

# Floating Theatre at Spree River in Berlin



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May 2015

Examiner: prof. Hannu Tikka





TAMPERE UNIVERSITY OF TECHNOLOGY

Tampere University of Technology  
School of Architecture

Master of Science thesis

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# ABSTRACT

Tampere University of Technology  
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Gao Xianghe: Floating Theatre at Spree River in Berlin

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Supervisor: Professor Hannu Tikka

This master's thesis is based on the 9th OISTAT Theatre Architecture Competition 2015, which is an international ideas competition, aimed at students and emerging practitioners. The competition is organized every four years by the Architecture Commission of OISTAT, which stands for International Organization of Scenographers, Technicians and Theatre Architects.

The theme for the competition is to design a floating theatre to be moored at a particular location on the river Spree in Berlin, Germany, but capable of being moved to other sites on the river.

The floating theatre provides a performance space for an audience of 200-300 people and backstage accommodation for a cast of no more than 20 performers. Facilities for the audience, such as foyer space, toilets and refreshment areas will be located on the land and will be temporary and easily moved to another location, when needed.

There is increasing interest amongst theatre practitioners in the use of temporary site specific locations to present particular productions. These settings can often provide a unique atmosphere, which resonates with a particular production or style of presentation, in a way which may not be possible in a conventional theatre. These are the themes explored in this thesis.



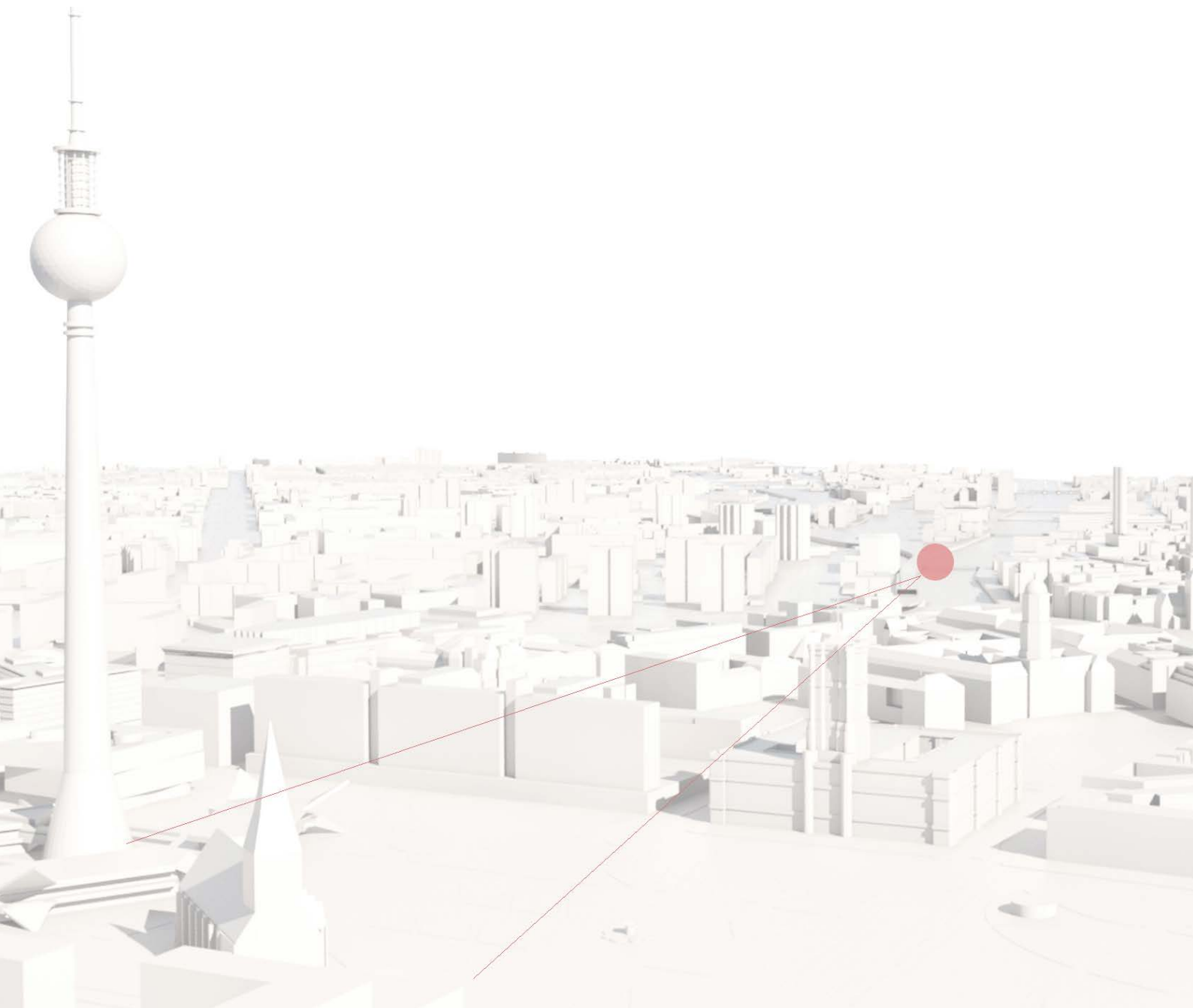
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## REFERENCES

## Background



## 1.1 Berlin

Today's Berlin is one of the most important cultural centers in central Europe. It is a large area metropolis with awe-inspiring architecture and significant landmarks.

Nevertheless bothered by economical and political disasters, the city has survived tough time and yet it has improved over the years. It has been rebuilt in a way that no one could ever



Figure 1. Brandenburg Gate, Mitte, Berlin [1]

guess that it was almost leveled to the ground couple of times [2]. Nowadays, it is dominated by the ubiquitous glass, steel and concrete structures. The city has a strong economy, a flourishing art and culture scene, and a vivid nightlife. Although not authentic, the streets are lined with masterpieces of architecture that represent almost every epoch.

Another characteristic trait of the city is that it is much decentralized. It consists of several major neighbourhoods: Prenzlauer Berg, Mitte, Friedrichshain, Schöneberg, Charlottenburg, Kreuzberg, and the Government Quarter [2].

The site of the theatre, which this thesis is focus on, is spreaded between two districts, Friedrichshain and Kreuzberg. That area is Berlin's new bohemia, managing a firm connection to the old East Germany and a forward-looking, youthful scene. It is spreaded, because its location is not fixed. As a floating theatre, the structure is to be movable, easy to be relocated to different parts of the river.

## 1.2 Holzmarkt

The site for the competition is on the northeast bank of the river Spree in Berlin in an area known as the “Holzmarkt” or “wood market” [3].

It has been a “wood market” until the World War II. After that it had become one part of the Berlin Wall, separating east and west Berlin [13]. As a result it became an undeveloped “no man’s land”. Since the wall was demolished after unification of the East and West Germany in 1989, the area has developed slowly with a number of large new corporate buildings further to the east.

Riverbank locations in most of the cities are a commodity, desirable but scarce. Not infrequently the conflict of interest between a money-driven commercial applications and public needs is taking place on them. One of them is the titular riverbank along the Spree in Friedrichshain-Kreuzberg area, which in recent years became one of the most fiercely contested construction areas in Berlin.

With the vision that after the wall fell in 1989 [13], Berlin would become the economic center between the Western and Eastern Europe, supported by a new urban development policy of the city of Berlin [3], many investors projects have been launched in the area.



Figure 2. View from the KaterHolzig on the Holzmarkt area in February 2013. [3]

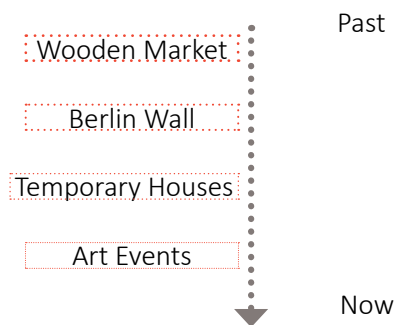


“On the opposite bank of the river is the “Eisfabrik”, a relict 19th century ice-making factory, which makes it a perfect a site for development into artistic direction with nearly unlimited possibilities.” [3]

In recent years the “Holzmarkt” site, which sits between the river and a railway line, has been occupied by a group of people who have erected a number of low cost temporary buildings and structures and use the site as a place for young Berliners to enjoy the river, to eat and drink and to hold cultural events and parties.

Currently, the Holzmarkt is the center of the neighbourhood – physically and spiritually. The market, the creative village, clubs and restaurants, surprise, inspire and entertain. “Artists, artisans, musicians and hedonists find their creational inspirations with and for each other” [12].

One could illustrate the history of the “Holzmarkt” in the following chronological order:



Going into too many details of the site will miss the point of the project, which aim is to design a movable structure. Bearing that in mind, the proposed floating theatre will be able to be freely relocated to different parts of the river Spree, possibly exceeding the boundaries of the “wood market”. However, as an anchor for this work, one specific location has been chosen in order to act as a reference point for the design [Figure 6].



