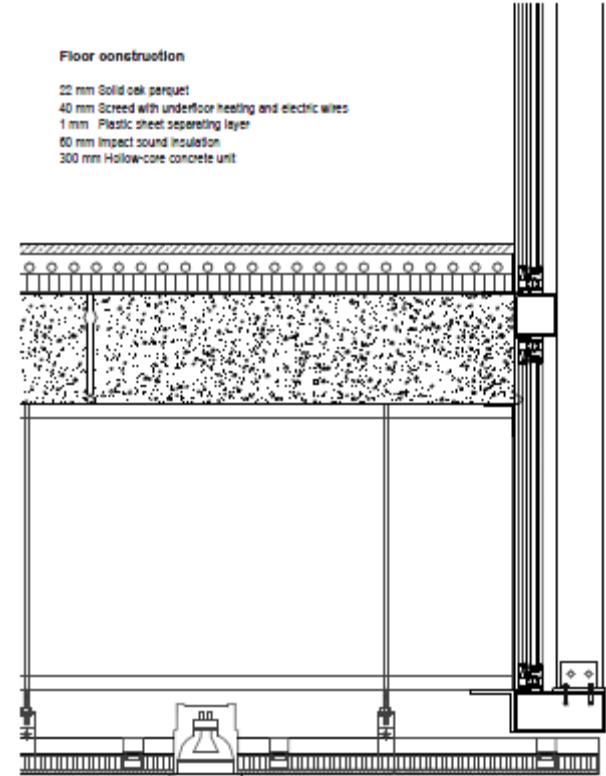




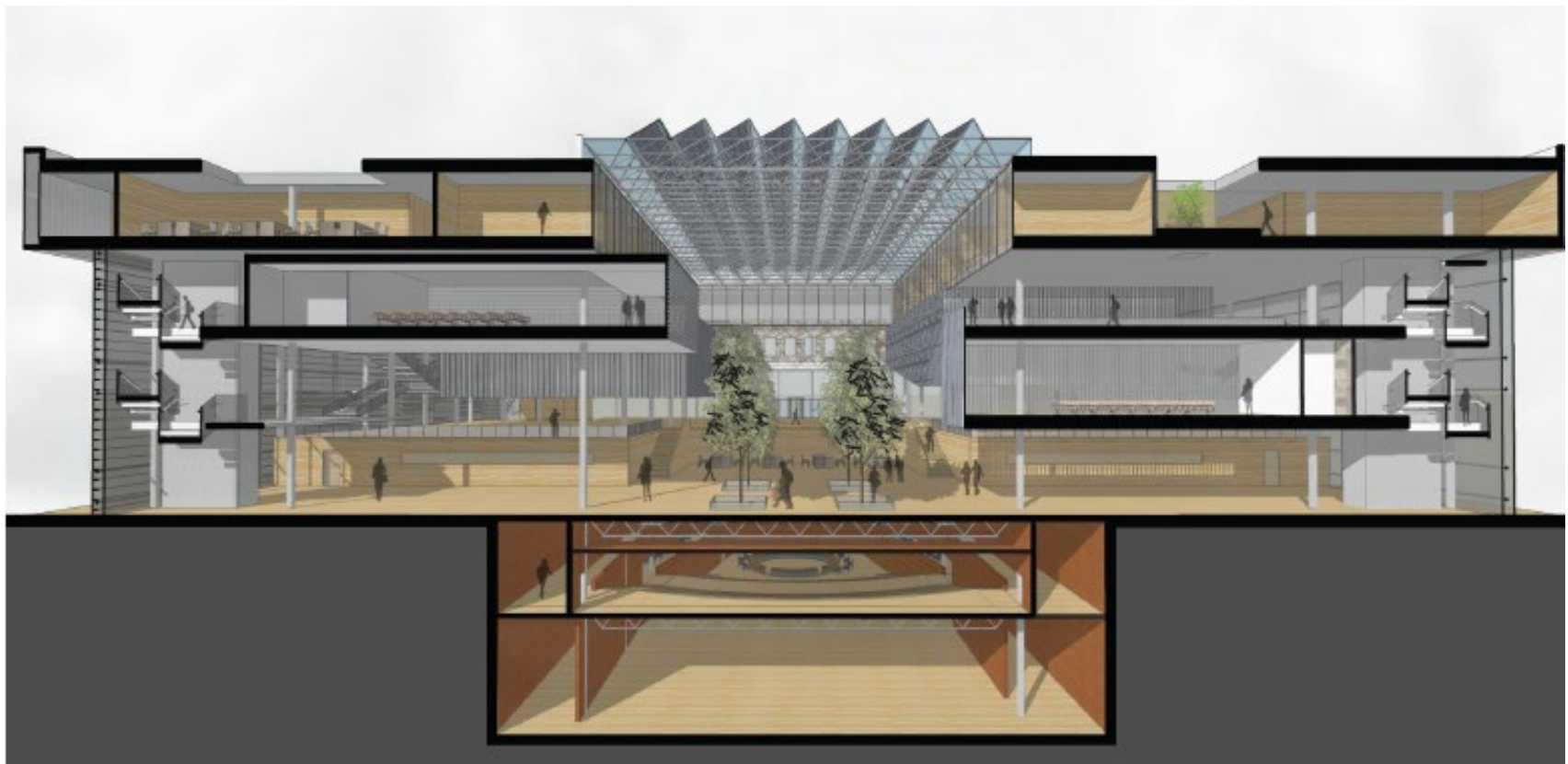


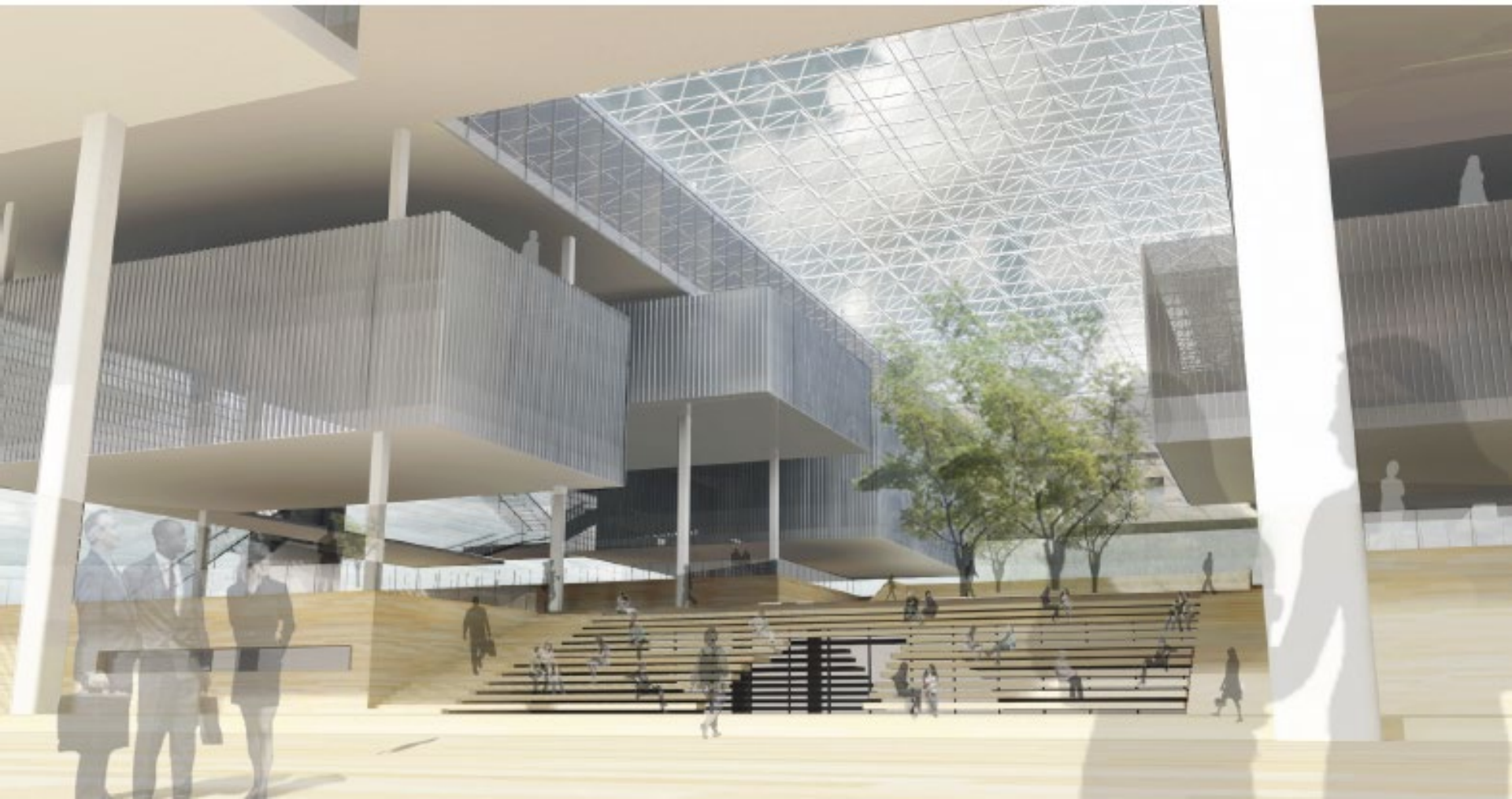
Floor construction

22 mm Solid oak parquet
 40 mm Screed with underfloor heating and electric wires
 1 mm Plastic sheet separating layer
 60 mm Impact sound insulation
 300 mm Hollow-core concrete unit

