

Urban Cinema-Space

P5 Presentation

Hyperbody studio

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Coincident with the new mobility produced by changes in transportation, architecture and urban planning photography brought with it a Virtual gaze – a received perception mediated through representation, a gaze that brought the past to the present, the distant to the near.

The cinema is combination of the mobile and the virtual.

From Window Shopping (Anne Friedberg)

Urbanity

Economy

Why Cinema?
(nowadays)

New technologies

Urbanity

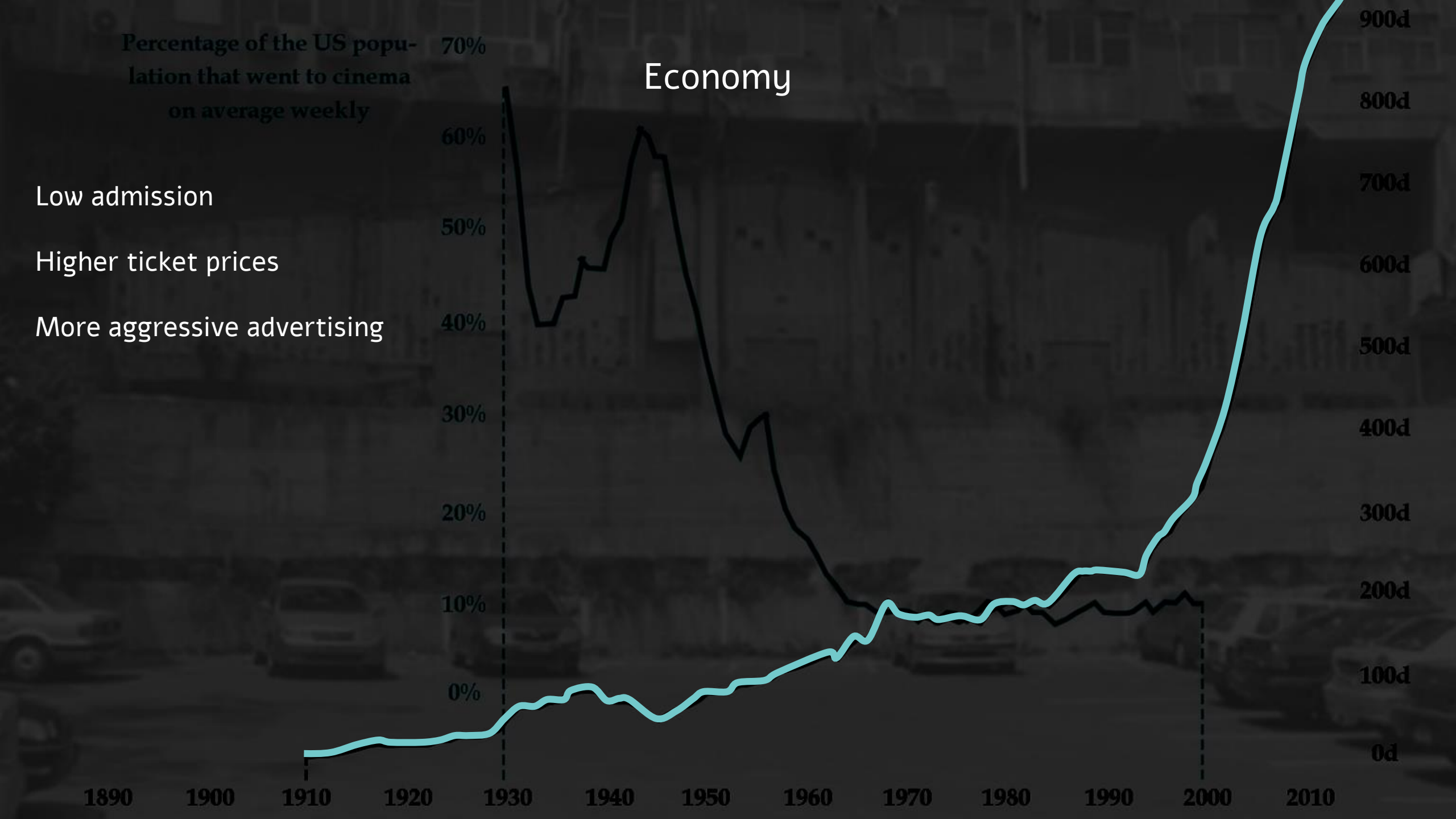
The background image is a dark, atmospheric photograph of an abandoned cinema theater. The foreground is filled with rows of empty, dark-colored seats, some of which appear worn or damaged. The theater's architecture is ornate, with a large, arched opening in the background that reveals a dark, cluttered area behind the stage. The walls and ceiling are dark and show signs of decay, with some light reflecting off the surfaces. The overall mood is one of desolation and abandonment.