Figure 3. Platz an der Spree [4]



Figure 4. Holzmarkt sits right on the Spree near the Ostbahnhof [5]

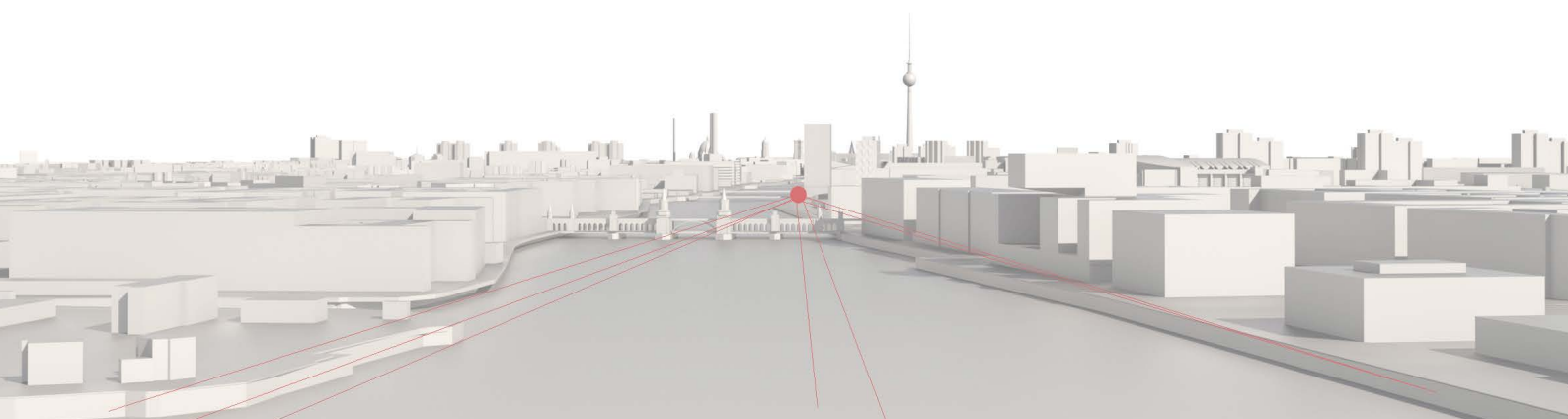


Figure 5. Berlin map before 1989. Holzmarkt is marked in red. [13]



Figure 6. View of the Holzmarkt area. Theatre site marked in red. Source: author of this thesis.

## Floating



## 2.1 The Ark

Russian architect Alexander Remizov considers that a floating building could be a model of life in the future. Remizov called his prototype “The Ark” [7].

Ark is made of wood, steel and strong ETFE plastic and could be adapted to many different environments. Ark could be used for various purposes, including accommodation in an emergency and as a hotel. Remizov argues that “the structure allows rapid construction of the facility that may be floating” [7].

The author of the project solved the problem of power supply by placing a generator of electricity using wind power in the center of the building. Moreover, the facility is on the outside covered with solar panels. If the building is set on the water, Remizov claims that “it could use the thermal energy of water” [7]. However it has been not explained exactly how would that be achieved.

Although it is a prototype, Remizov believes that Ark could be used for various purposes, from apartments and offices to auditoriums, conference halls and hotels. Additionally, author of the project states that “up to ten thousand people can be placed in it” [7].



*Figure 7. The ark, floating building for 10000 people. [7]*



## 2.2 Floating Sauna

Floating sauna has been designed by Casagrande & Rintala [8] for the Rosendahl village by the Hardangerfjord in Norway. The sauna is situated in the center of the village. It glows like a lantern when the sauna is in use.

“The Design-Build process was an intensive workshop for the Västlands Art Academy, Norway” [9].



Figure 8. Floating sauna. [9]



Figure 9. Floating sauna. [9]

## 2.3 Arctia Headquarters

Arctia Headquarters is a floating structure which has been designed by K2S Architects [11].

*From the architect.* “Docked icebreakers are an essential part of the Katajanokka-shore environment. The new head-quarters of Arctia Shipping Ltd. will be placed in a floating office building, in front of the listed main building of the Finnish ministry of Foreign Affairs which was originally designed by C. L. Engel” [6].

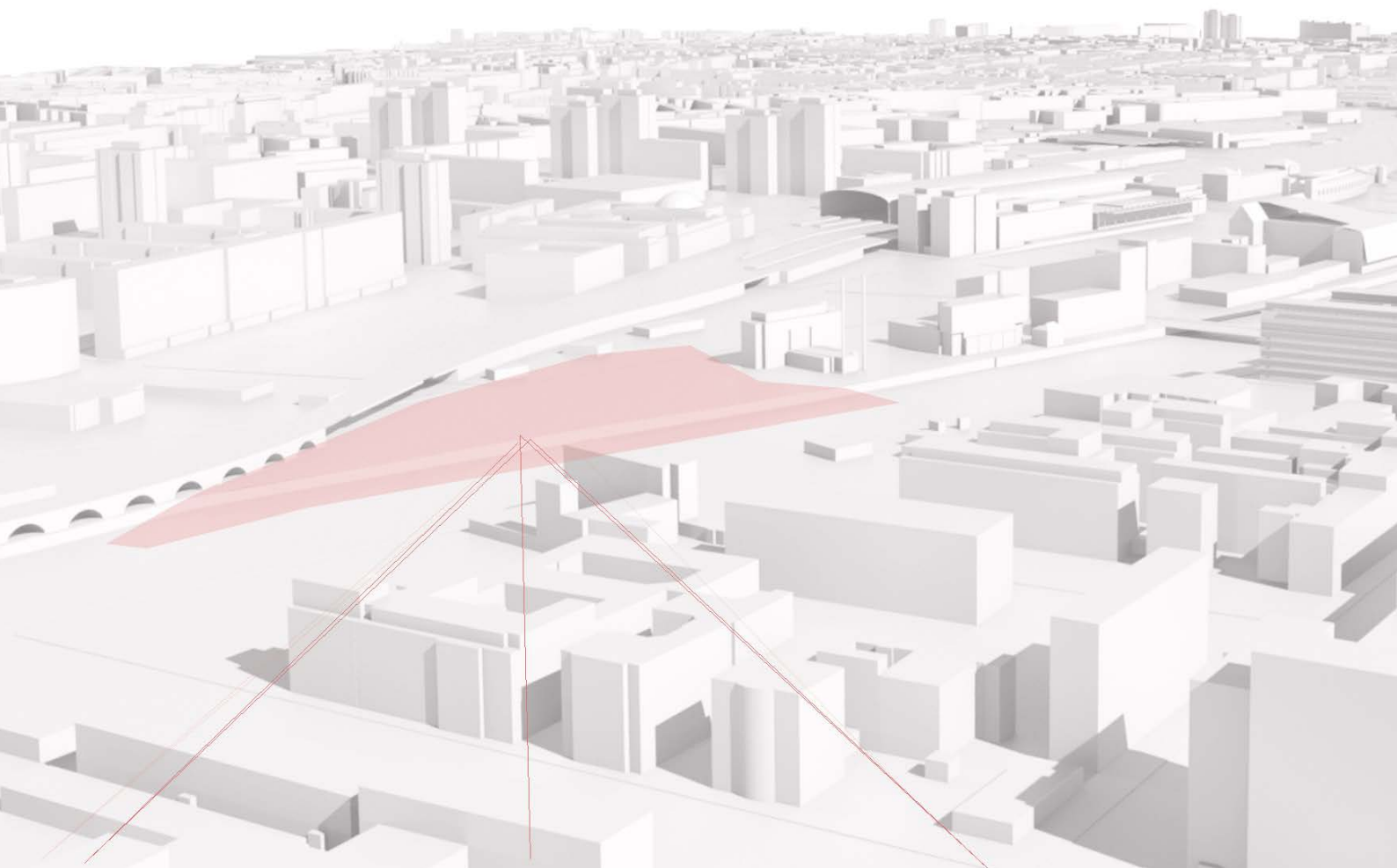
“The horizontal massing and customized black steel facades relate to the black hulls of the adjacent ice breaker ships. The headquarters building can be seen as one the vessels. The interior of the black “steel ship” is constructed of lacquered wood which related to earlier ship building traditions. The facades of the building are made of customized wave pattern steel profile. There is a gradient and abstract pattern perforated on the steel profiles which relates to ice crystals and sailor textile patterns” [6].

“The building will be completed on a shipyard in western Finland and towed to site. There is a water ballast system which will maintain the floor level of the office building in the same level as the dock” [6].



Figure 10. Arctia Headquarters by K2S Architects [11], Katajanokka, Finland [10]

## Design



### 3.1 Idea

Although this master's thesis is based on the 9th OISTAT Theatre Architecture Competition 2015, it is treated only as a reference and not aiming at fulfilling all the goals posed by the competition's committee.

The idea of this project is that the theatre is a floating structure [Figure 11], movable, thus easy to be relocated to different parts of the river. Nevertheless, at its current location of the anchor, it is designed in a way that it blends nicely with any river bank area it is located at the moment. Hence it belongs to everybody. The design of the theatre merges ideally with the surrounding environment. As well as it is part of the landscape it is also full of life filled with people.

On the one hand, it is an awe-inspiring landmark, easy to identify and access by passers-by. On the other hand, it floats and blends into the urban structure, making it look like it has been inherently always there. Hence the building is of very light and transparent form.

Transparency allows audience to observe the performances from both inside and outside of the theatre. Light structure gives an impression of floating at the surface of the river Spree. The building is designed to be an attractive destination not only during plays or exhibitions, but as a comfortable place to spend spare time, especially at the outdoor terrace surrounding the theatre.

