

## **SHENZHEN OPERA HOUSE**

MSc Architecture - AY 2020-2021

Project Type - Cultural (Opera / Theatre Design)

Politecnico Di Milano

Location - Shenzhen, Guangdong Province, China

## SHENZHEN OPER HOUSE

This Shenzhen Opera Theater is designed to create "A Dialogue between Shenzhen & The Pacific". The site takes the feature of a peninsula (bordered on 3 sides by water) looking over the Pacific ocean. The opera theater serves as a special knot along the coastlines of Shenzhen city, emphasizing the relationship between the city and the Pacific ocean.

In reference to the concept, the Shenzhen Opera Theater takes on biophilic principles from the sea creatures, in particular, coastal organisms found within the Shenzhen Bay. These patterns and textures become evident in the definitions of forms and material textures.



# SHENZHEN OPERA HOUSE

A DIALOGUE BETWEEN SHENZHEN AND THE PACIFIC



The Opera House serves as a special knot along the coastlines of the Shenzhen city, emphasizing the relationship between the city and the Pacific Ocean.

In reference to the concept, the Shenzhen Opera House takes on biomorphic principles from sea creatures...in particular coastal organisms found within the Shenzhen Bay. These patterns are becoming evident in the definitions of shapes and material textures.



The rapid development of Shenzhen, as well as its neighboring cities, is highly attributed to its functionality as a coastal city, serving as an important buffer for international trade.



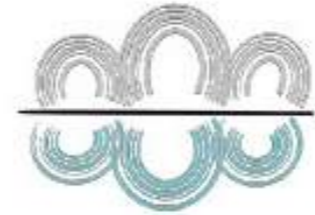
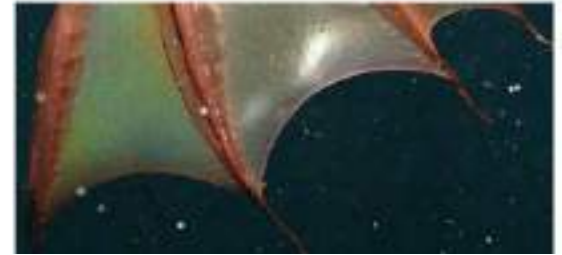
Site reclamation from the Pearl River Delta (off the Pacific Ocean)



The site takes the features of a peninsula (bordered on 3 sides by waters) looking over the Pacific Ocean

# JEWELS OF SHENZHEN BAY

TEXTURES AND PATTERNS



SEA MIRROR



THEATER SHAPES



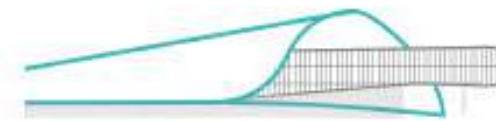
THE TUCKED IN THEATRE



PRECIOUS CORE

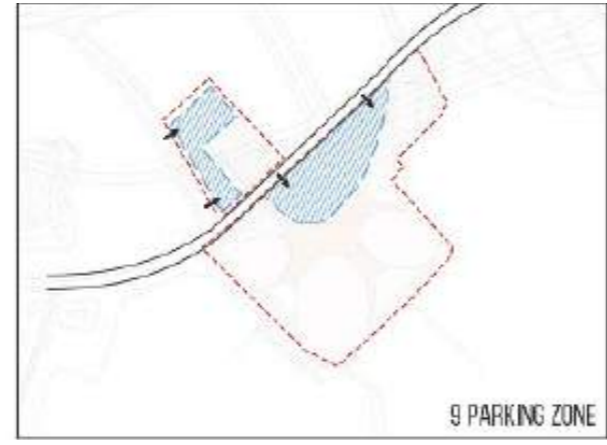
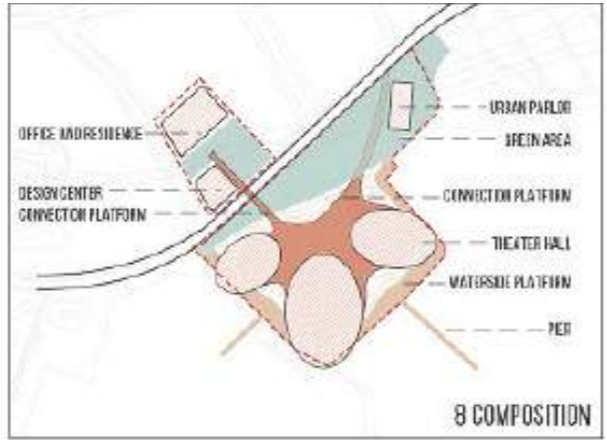
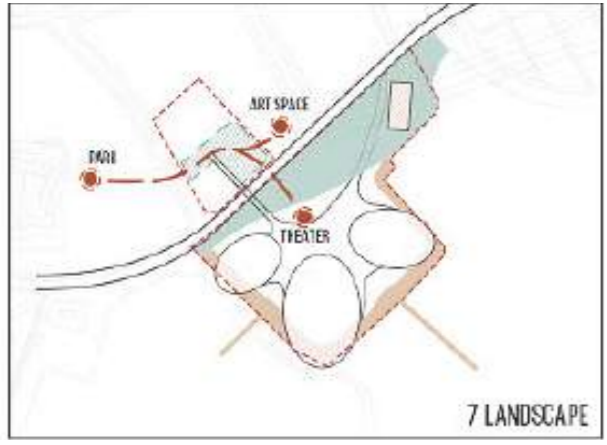
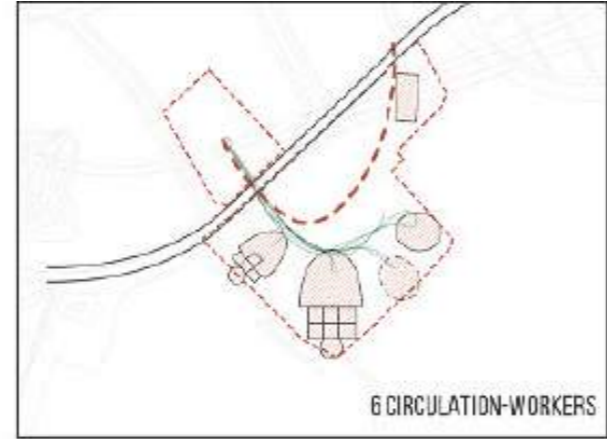
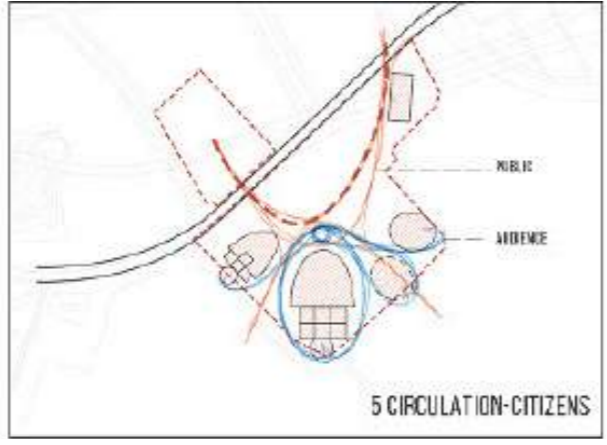
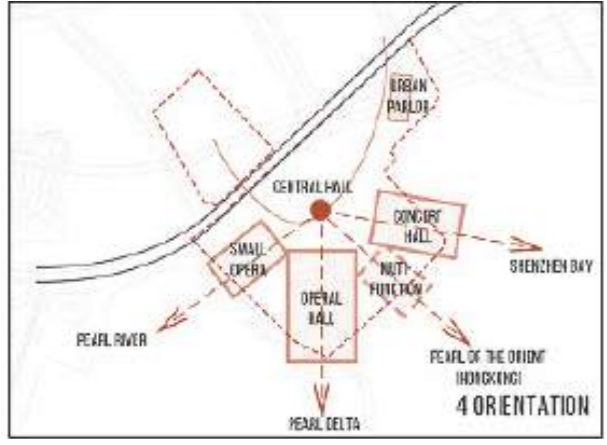
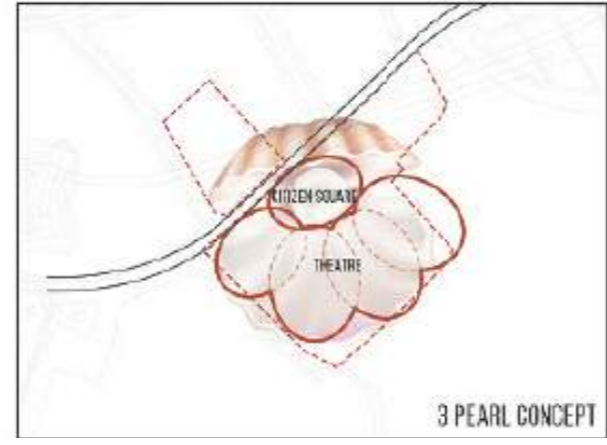
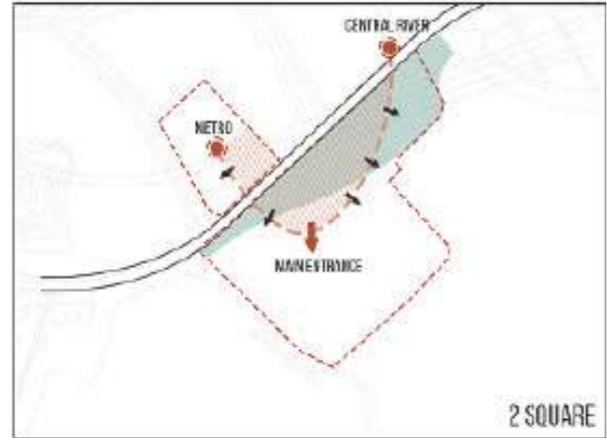
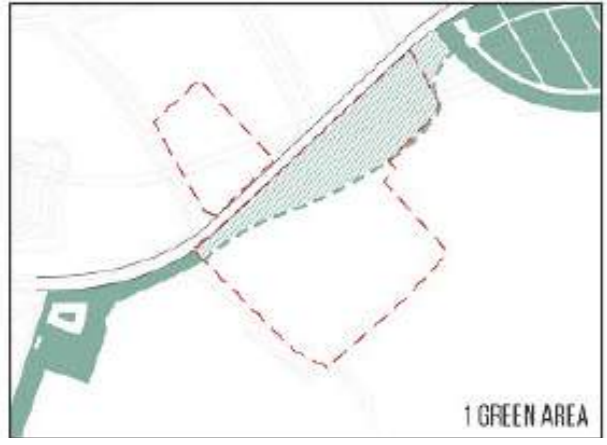