Huge and isolate cinema-theaters
Abandoned Cineplex's
Enhancing suburban sprawl
Mono-functionality

Demand for entertainment

Places for social meeting

Places for interaction



Percentage of the US population that went to cinema on average weekly

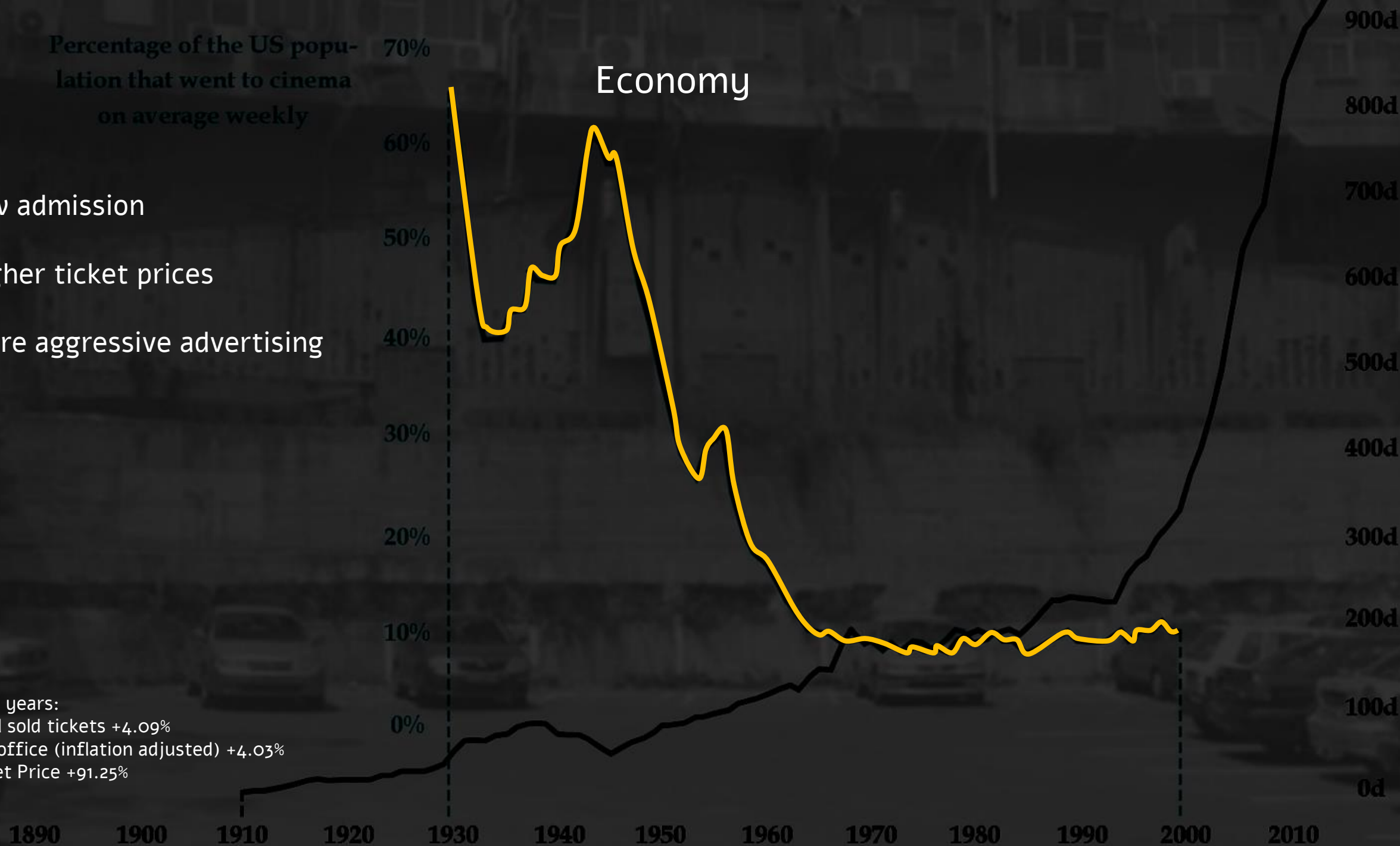
Economy

Low admission

Higher ticket prices

More aggressive advertising

In 20 years:
Total sold tickets +4.09%
Box office (inflation adjusted) +4.03%
Ticket Price +91.25%