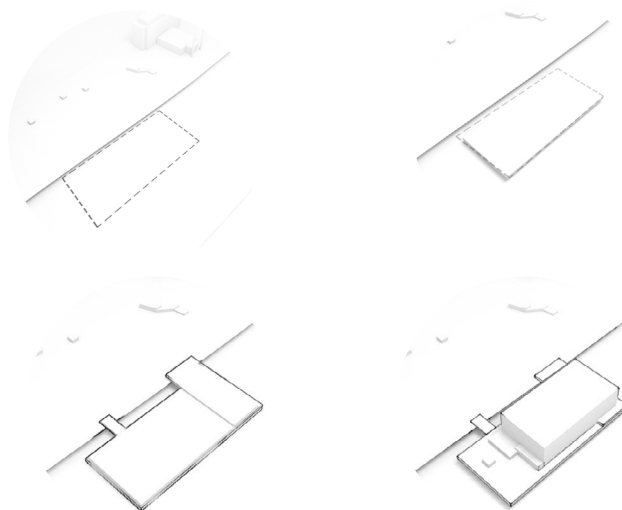


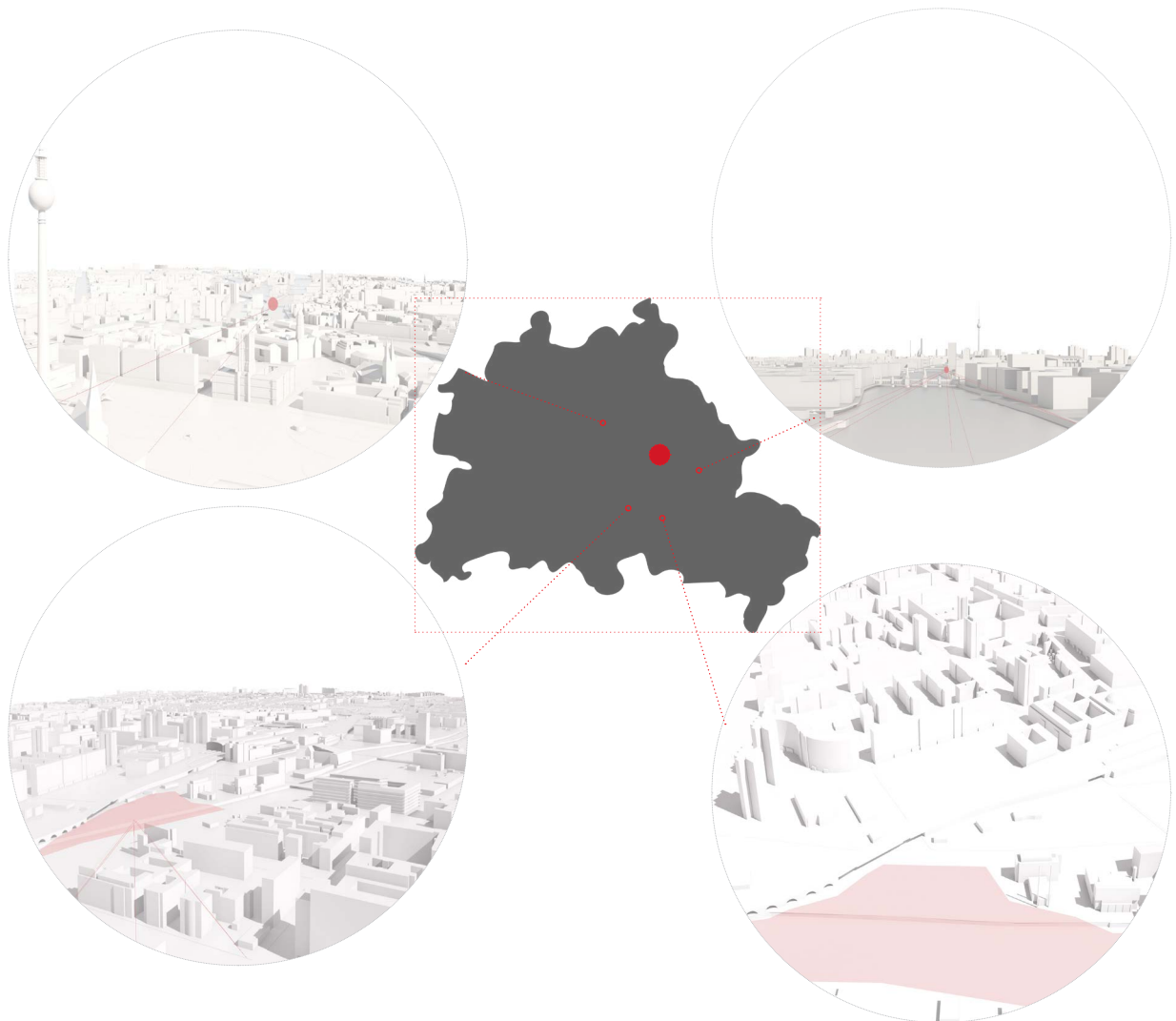
Figure 11. Concept of the floating theatre. Source: author of this thesis.

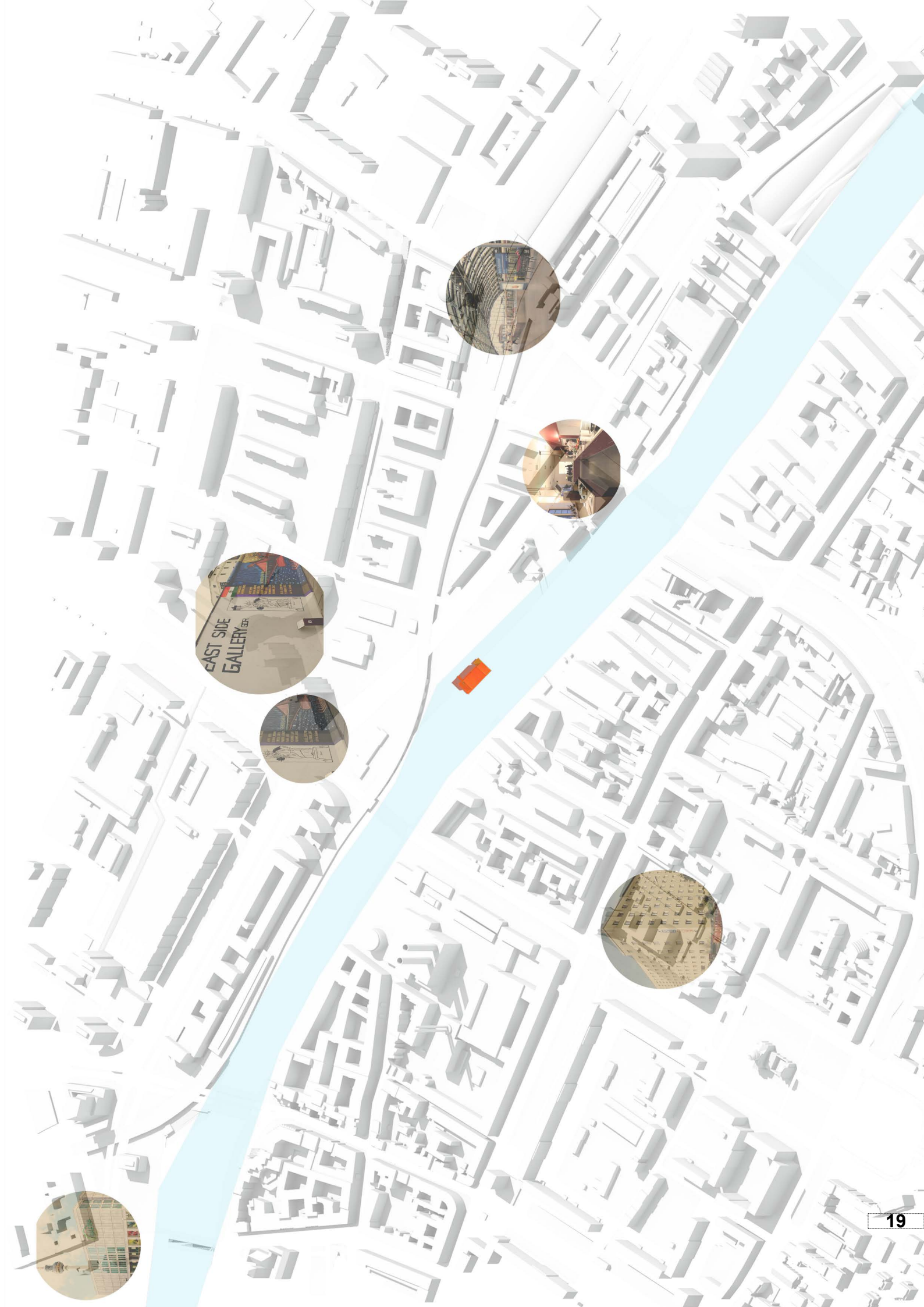


“There is increasing interest amongst theatre practitioners in the use of temporary site specific locations to present particular productions. These settings can often provide a unique atmosphere, which resonates with a particular production or style of presentation, in a way which may not be possible in a conventional theatre” [12]. Thus the structure of the proposed design is very open and light.

This theatre brings aesthetical joy to the people who can see it and feel it, no matter the time of the year. Illumination yields different experience depending on whether it is cold or warm outside. Stronger lightning during the winter attracts more people to come inside, giving an impression of the warm and cozy place. During the summer on the other hand, the structure provides shadow and chilly air due to its location at the river bank.