CHANGE IN MATERIAL

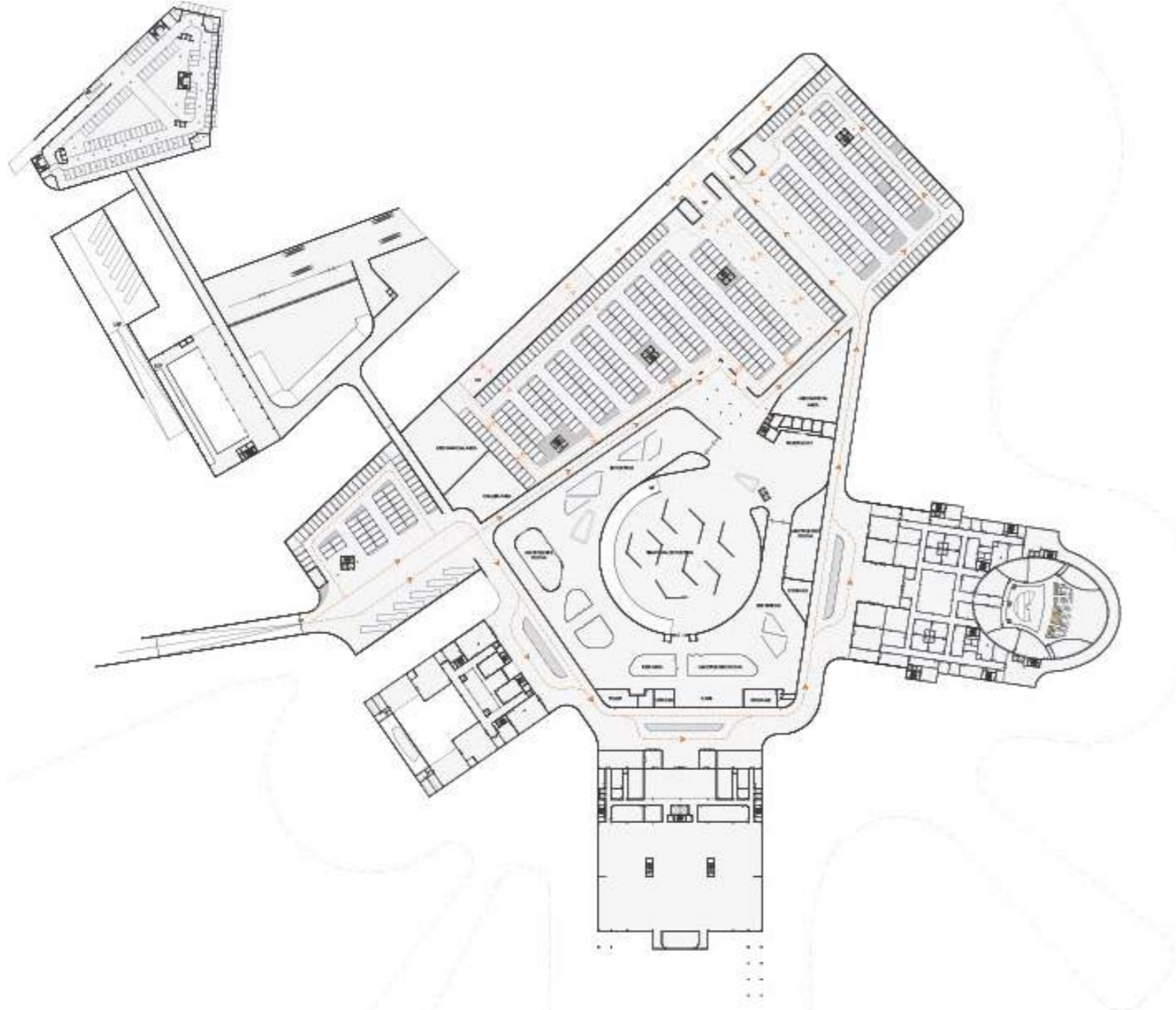


THE URBAN ART AND BRIDGE

STRATEGY



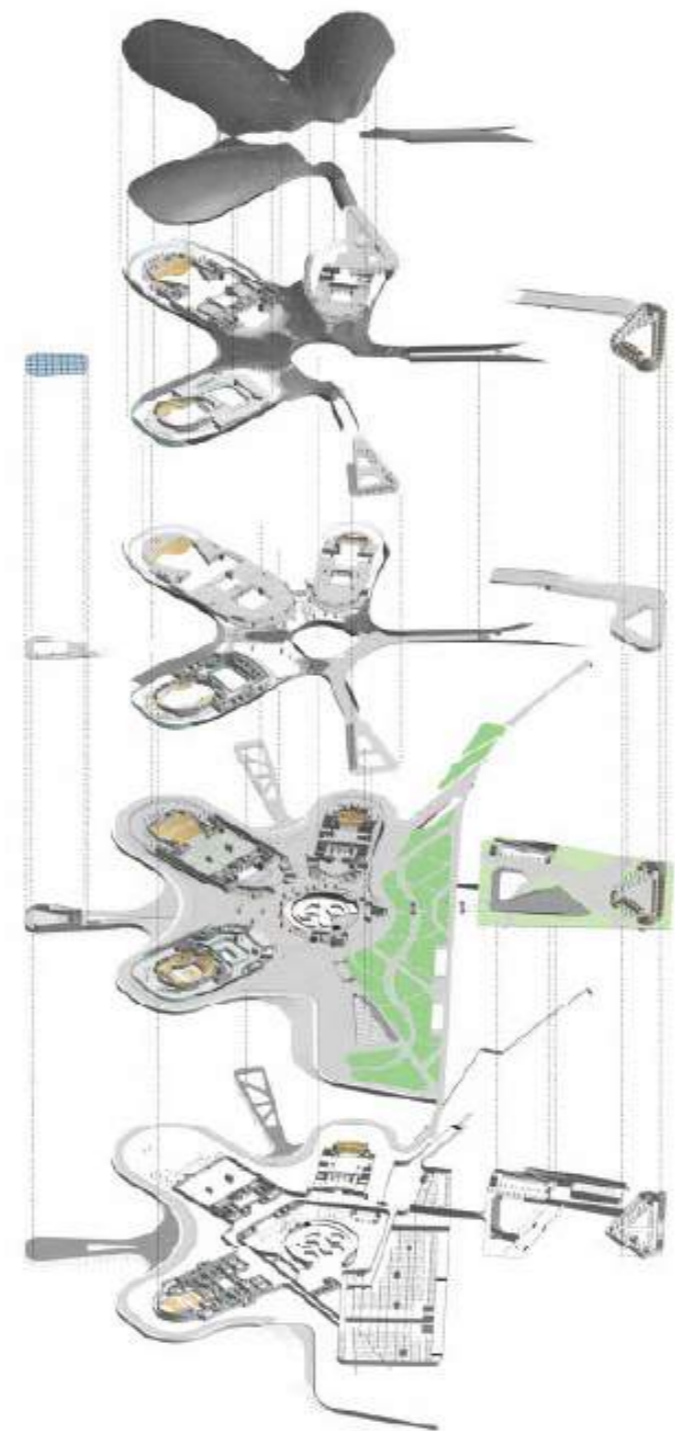
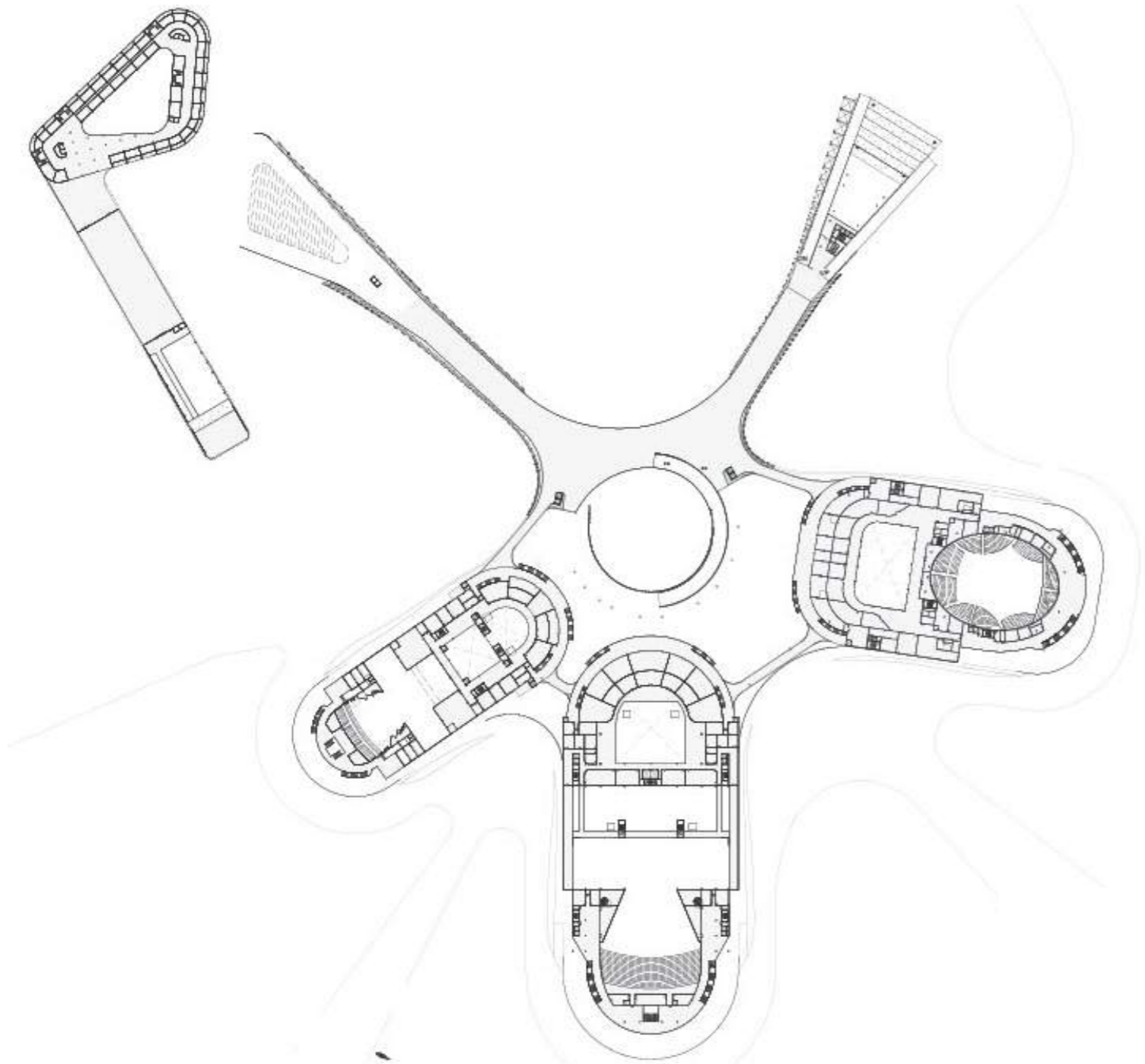
GENERAL BASEMENT FLOOR PLAN