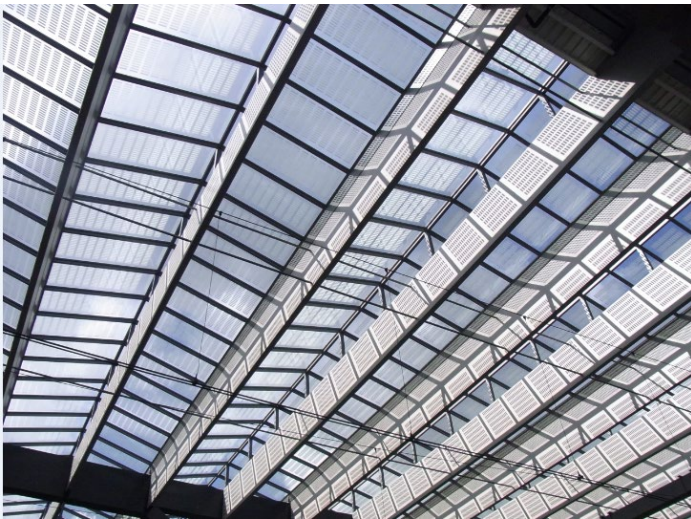


Glass roof





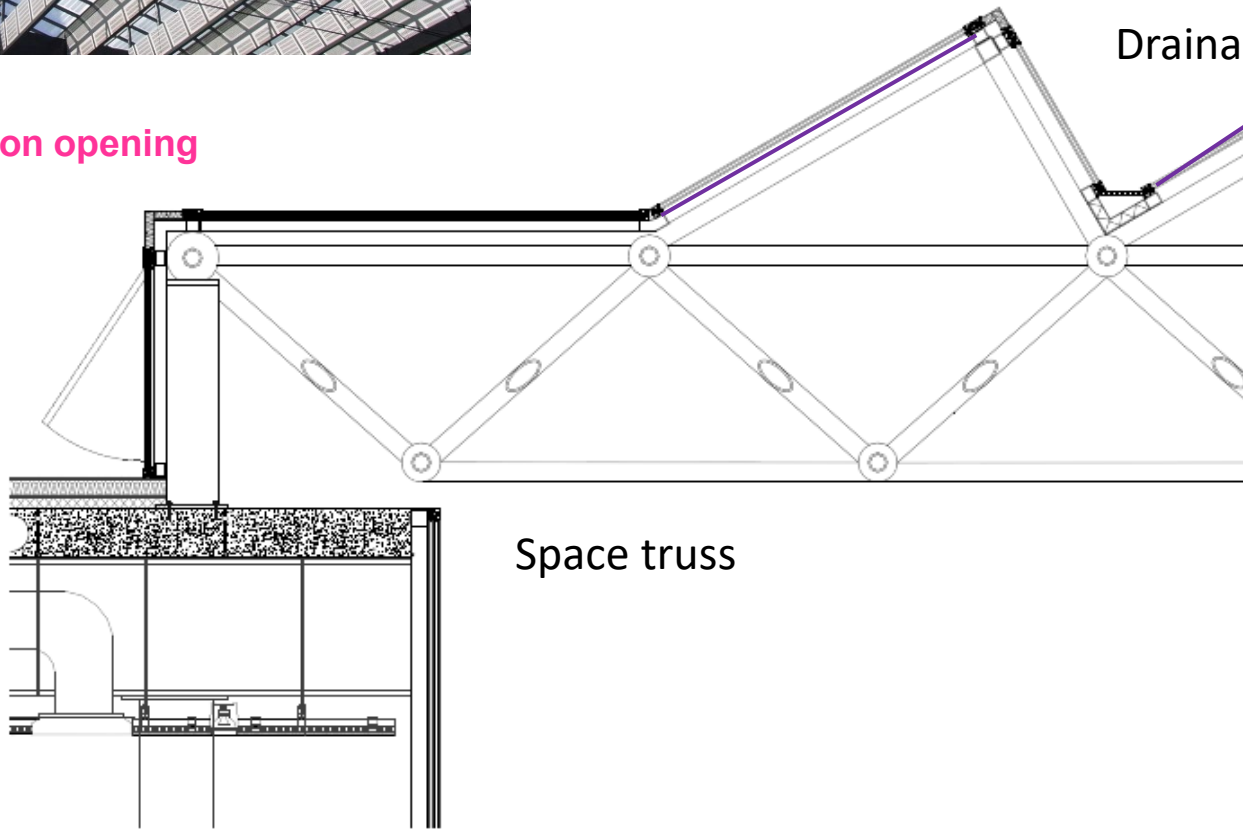
1. Enough daylight
2. Prevent overheat
3. Good ventilation
4. energy collect
5. Transparent



Angle	0°	30°	60°	90°
Orientation				
East	93 %	90 %	78 %	< 60 %
South-east	93 %	96 %	88 %	66 %
South	93 %	100 %	91 %	68 %
South-west	93 %	96 %	88 %	66 %
West	93 %	90 %	78 %	< 60 %