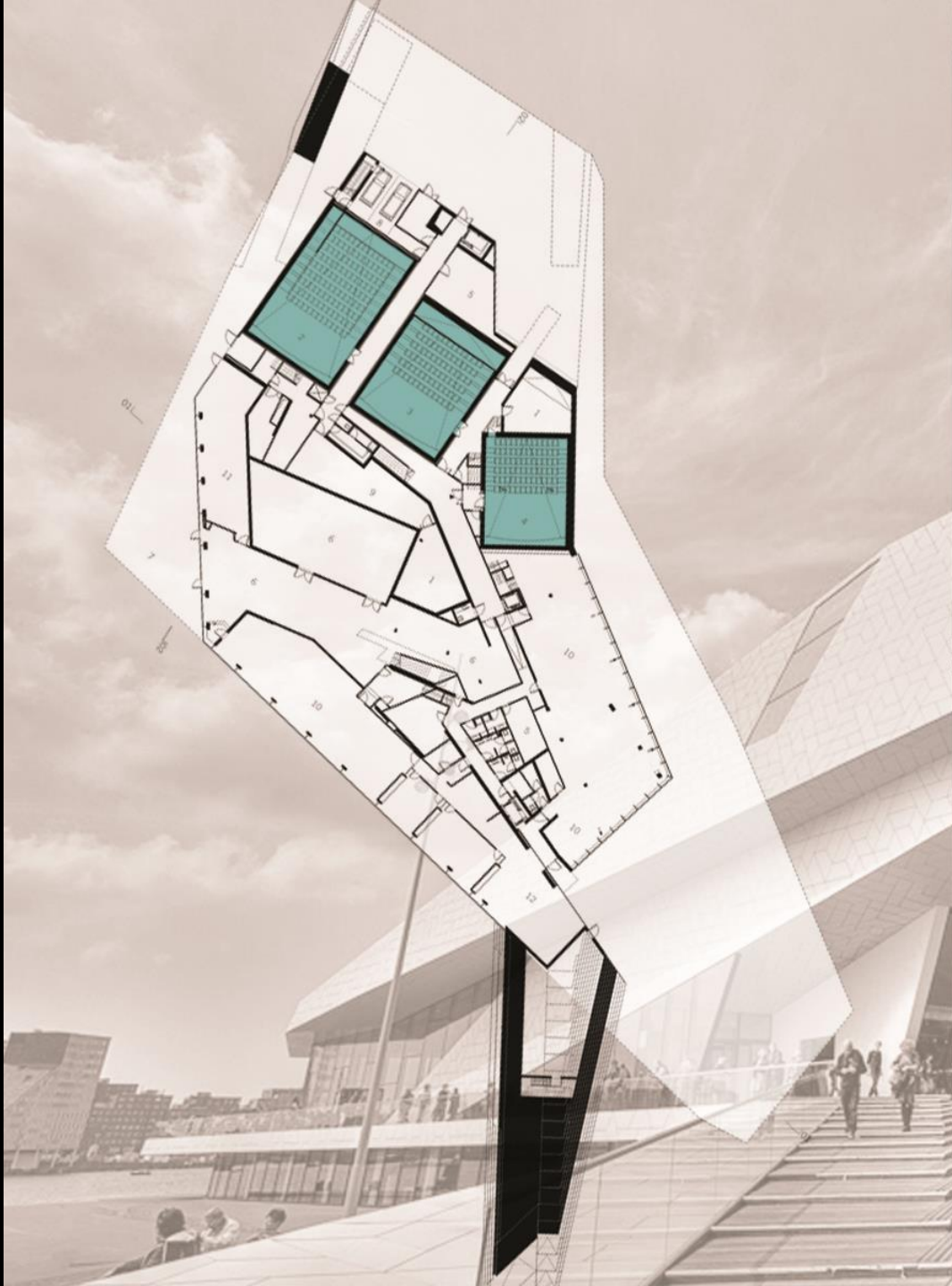
Emerging Technologies

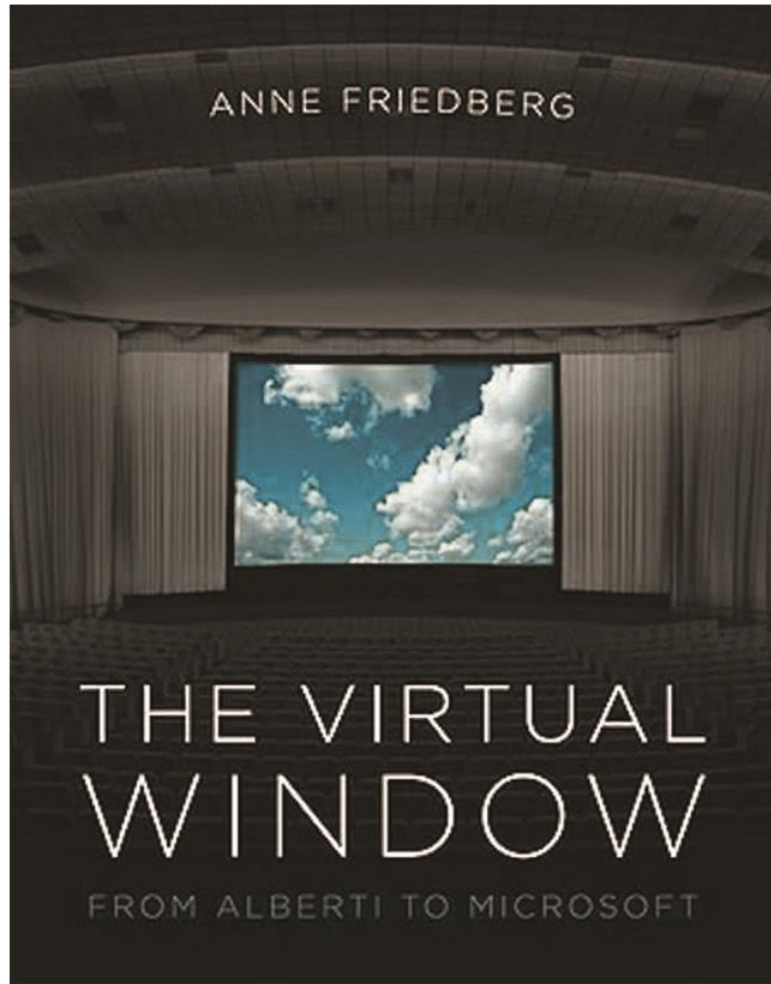
Virtual reality

Augmented reality