GENERAL GROUND FLOOR PLAN



GENERAL FIRST FLOOR PLAN



EXPLODED AXONOMETRIC



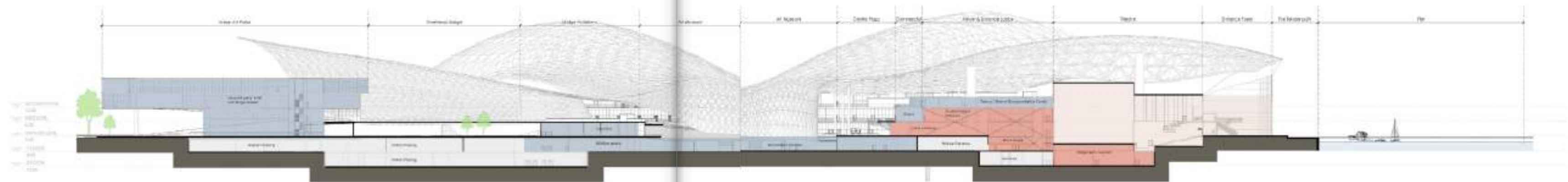
FROM APARTMENT TO THE THEATRES



PEDESTRIAN APPROACH, AROUND THE THEATRE

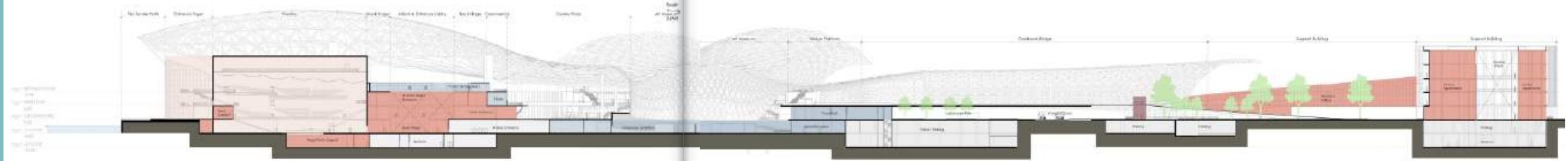
# GENERAL SECTIONS

- VERTICAL CONNECTION
- PARKING / ROAD
- THEATER
- PUBLIC SERVICE
- PERFORMANCE SUPPORTING



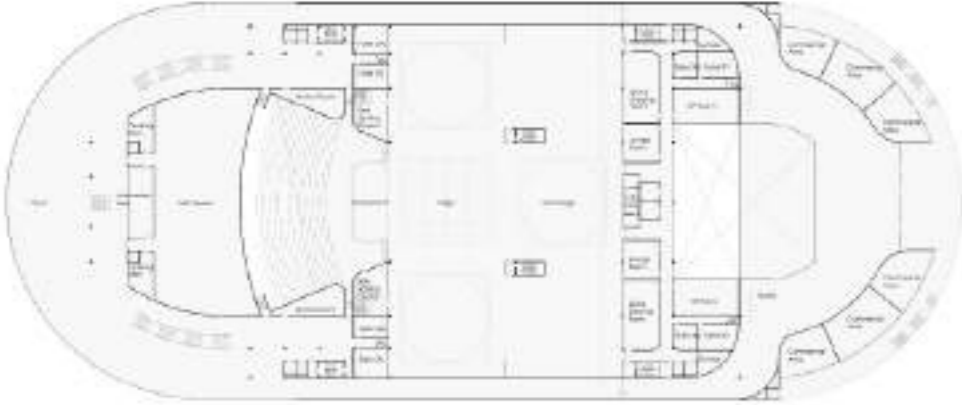
GENERAL SECTION 1

- VERTICAL CONNECTION
- PARKING / ROAD
- THEATER
- PUBLIC SERVICE
- PERFORMANCE SUPPORTING



GENERAL SECTION 2

OPERA HALL



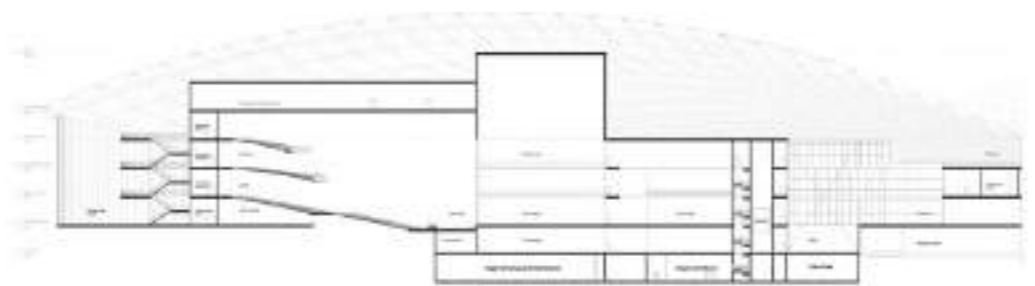
GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

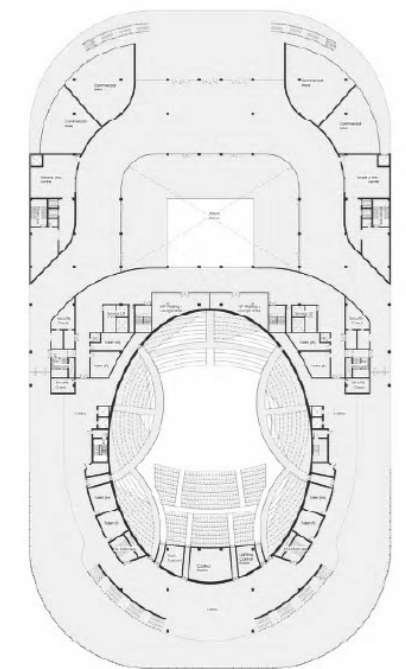


SECTION

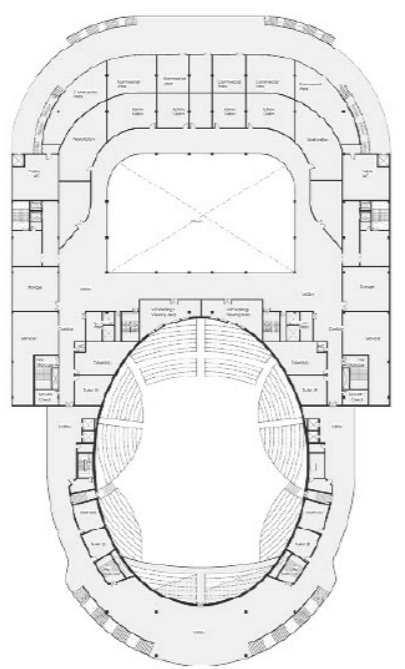




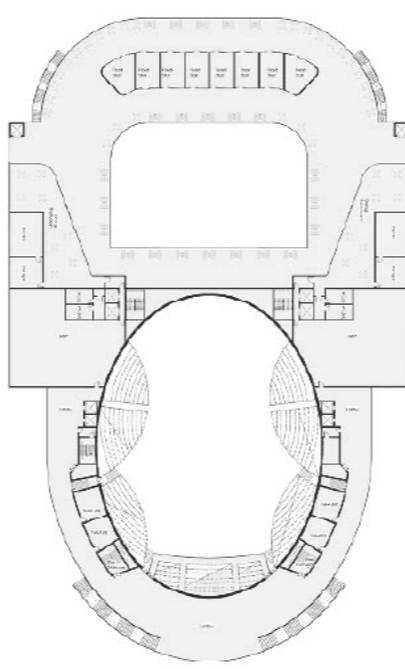
CONCERT HALL



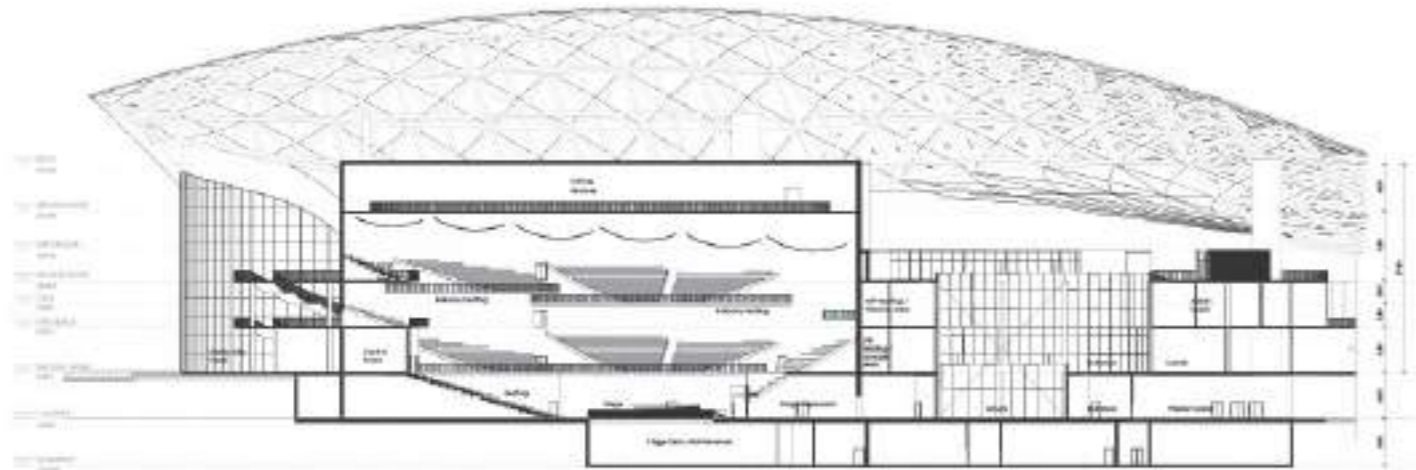
GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