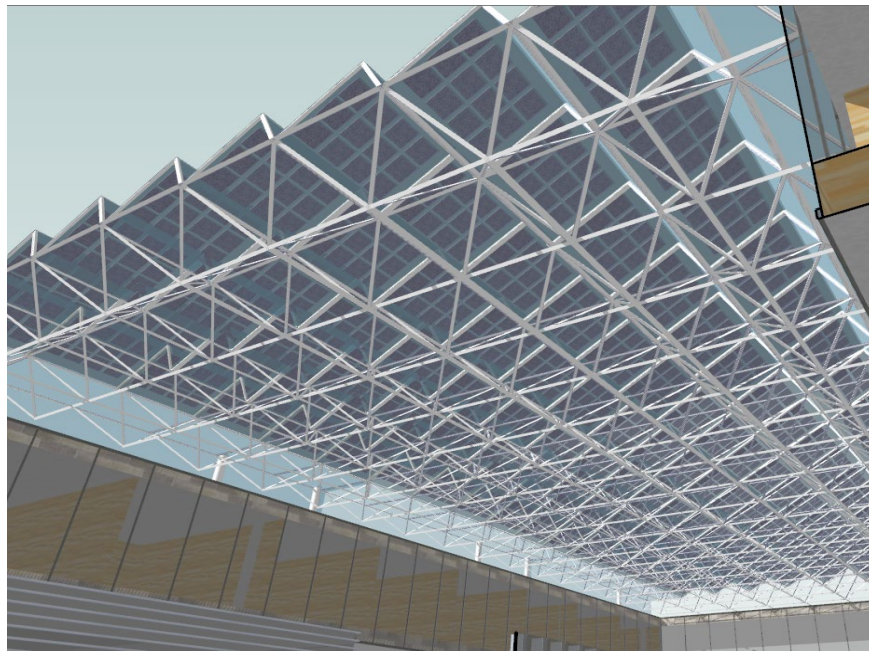
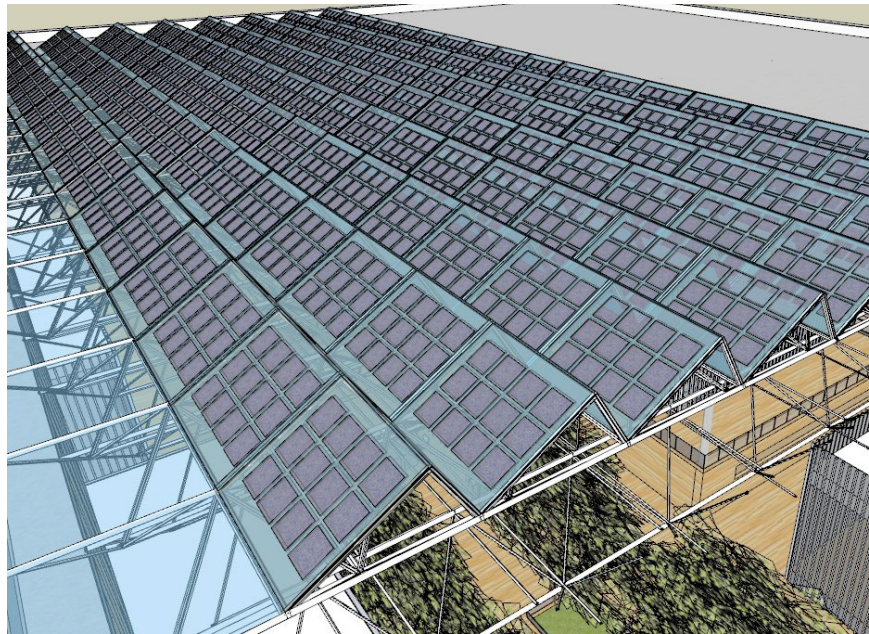
Energy gain according to different angle and orientation of photovoltaics installation (100% = 1055 kWh/m²a)⁹

Ventilation opening



Drainage gutter

Space truss



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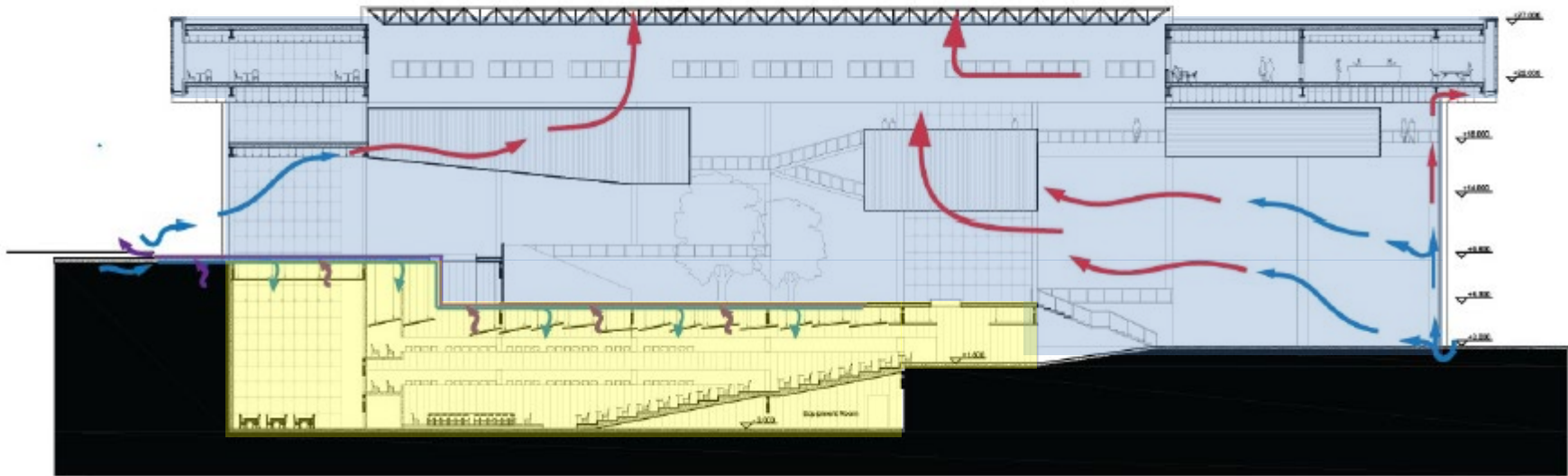
- **Facade design**