### 3.2 Site







### 3.3 Building





Backstage



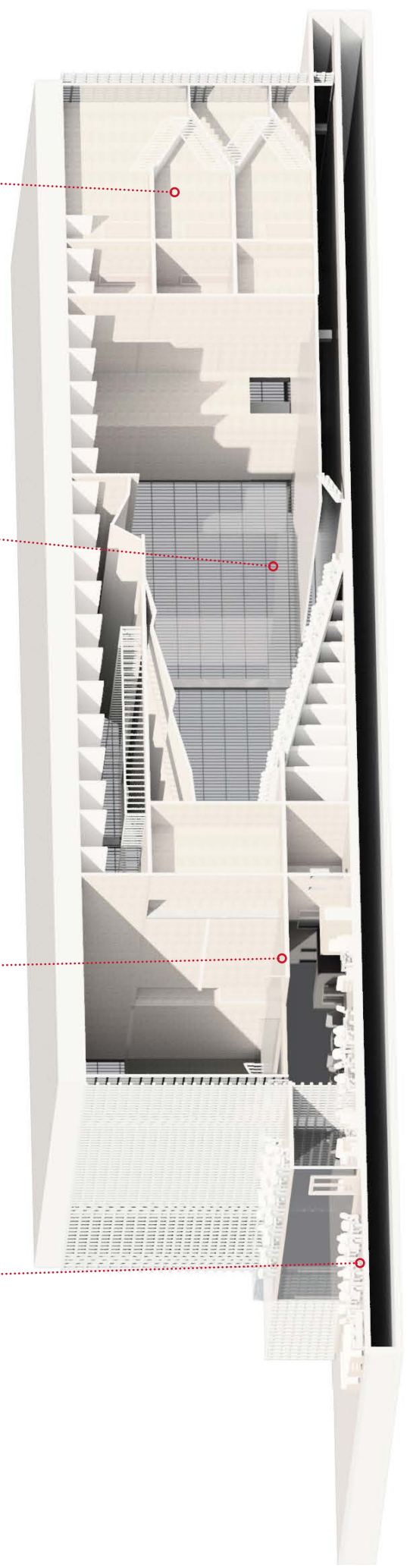
Auditorium



Foyer



Café











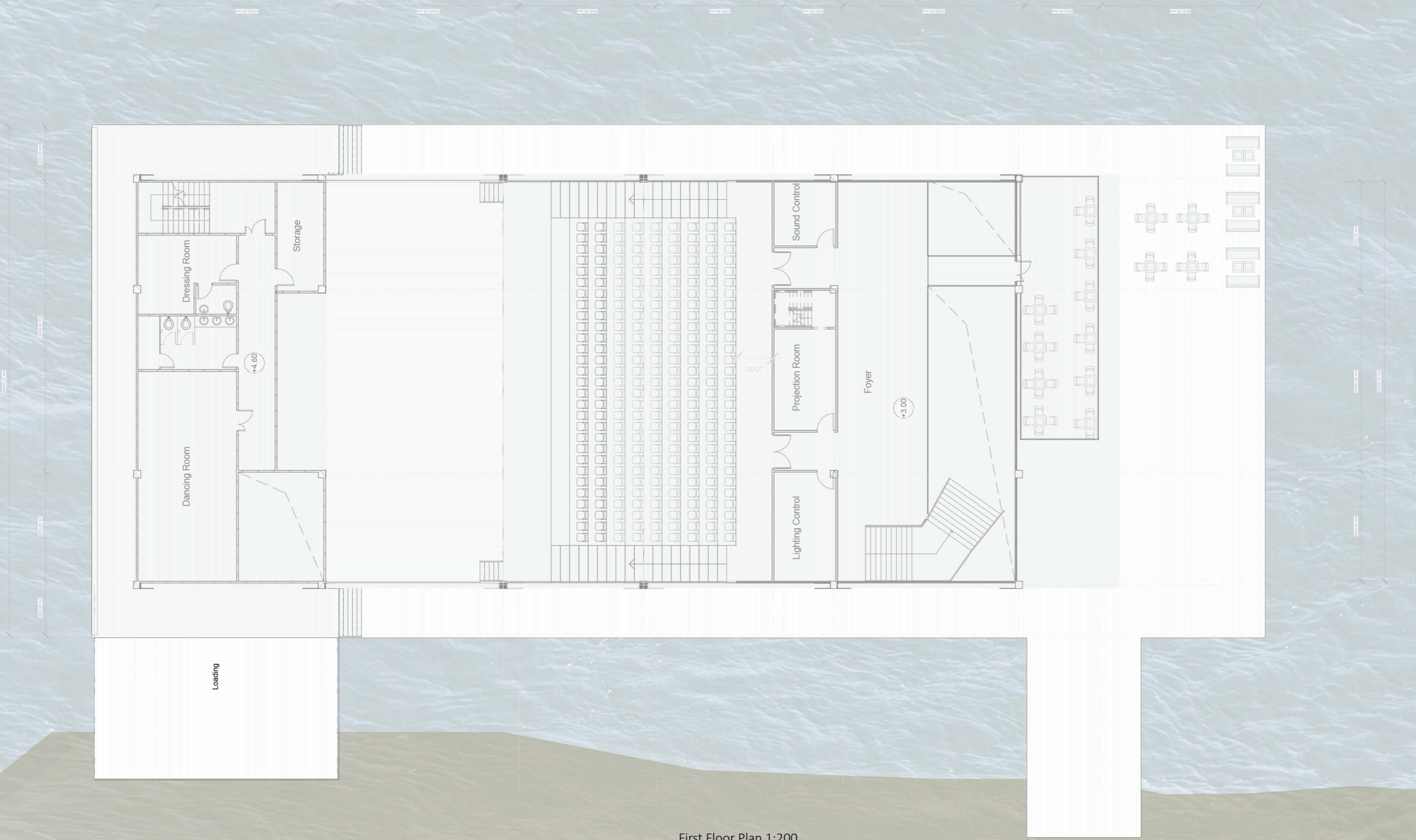




Ground Plan 1:200







First Floor Plan 1:200





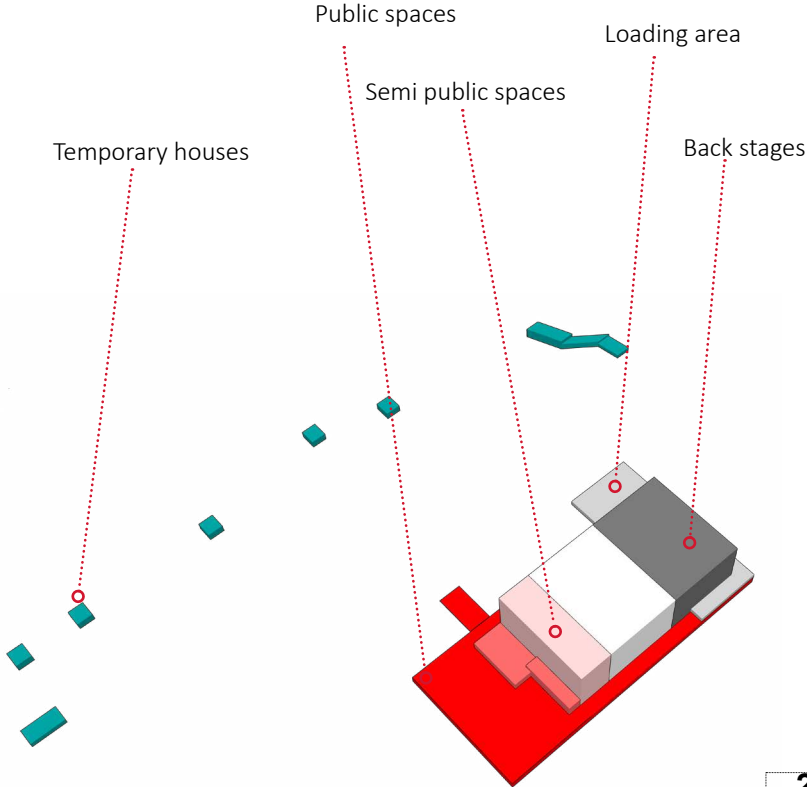