SECTION



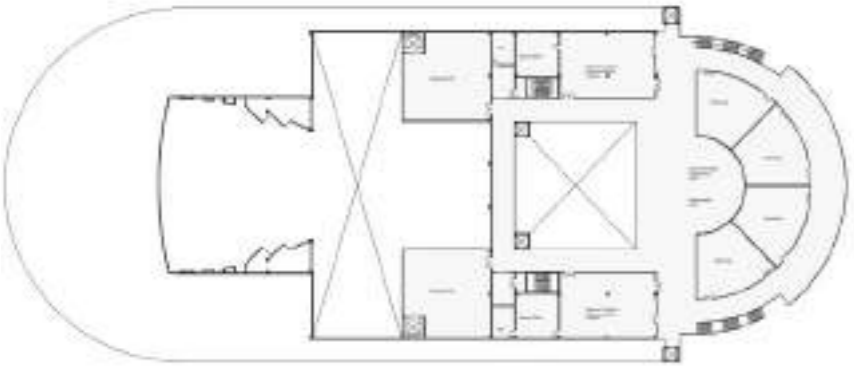
SMALL OPERA HALL



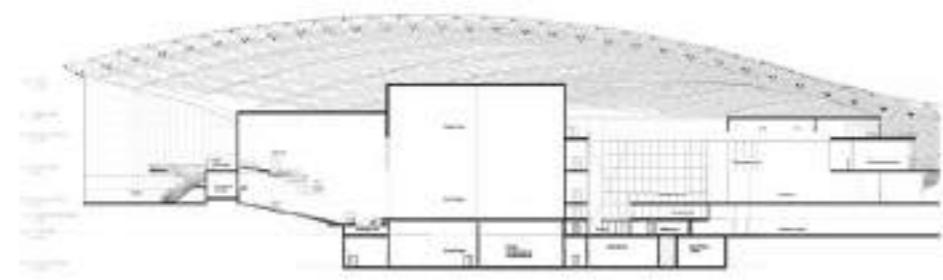
GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



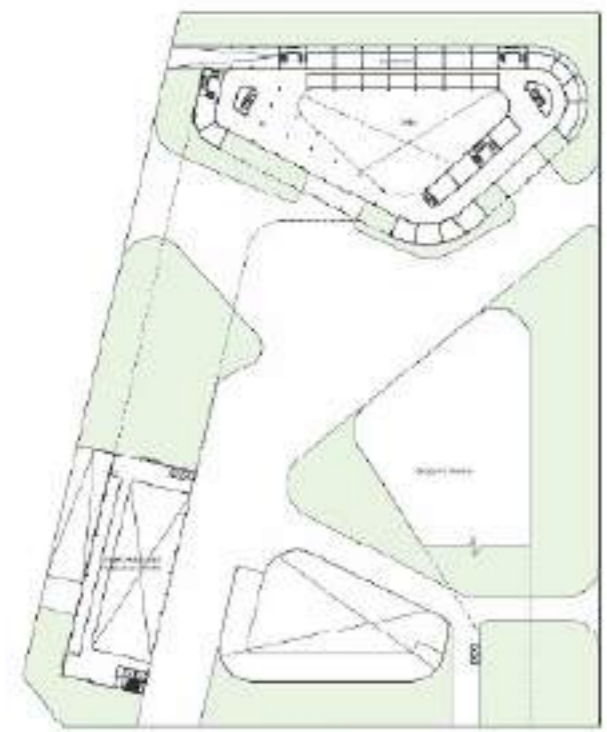
SECTION



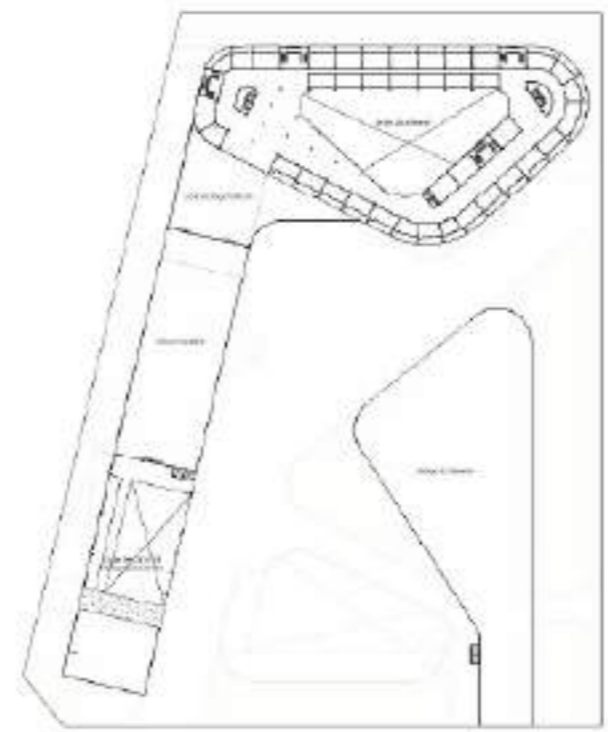
# SUPPORTING AREA

## SUB-DIVISIONS

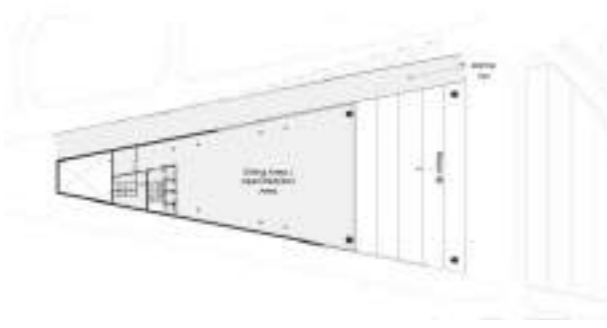
The theatre represents China's reformation in its display of technological advancement and innovation. With the site encompassing a total area of 17.5 hectares (175,000 m<sup>2</sup>), the brief required a coagulation of separate functions including: an urban art parlor for the display of contemporary art, a support building for apartments and artisan workshops, a public square, an opera hall, a concert hall, and a theatre, and a minimum of 920 parking spaces.



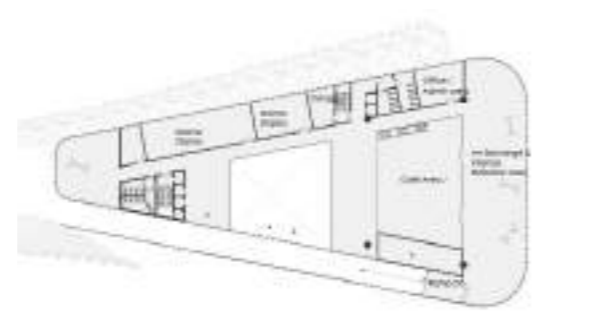
GROUND FLOOR LEVEL



FIRST FLOOR LEVEL



GROUND FLOOR LEVEL



SECOND FLOOR LEVEL



# CONCERT HALL

## MEP ALLOCATIONS



OPERA HALL BASMENT PLAN



CONCERT HALL BASMENT PLAN



SMALL THEATRE BASMENT PLAN



GROUND FLOOR VENTILATION ZONES



GROUND FLOOR VENTILATION ZONES



GROUND FLOOR VENTILATION ZONES





**REINFORCE CONCRETE**  
one-time molding simple and natural structural function



**GLASS FIBER REINFORCED POLYMER**  
Tensile strength of 140-350Mpa  
Stable in high temperature  
only weighing 1/4 of weight of steel



**LAMINATED GLASS**  
Polyvinyl butyral between glass  
Sound and heat insulation  
Reduce Uv incidence safty design



**CONCRETE WITH STRIP PATTERN**  
One-time molding  
Simple and natural  
Light color



**ANTICORROSIVE NORDIC PINE**  
Close wood, low fat content  
Wood fiber texture, small knots



**FRAXINUS MANDSCHURICA**  
Typical wood in China  
Gppd flexibility, toughness, wear resistance, moisture resistance Low maintenance.