- **Climate design**

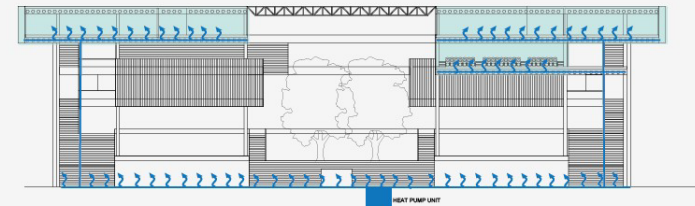
Ventilation

Heating and cooling

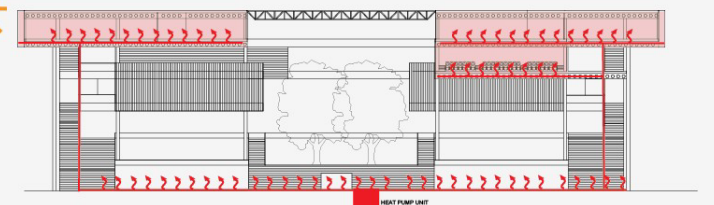
above ground part : natrual ventilation most of the year
 underground chamber: mechanical ventilation all the year

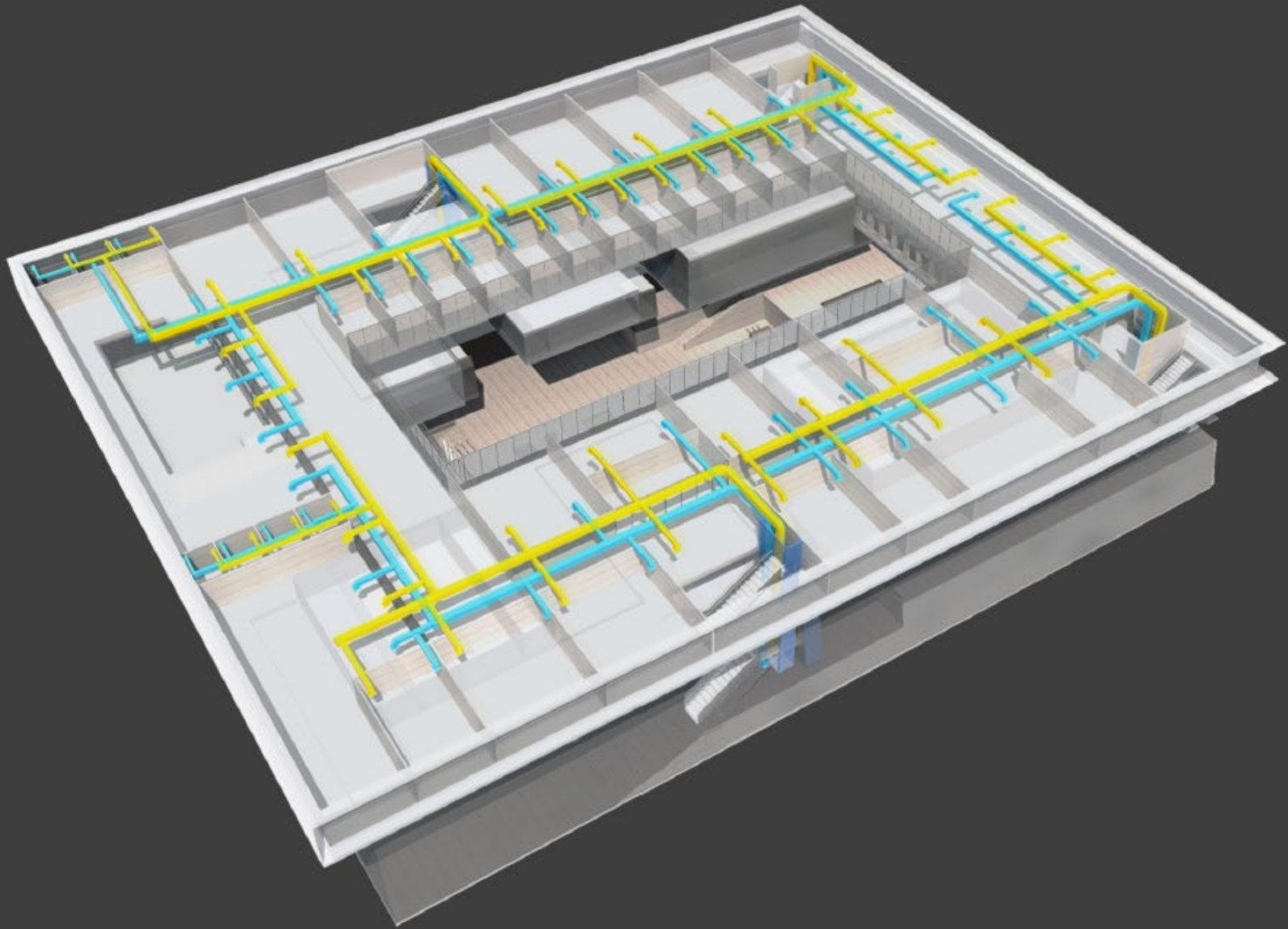


SUMMER

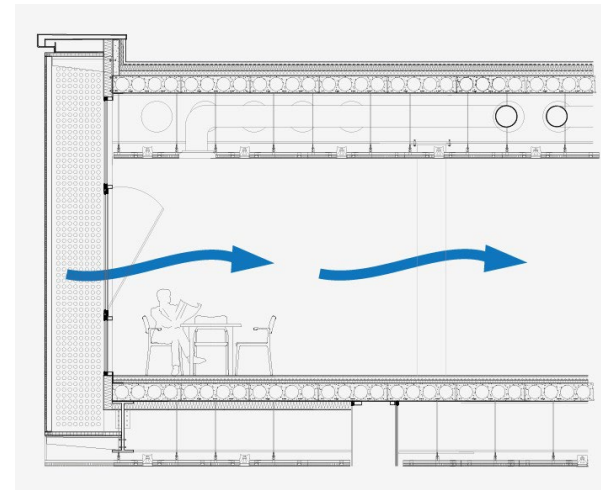
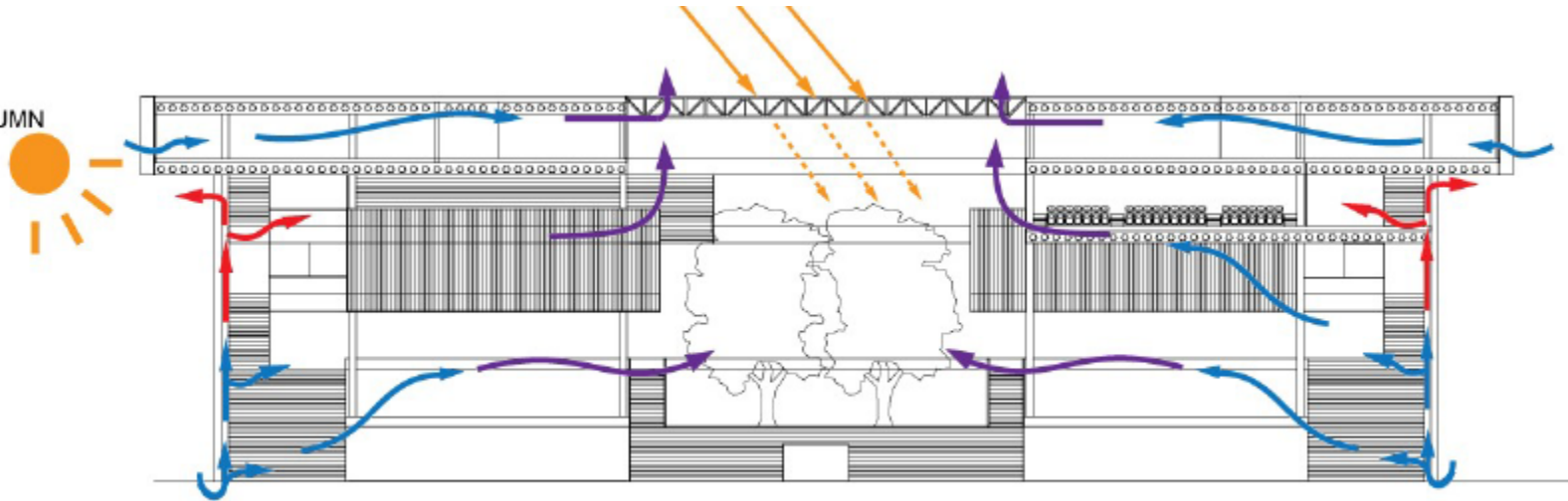