Second Floor 1:200





View from Entrance

vv





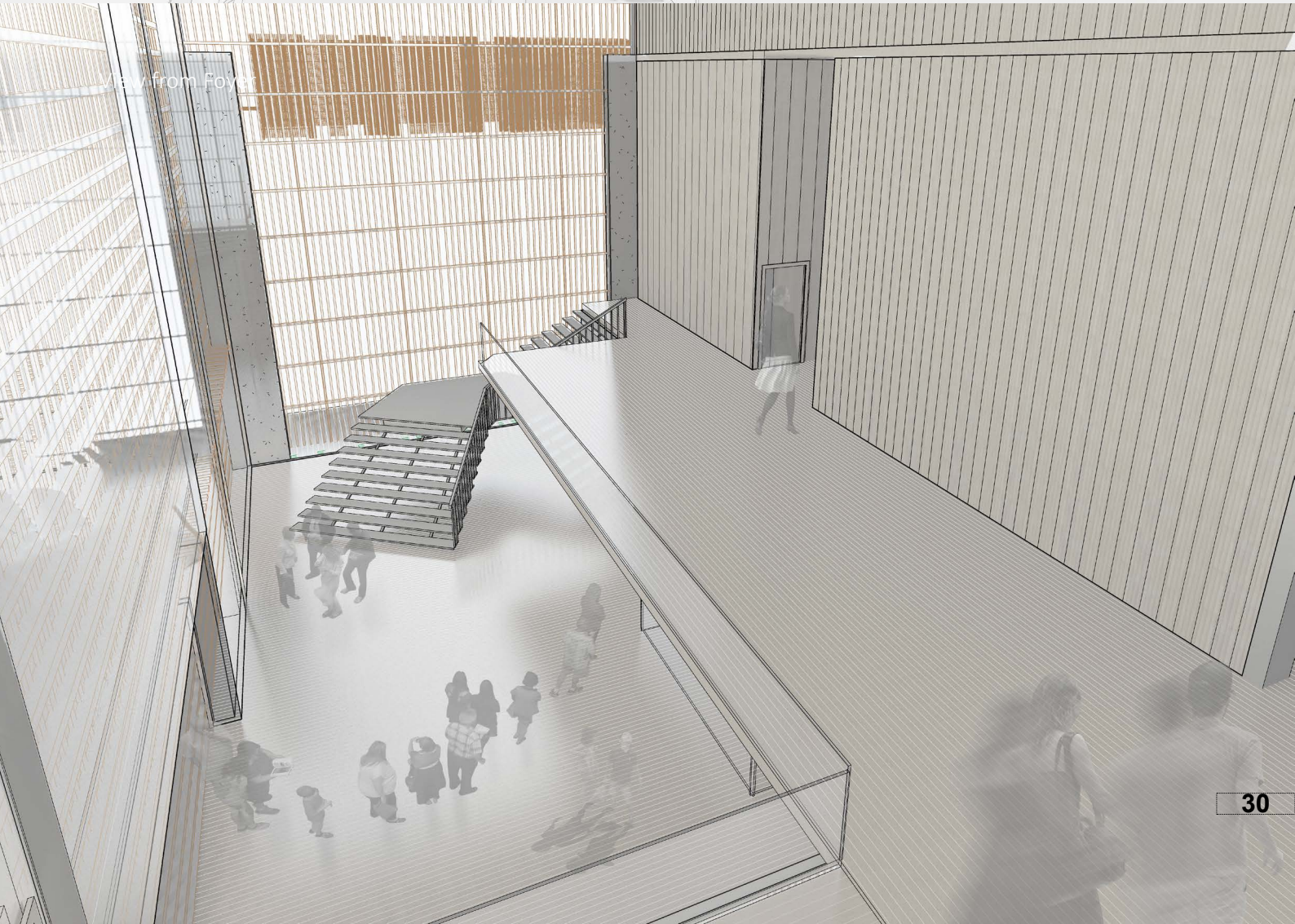




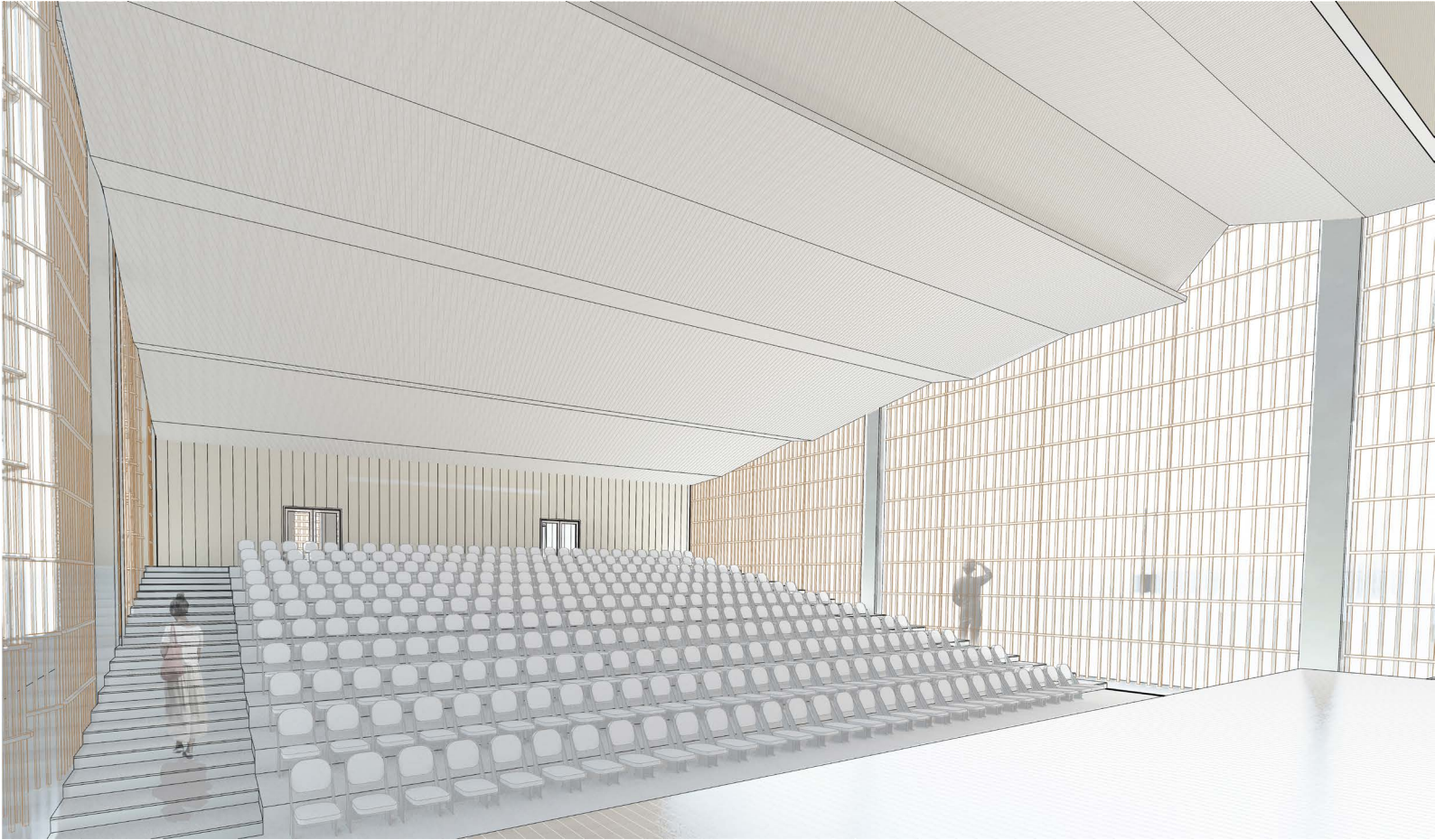
View from Cafe



View from Foyer

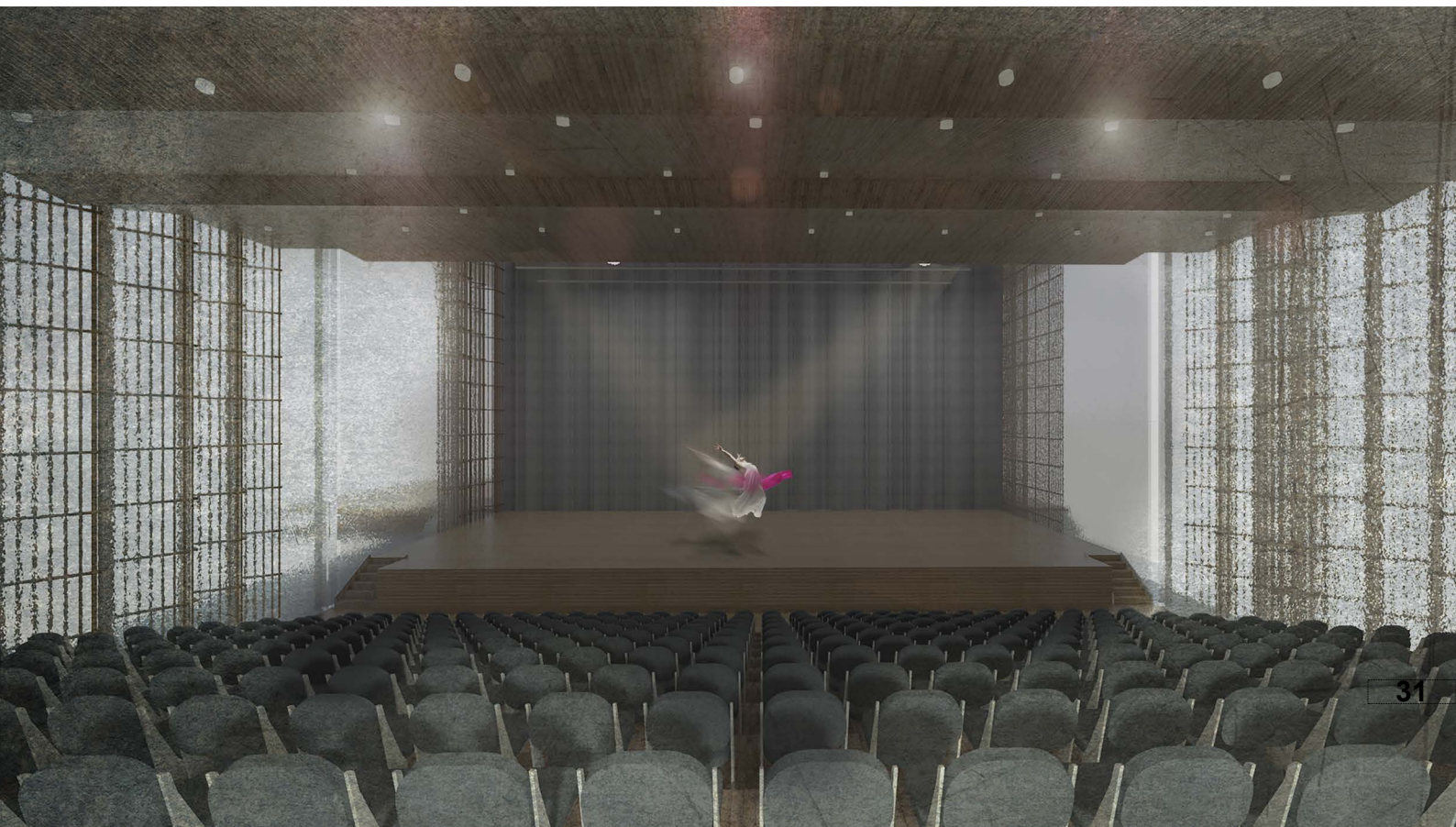




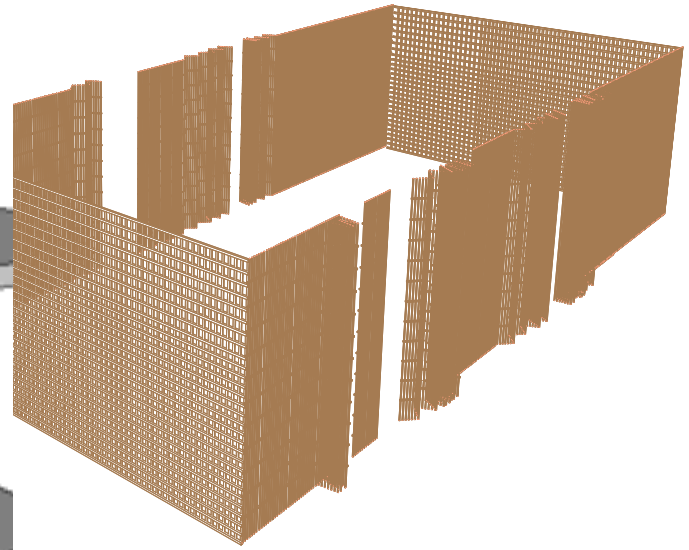