**WHITE OAK**  
Extremely resistant to water and corrosion, almost no pests, Hard and rigid material  
Delicate and restrained pattern








**CONCRETE WITH PU FINISHING**  
Waterproof, resistant, light weight, Rich in patterns and colors  
Simple splicing ,seamless welding



**CONCRETE**  
One-time molding  
Simple and natural  
Structural function.

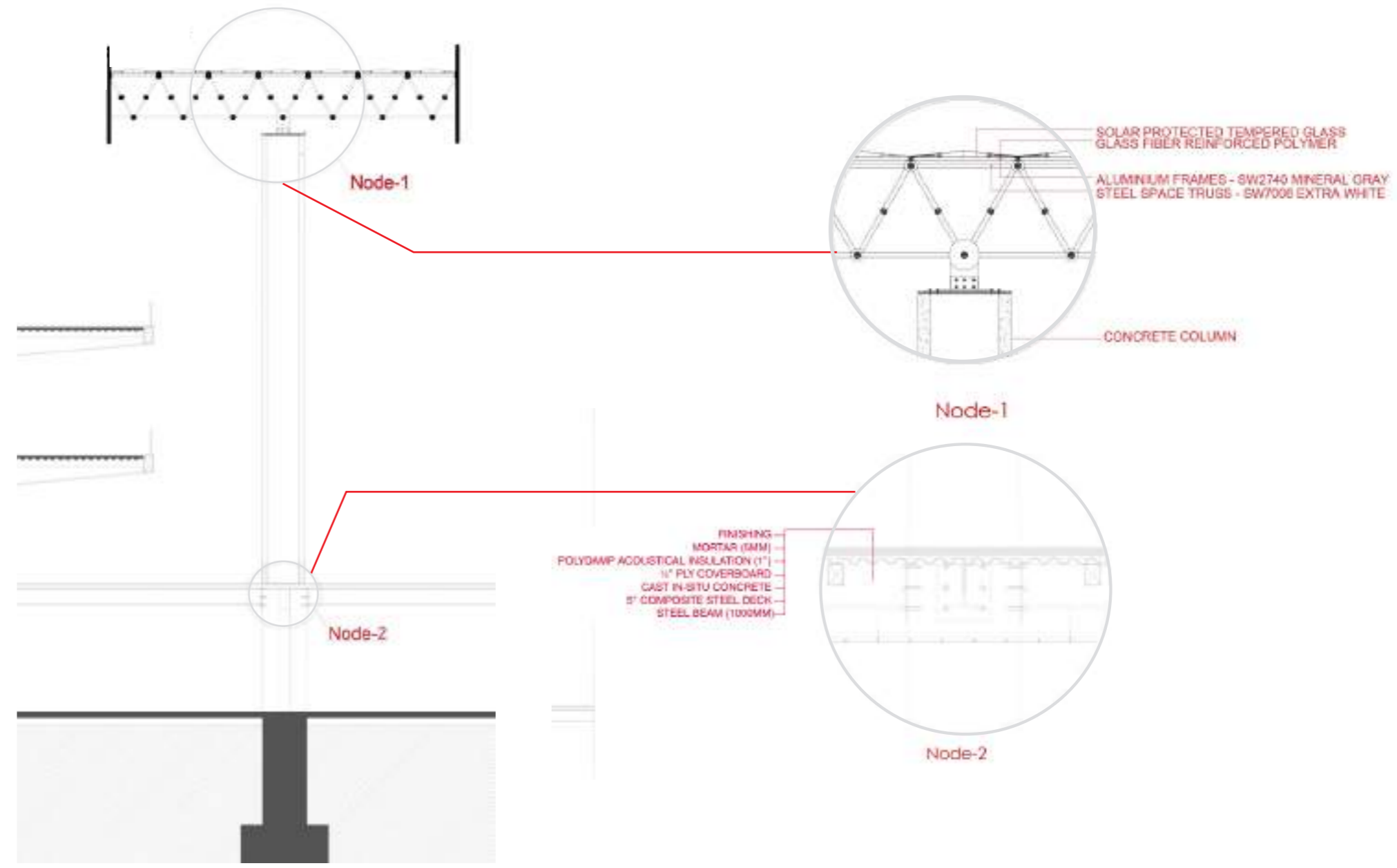
# MATERIALS

- 
→ **SOLAR PROTECTED TEMPERED GLASS**
- 
→ **GLASS FIBER REINFORCED POLYMER (GFRP)**
- 
→ **ALUMINUM FRAMES- SW 2740 MINERAL GRAY**
- 
→ **STEEL SPACE TRUSS- SW 7006 EXTRA WHITE**
- 
→ **CONCRETE COLUMN**

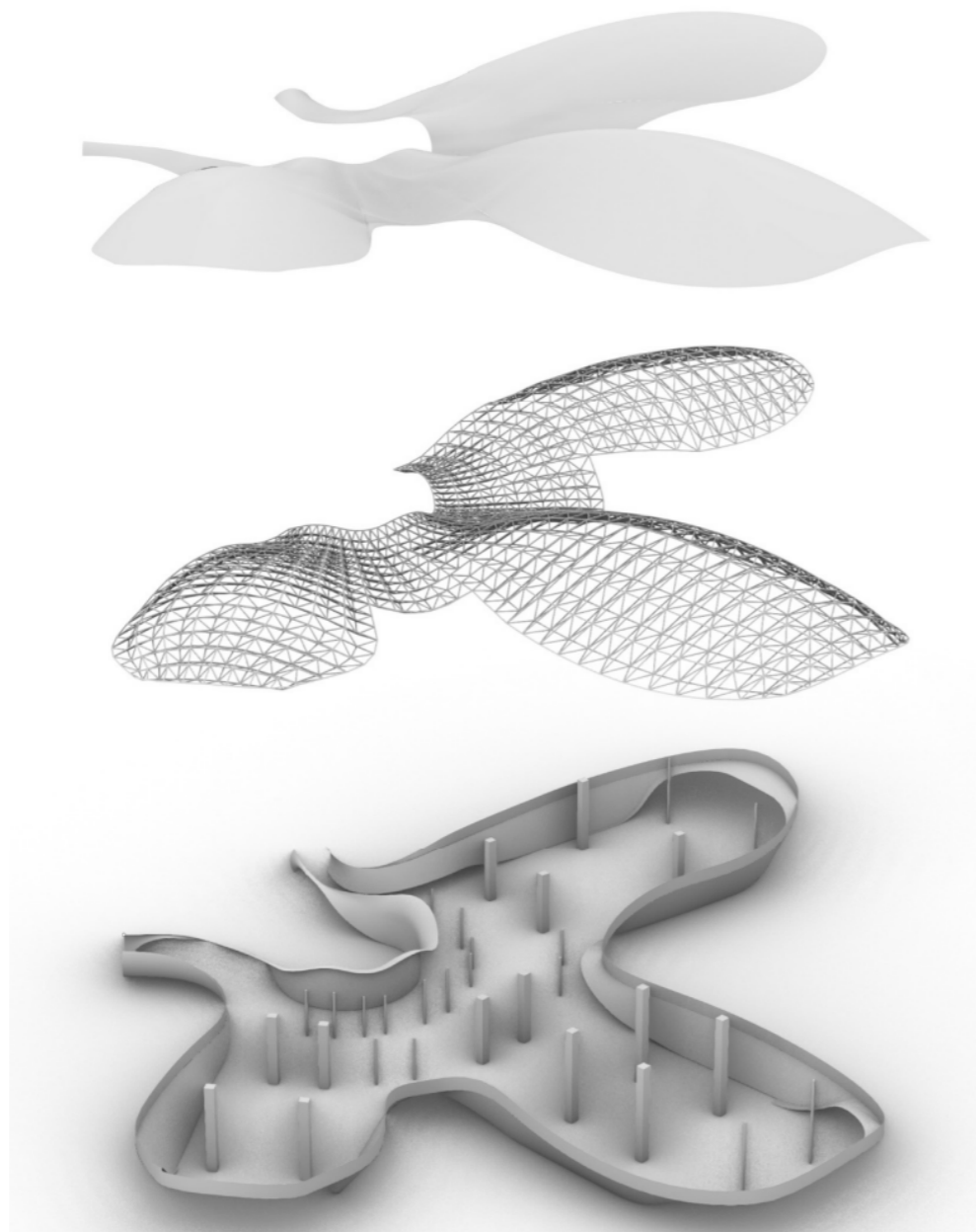
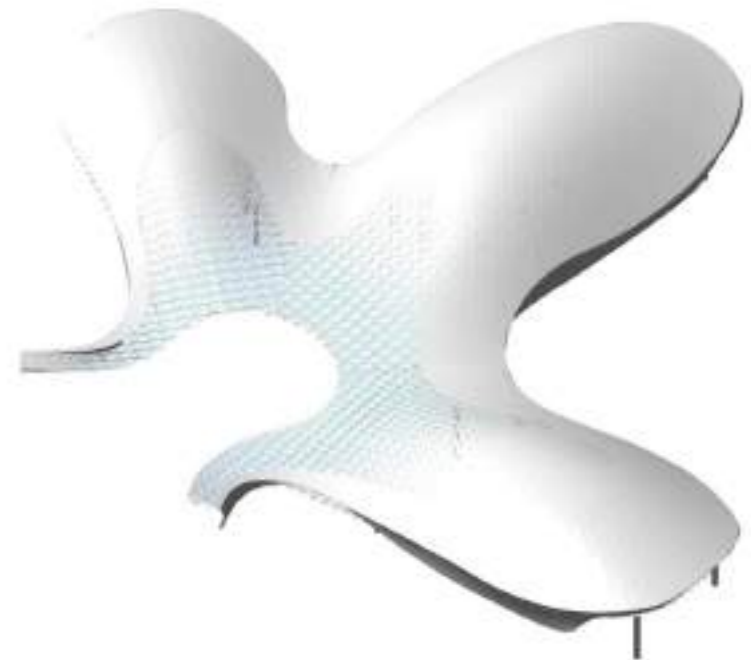
	