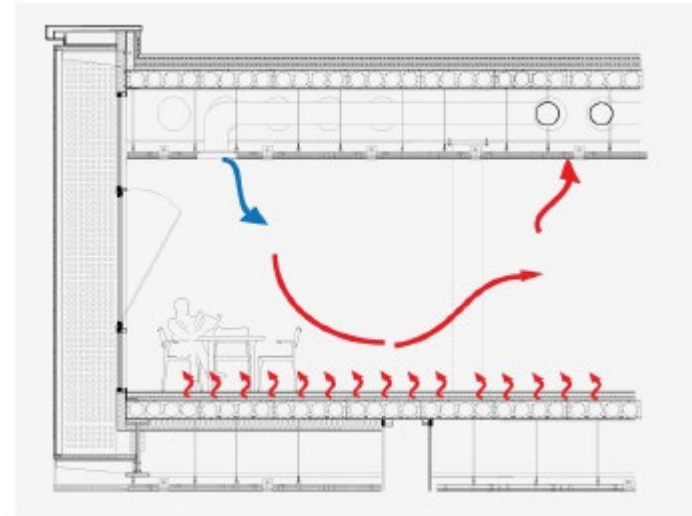
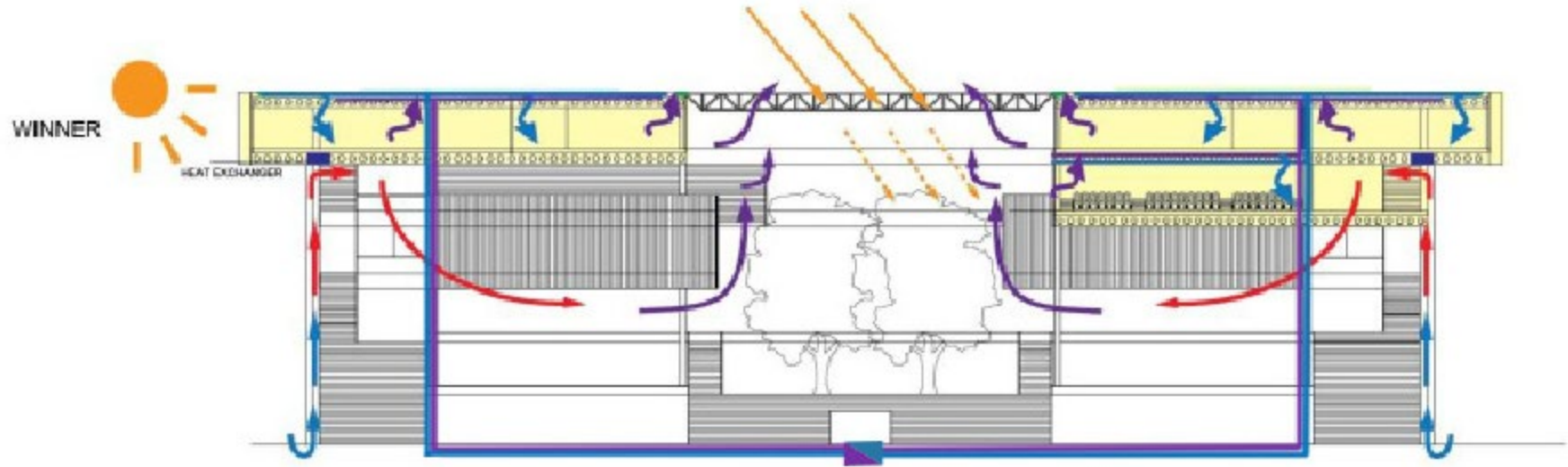
WINNER

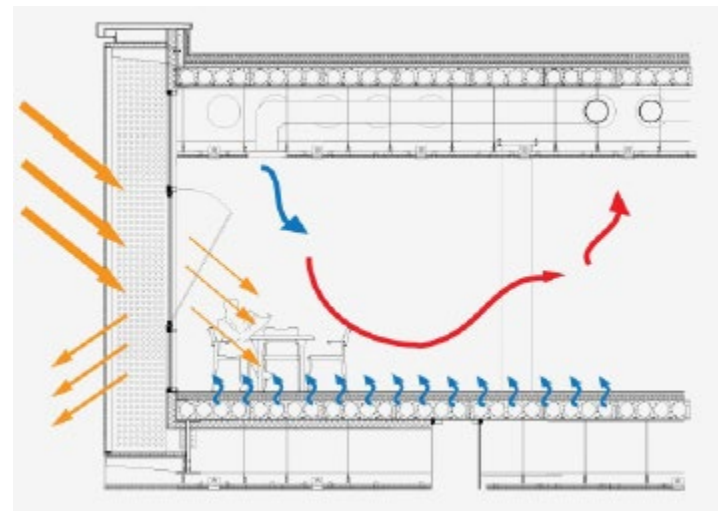
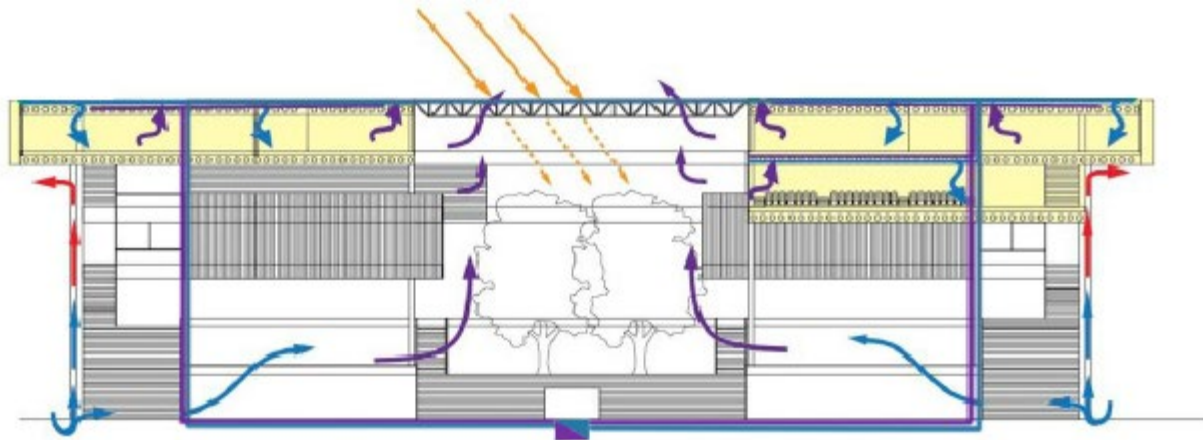