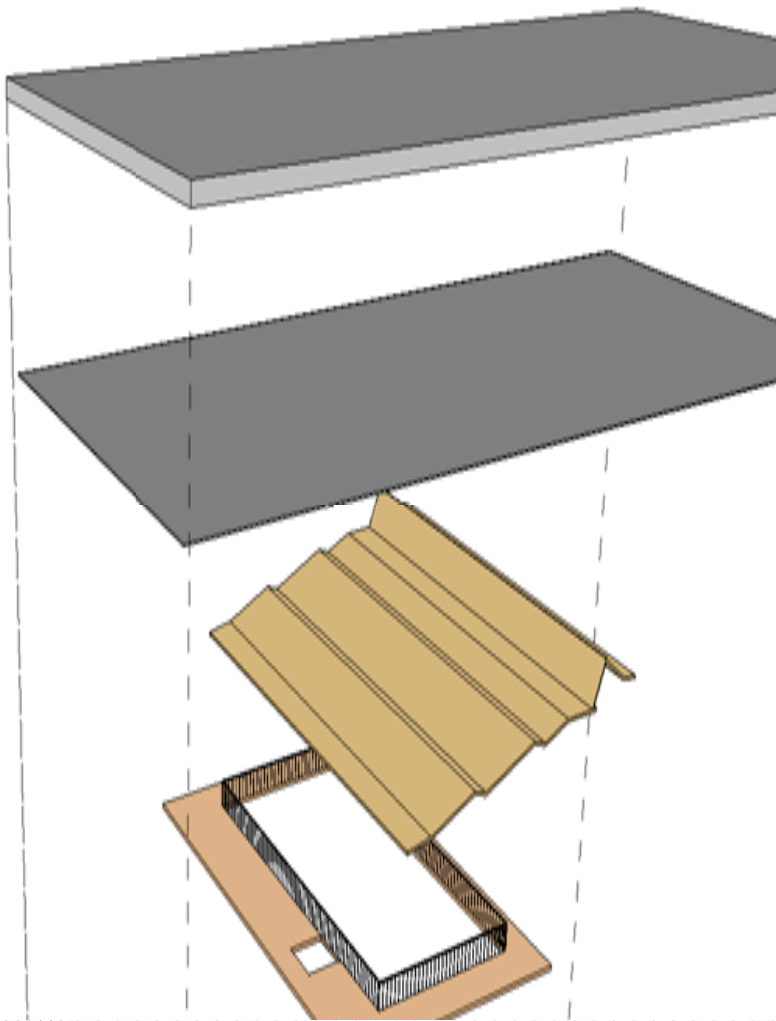


The movable and adjustable facade can provide different lighting atmosphere, both to the theater itself and to the surroundings.

In case of performance, the theater's facade can be either opened or closed by moving the corresponding elements.