<b>Glass Bead SW 6805</b>	
	
<b>Extra White SW 7006</b>	
	
<b>SW 2740 Mineral Gray</b>	
	
<b>Extra White SW 7006</b>	
	

# DETAIL 1

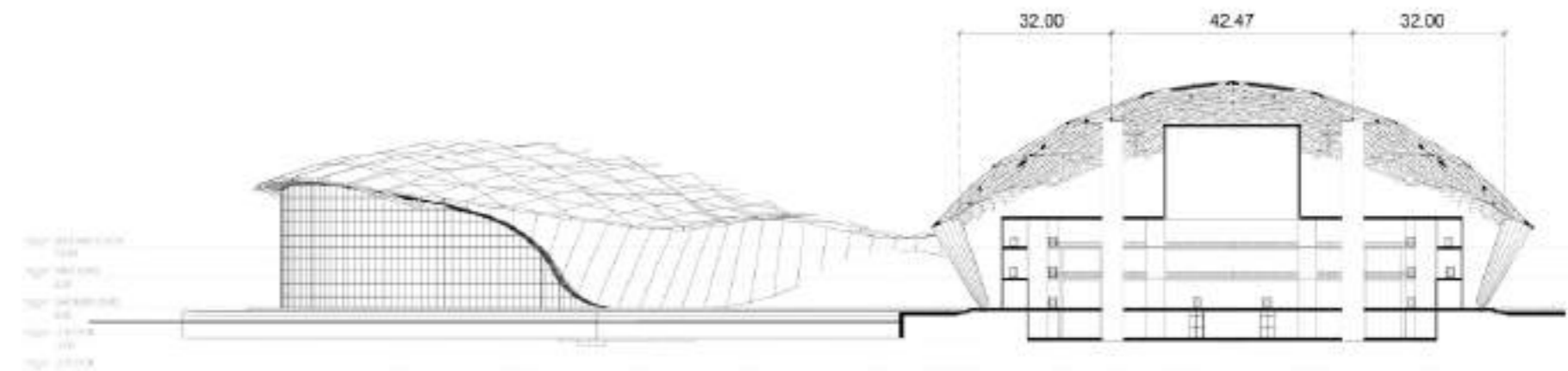
## SPACE FRAME NODES



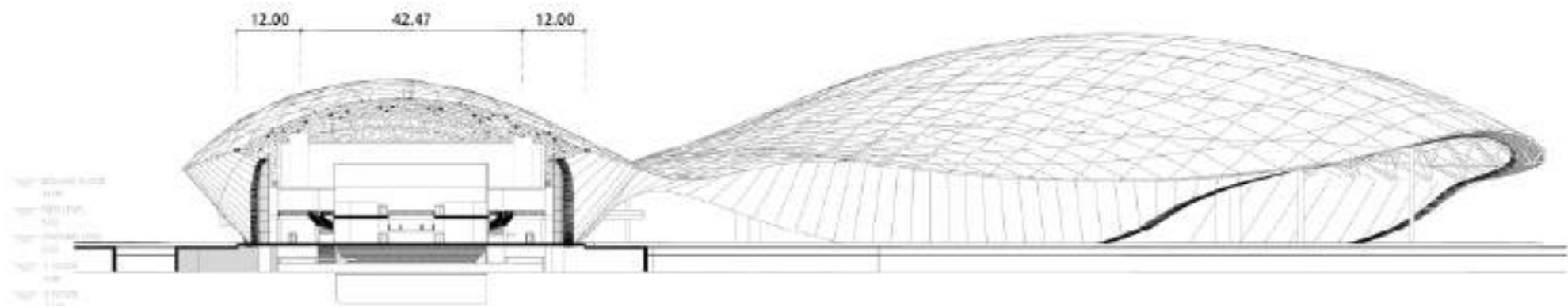
STRUCTURE  
CONFIGURATION



BEARING, SPACE FRAME AND GFRC SKIN



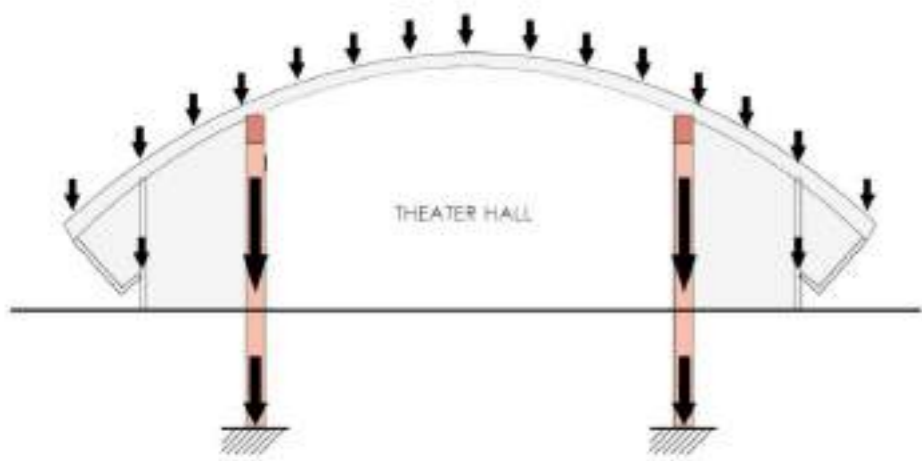
CROSS SECTION OPERA HALL



CROSS SECTION SMALL OPERA