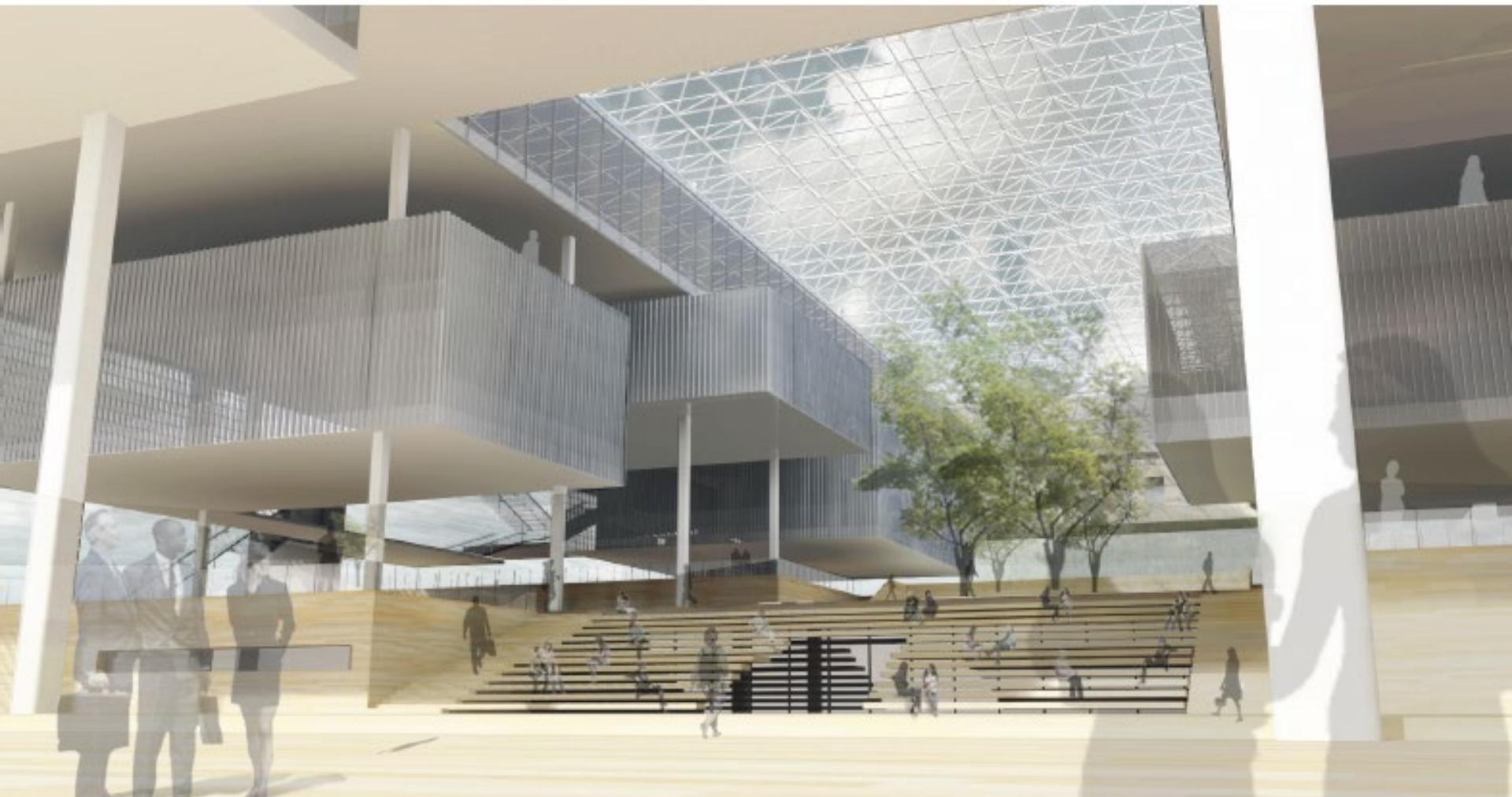


SPRING/ AUTUMN









THANKS