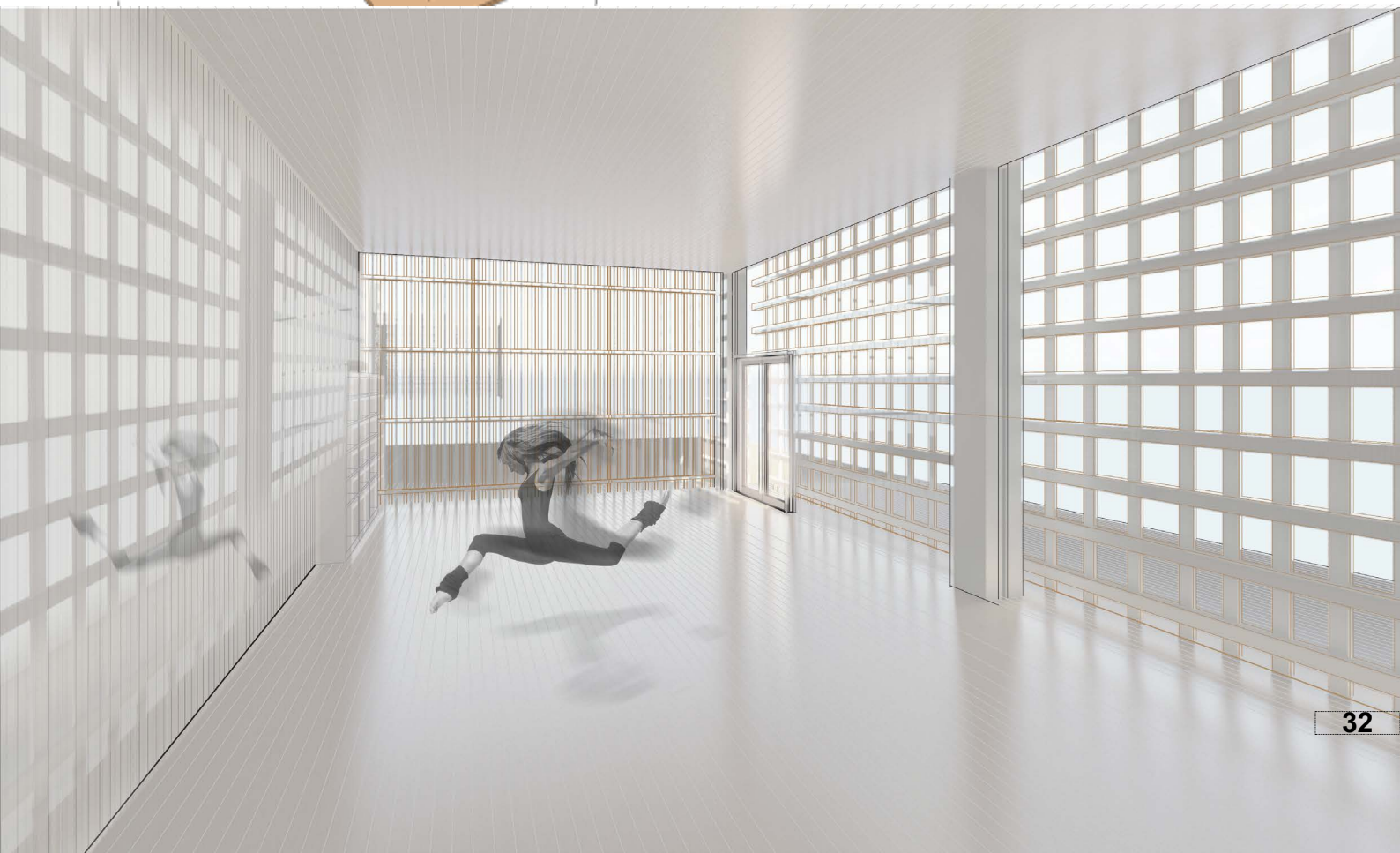


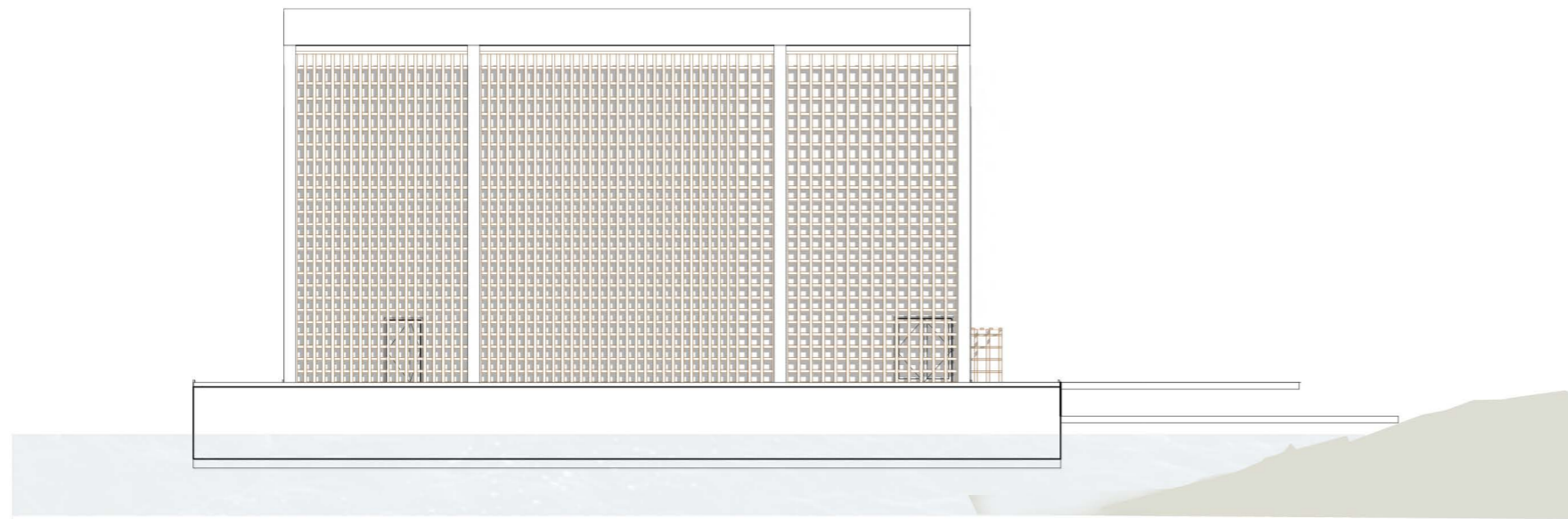
Facade is outside of curtain wall which prevent strong sunshine and also provide warmer temperature during winter time. Curtain wall will be build as double-skin facade.

Facade as shading system consists of single timber. Horizontal ones are hanging along the columns. Vertical timber which can be moved is hanging in the horizontal position.

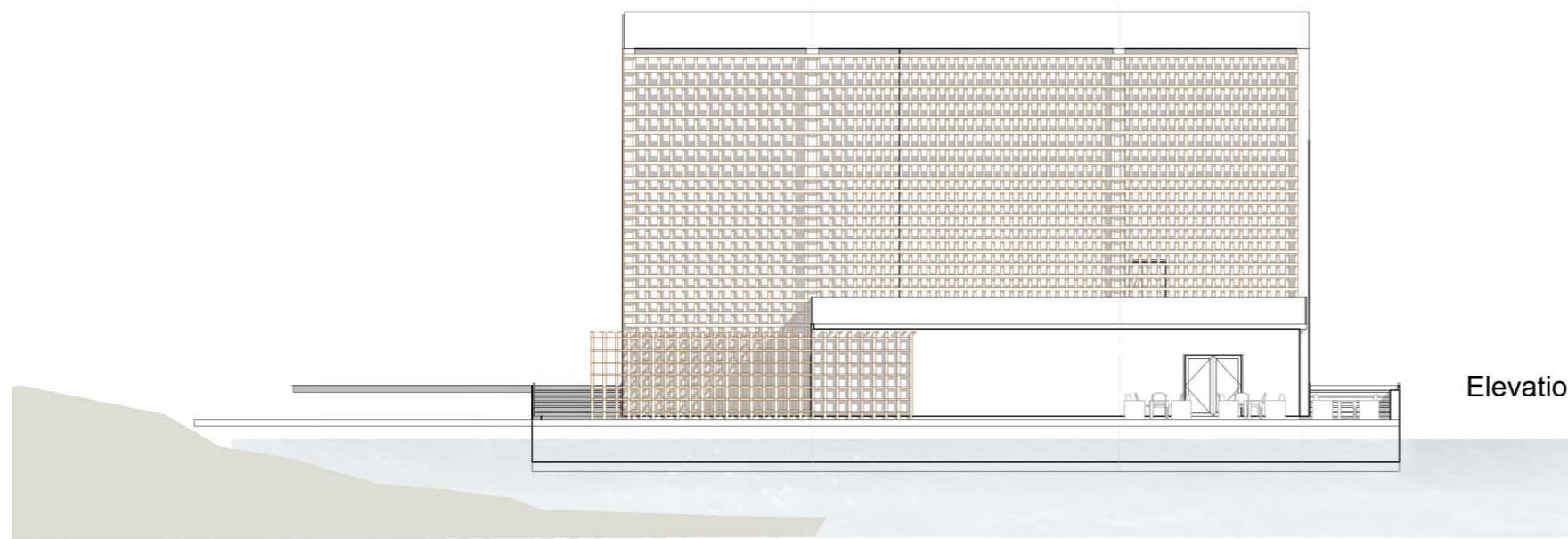
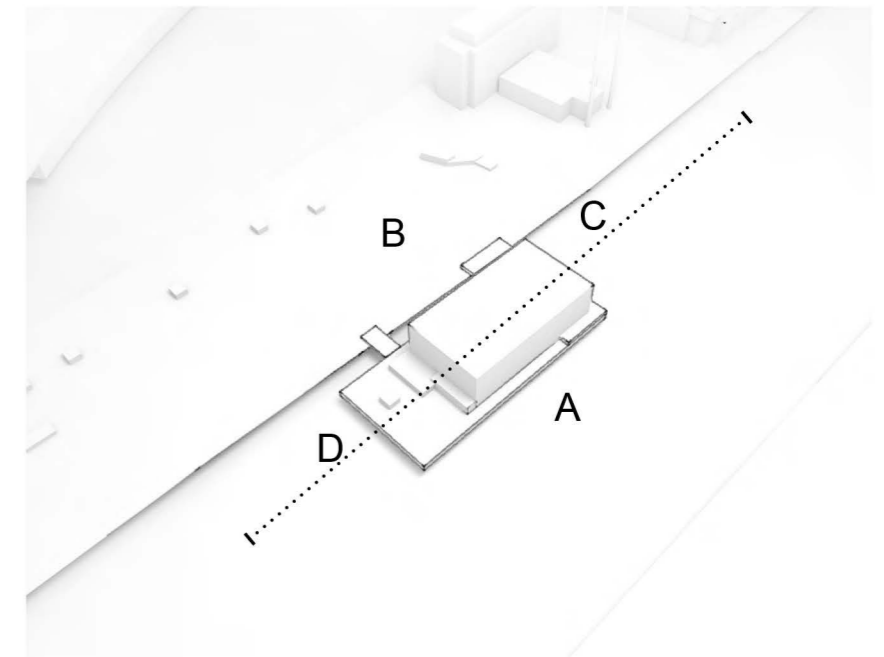
Each "shading" element is 1 meter long, elements are connected with joints, by which the facade can be folded or closed.