# STRUCTURE

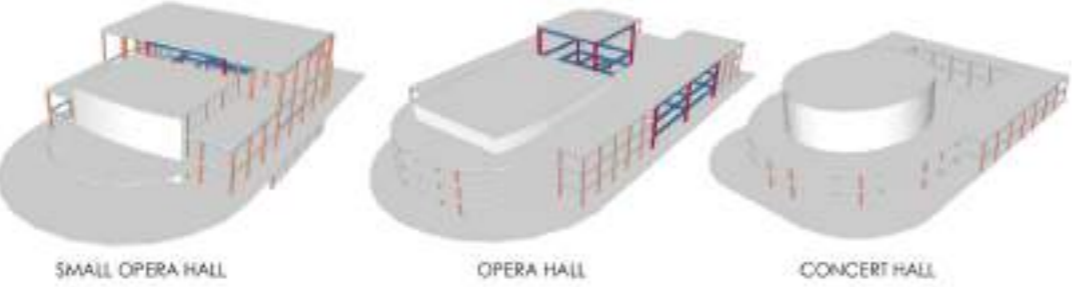
## THEATRE SUPPORT STRUCTURE



Structural scheme of the roof



SECONDARY STRUCTURE

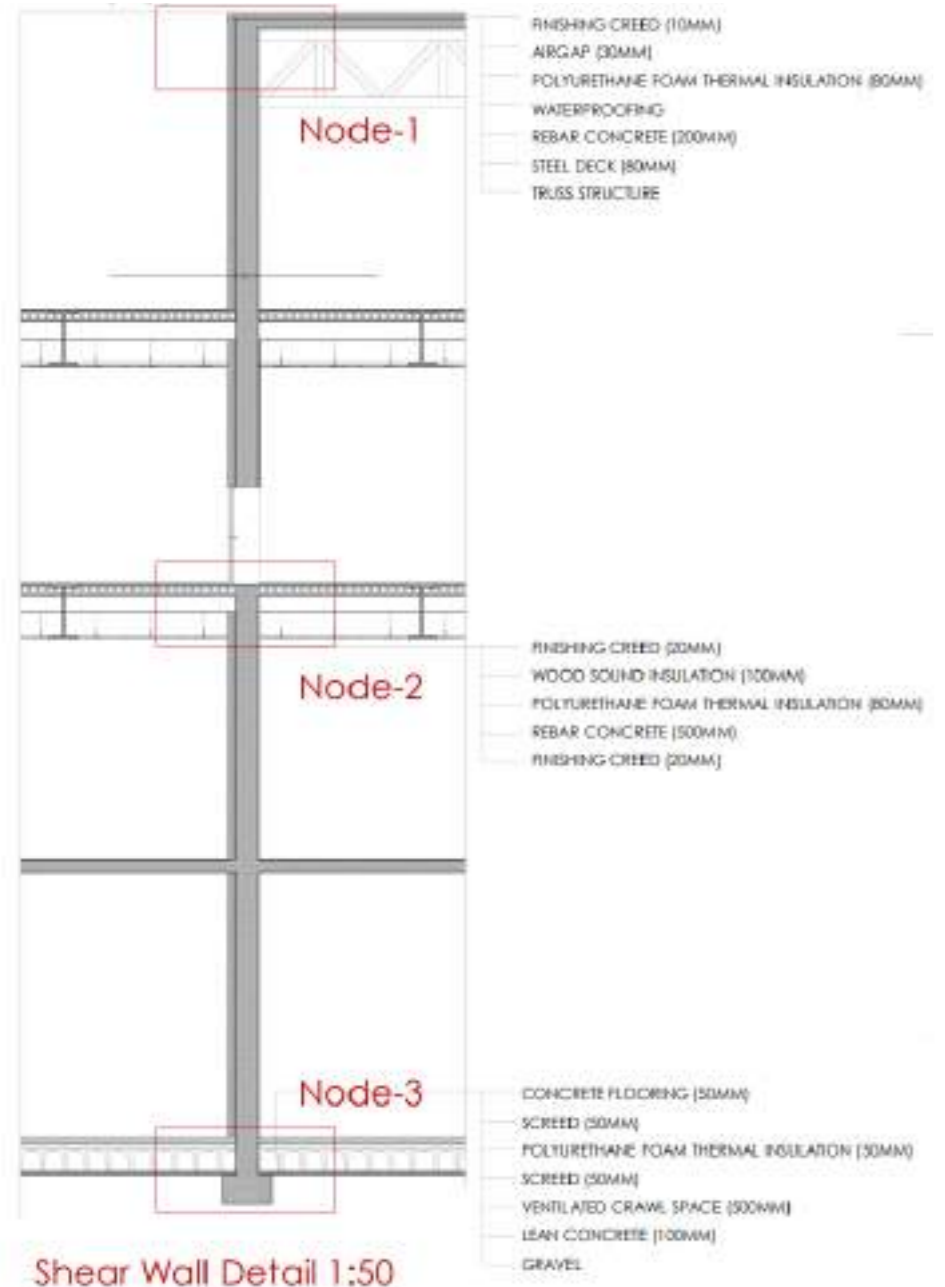


SLAB

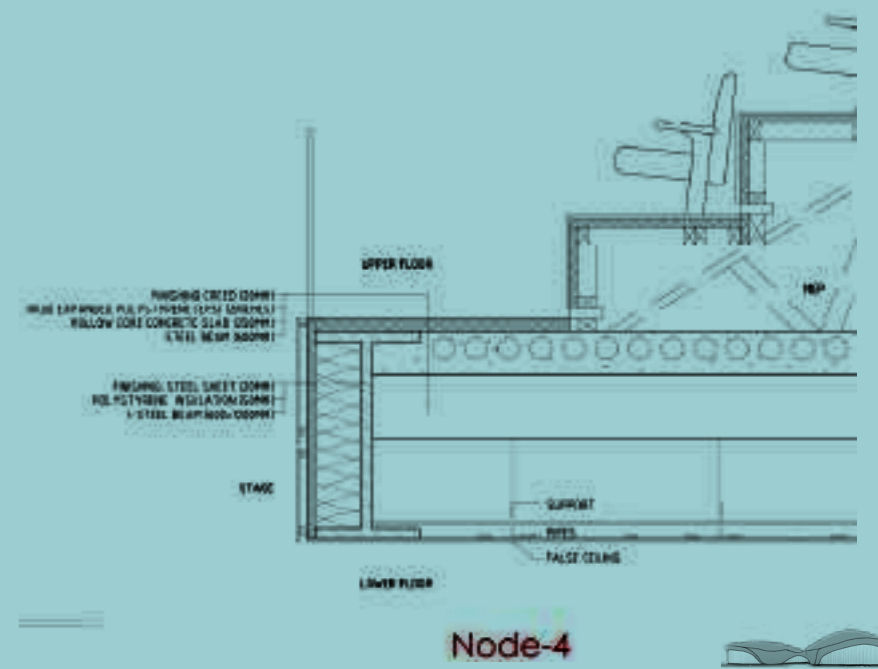
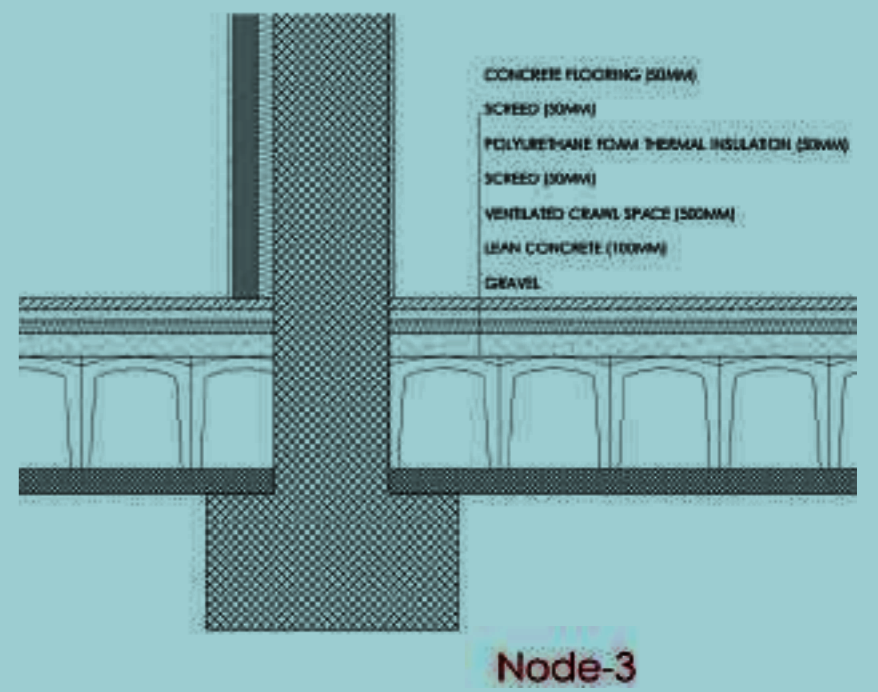
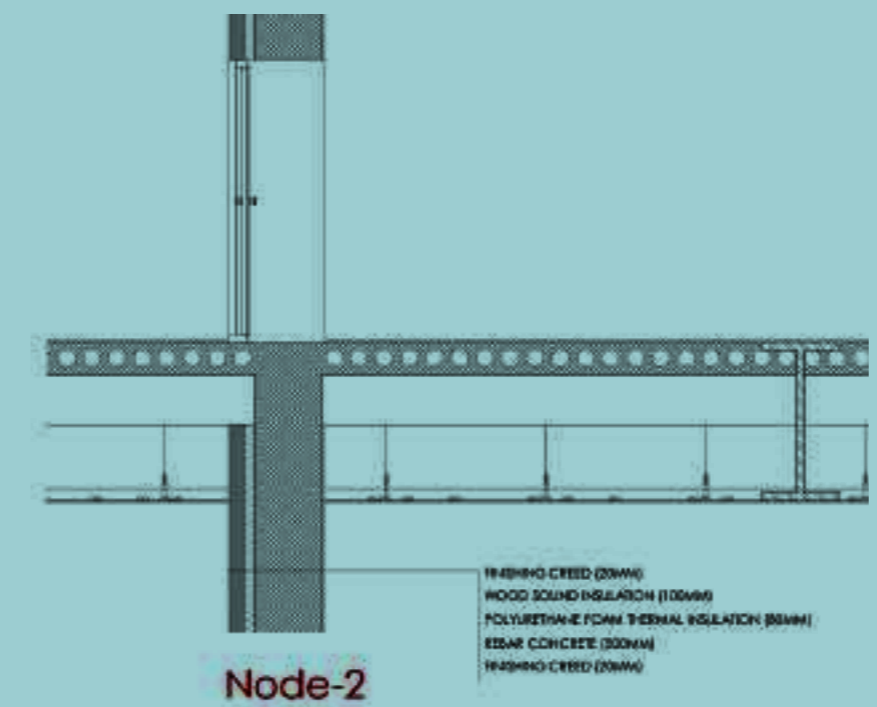
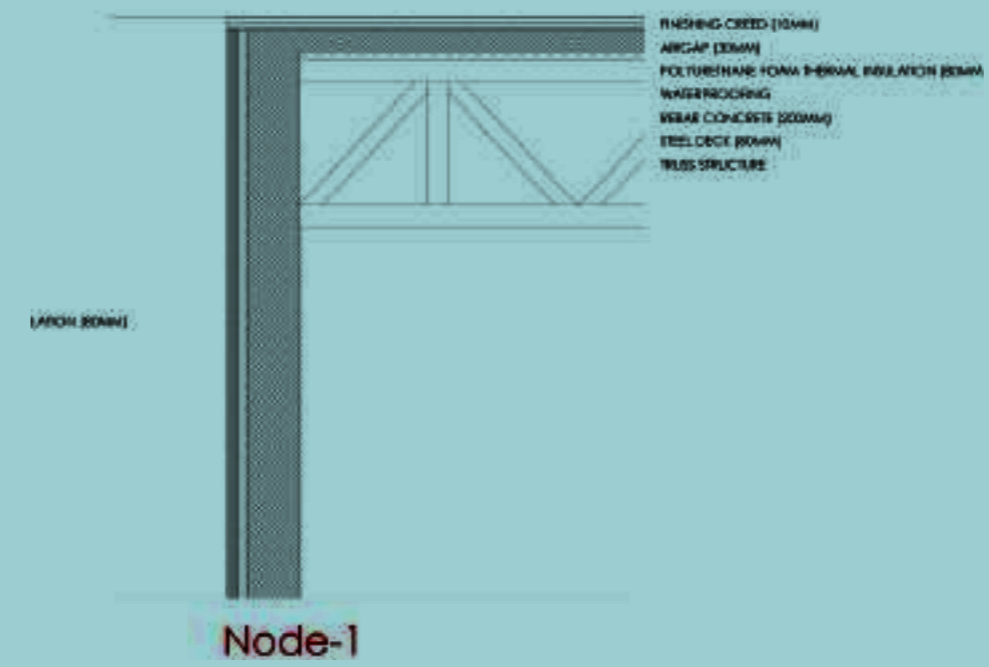
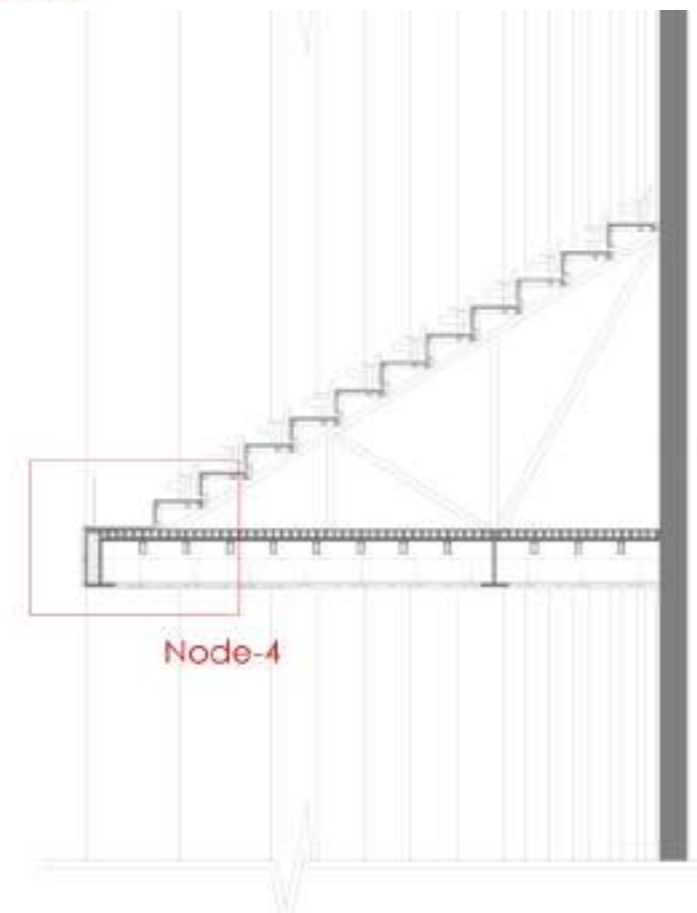
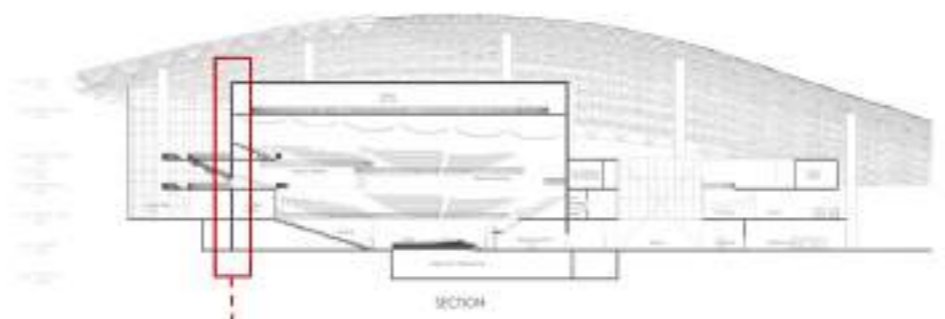




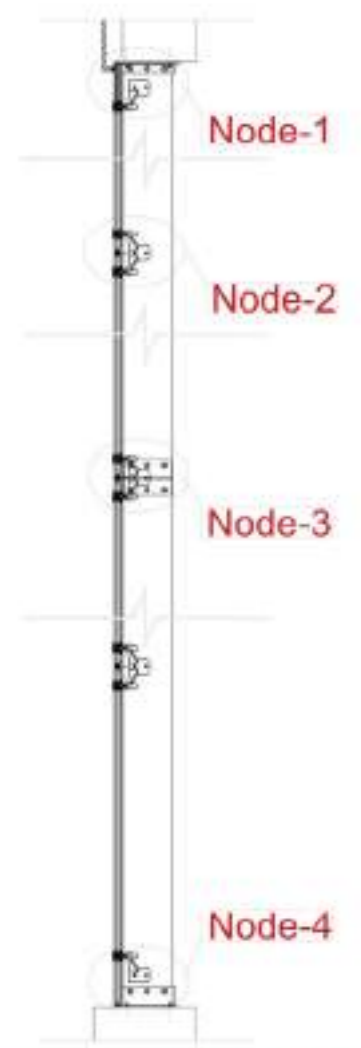
DETAIL 2  
THEATER SHEAR WALL



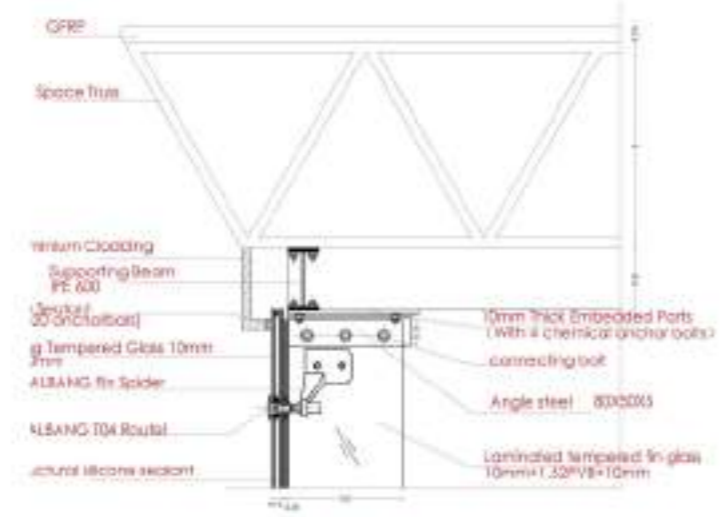
Shear Wall Detail 1:50



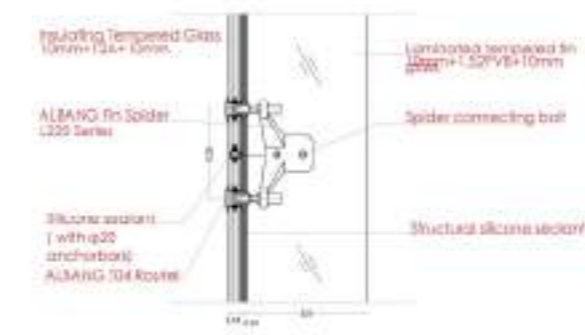
DETAIL 3  
GLASS FACADE



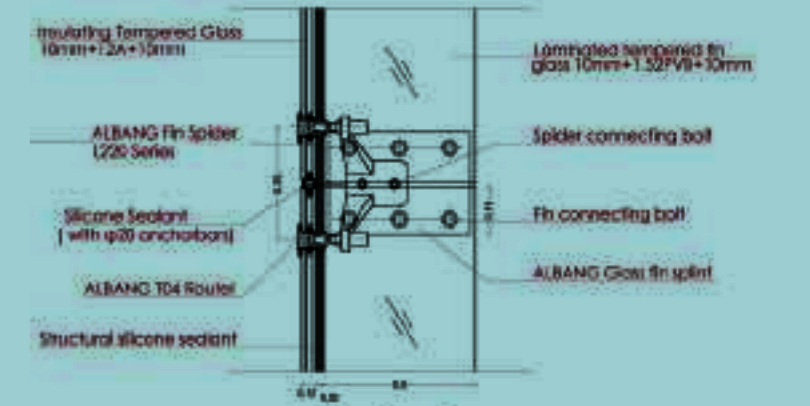
STRUCTURAL GLAZING  
SCALE 1:50



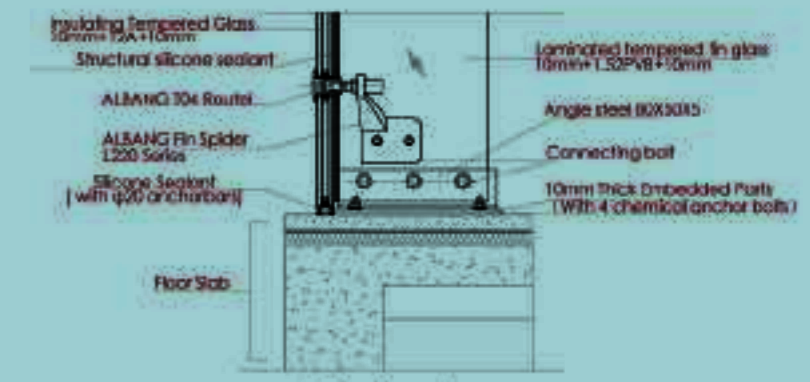
Node-1



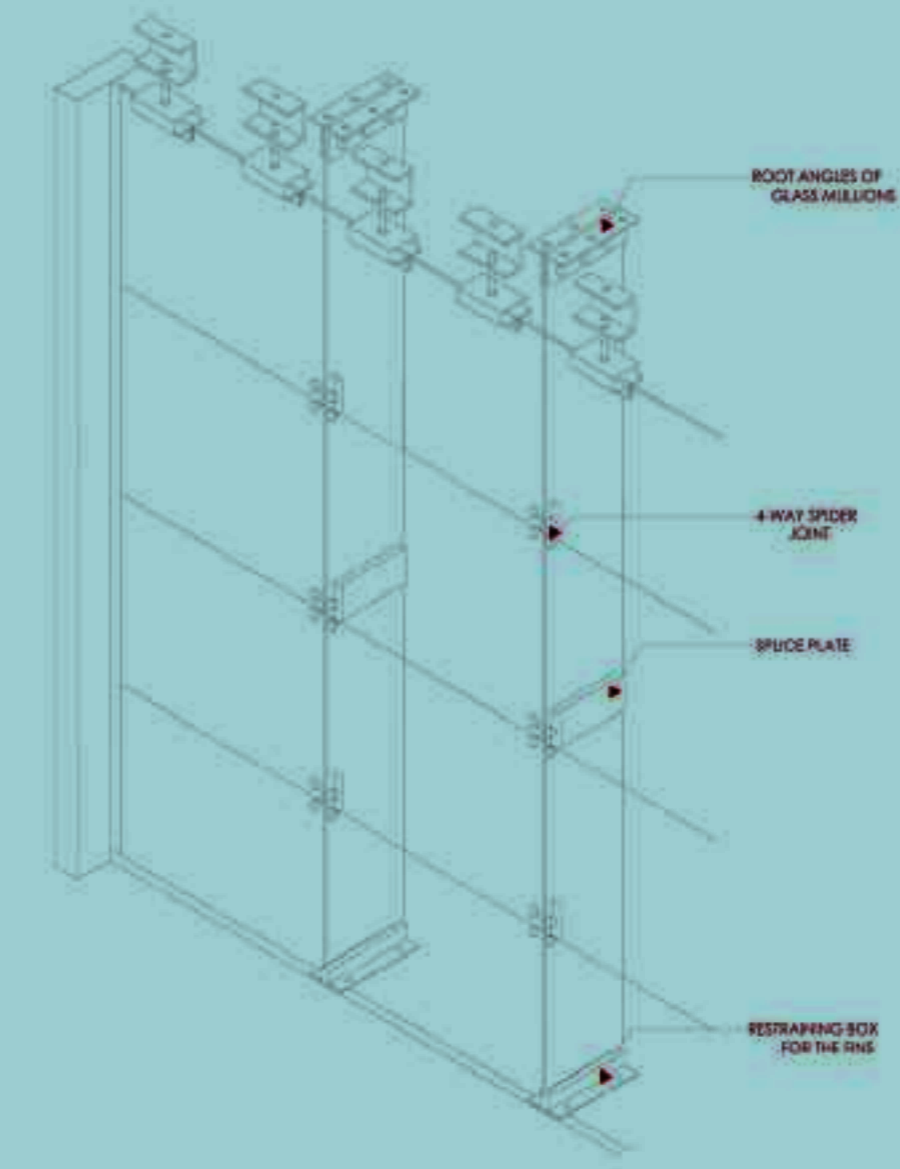
Node-2

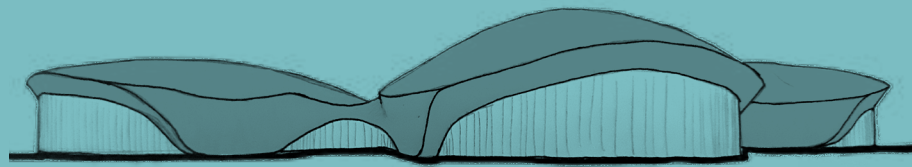


Node-3



Node-4





**SHENZHEN OPERA HOUSE**