Dancing Room

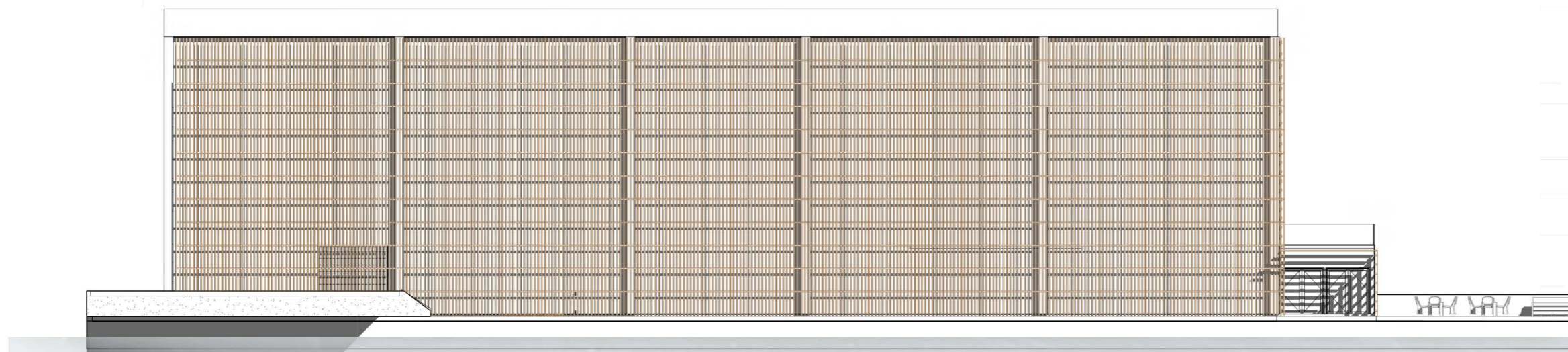




Elevation C



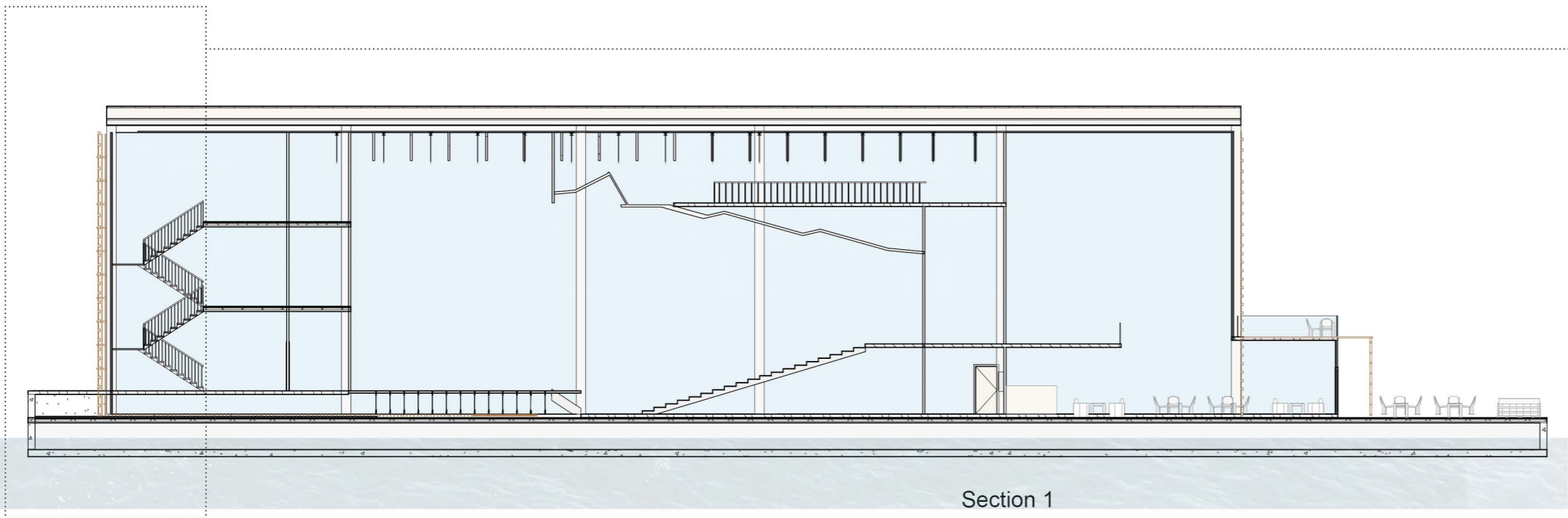
Elevation D



Elevation A

Roof.Top	13098.00 mm
	12000.00 mm
Maintenance	9000.00 mm
	8200.00 mm
2F	6000.00 mm
	4600.00 mm
1F	3000.00 mm
Stage	1000.00 mm
Ground Floor	0.00 mm
-1 Level	-1500.00 mm





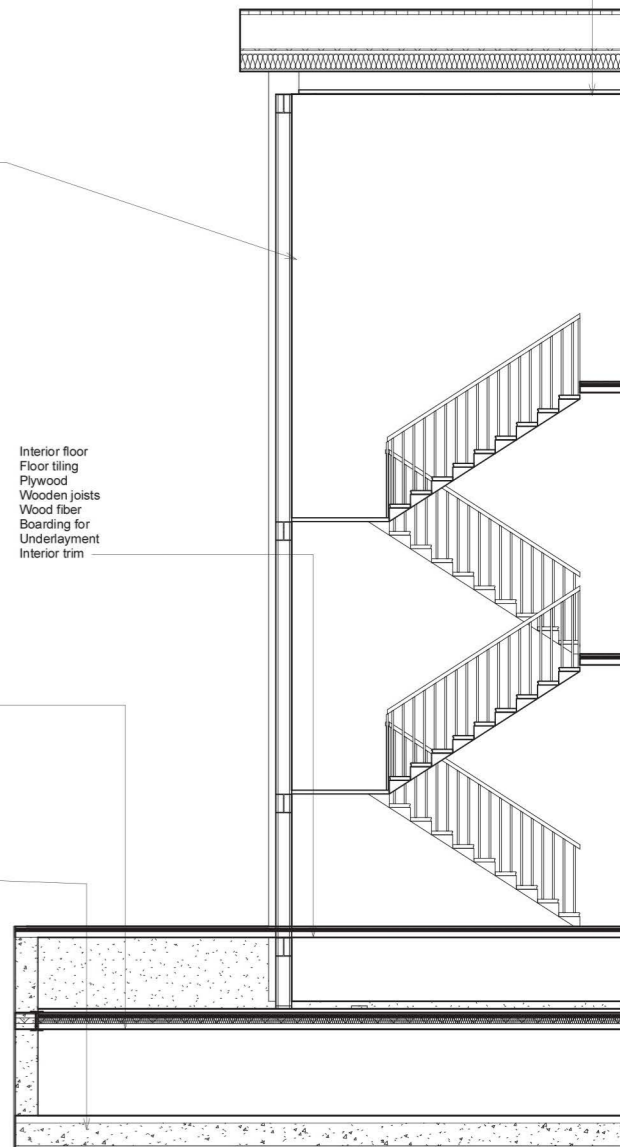
Section 1  
1:200

- Roof
  - Interior wooden plating
  - Plywood board
  - Ventilation gap
  - Insulation
- Wall
  - Interior curtain wall
  - Ventilation gap 150 mm
  - Double glass
- Shading facade
  - Wooden joists
  - Wood fiber

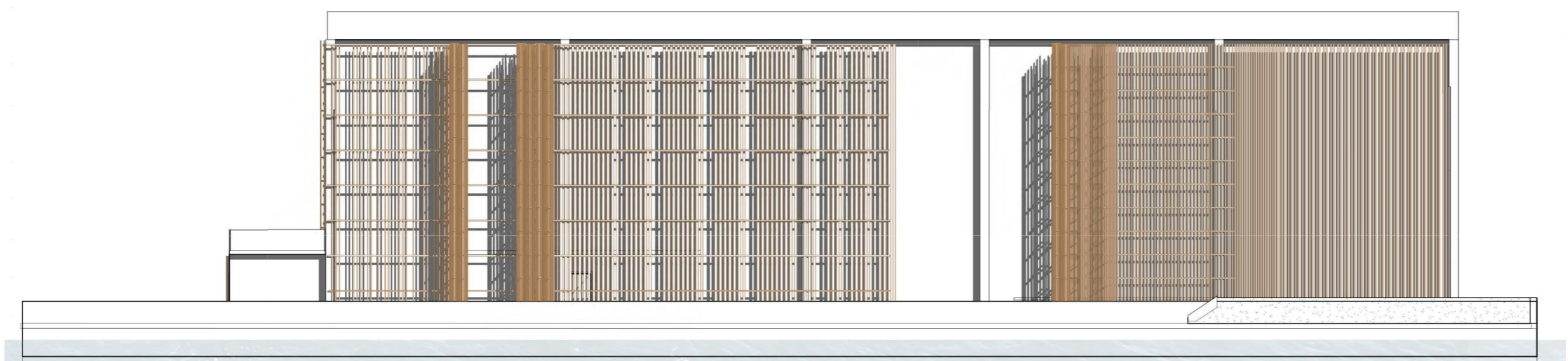
- Interior floor
  - Floor tiling
  - Plywood
  - Wooden joists
  - Wood fiber
  - Boarding for Underlayment
  - Interior trim

- Deck surface
  - Floor tiling
  - Plywood
  - Wooden joists
  - Wood fiber
  - Boarding for underlayment

- Concrete pontoon
  - Ventilation gap 1500mm
  - Fibreboard 50 mm
  - Concrete 300mm
  - Vapor barrier
  - Asphalt, Bitum
  - Ceramic tile



Cut Out 1:50



Elevation B  
1:200

Area/Room schedule

Area	Name	Level	Count
317 m <sup>2</sup>	290 seats	Ground Floor	1
10 m <sup>2</sup>	WC	Ground Floor	1
10 m <sup>2</sup>	WC	Ground Floor	1
7 m <sup>2</sup>	WC	Ground Floor	1
19 m <sup>2</sup>	Closet/service	Ground Floor	1
27 m <sup>2</sup>	Kitch/Bar	Ground Floor	1
83 m <sup>2</sup>	Rest/Cafe	Ground Floor	1
182 m <sup>2</sup>	Lobby	Ground Floor	1
Not Placed		Not Placed	1
62 m <sup>2</sup>	Dressing Room	Stage1	1
28 m <sup>2</sup>	Sidestage	Stage1	1
34 m <sup>2</sup>	Corridor	Stage1	1
13 m <sup>2</sup>	WC	Stage1	1
19 m <sup>2</sup>	WC	Stage1	1
8 m <sup>2</sup>	Lighting control	Stage1	1
239 m <sup>2</sup>	Stage	Stage1	1
62 m <sup>2</sup>	Dancing Room	stage2	1
16 m <sup>2</sup>	Storage	stage2	1
22 m <sup>2</sup>	Stair	stage2	1
8 m <sup>2</sup>	HVPC	Stage1	1
22 m <sup>2</sup>	Stair	Stage1	1
16 m <sup>2</sup>	WC	stage2	1
24 m <sup>2</sup>	Dressing Room	stage2	1
3 m <sup>2</sup>	Info	Ground Floor	1
62 m <sup>2</sup>	Dancing Room/Multiple Function	Stage3	1
16 m <sup>2</sup>	WC	Stage3	1
24 m <sup>2</sup>	Office	Stage3	1
16 m <sup>2</sup>	Storage	Stage3	1
27 m <sup>2</sup>	Corridor	stage2	1
21 m <sup>2</sup>	Lighting Control	1F	1
19 m <sup>2</sup>	Projection Room	1F	1
12 m <sup>2</sup>	Sound Control	1F	1
112 m <sup>2</sup>	Foyer	1F	1
146 m <sup>2</sup>	Loading	Stage1	1
1687 m <sup>2</sup>			

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## IMAGES

If not mentioned otherwise, every drawing and image is the original work of Gao Xianghe.

p. 19: photos in circles taken from the Google Maps Street View, <http://maps.google.com>