Responsive and engaging environment







Anne Friedberg
The Virtual Window



Morton Heiling
Sensorama



Gilles Deleuze
Screen Theory



Drive in



Multiple Screens



IMax

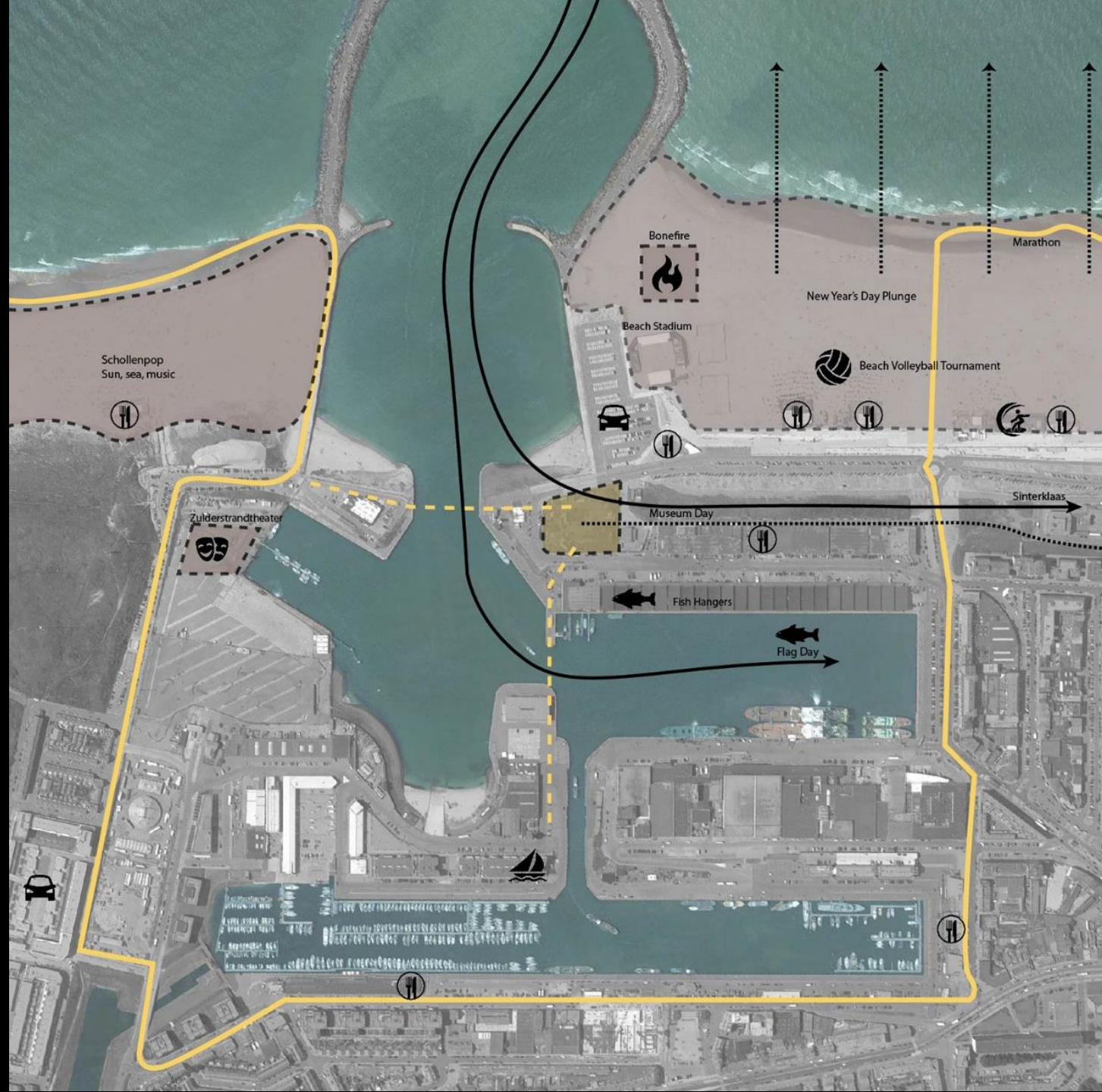


Panorama

Site



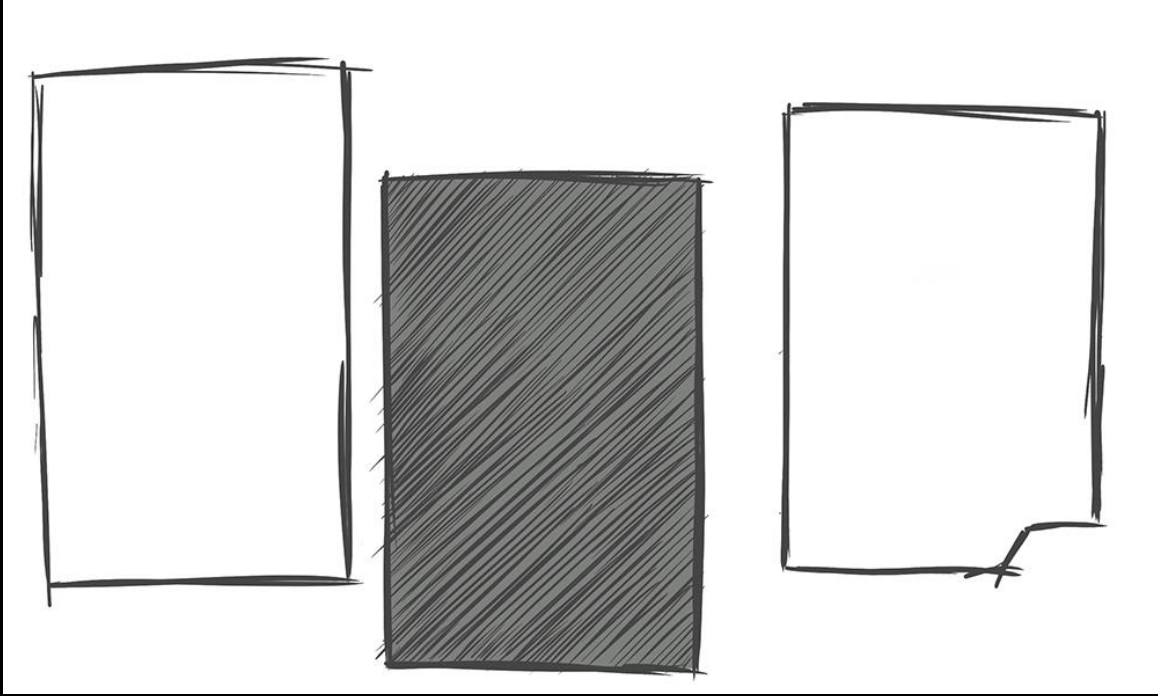




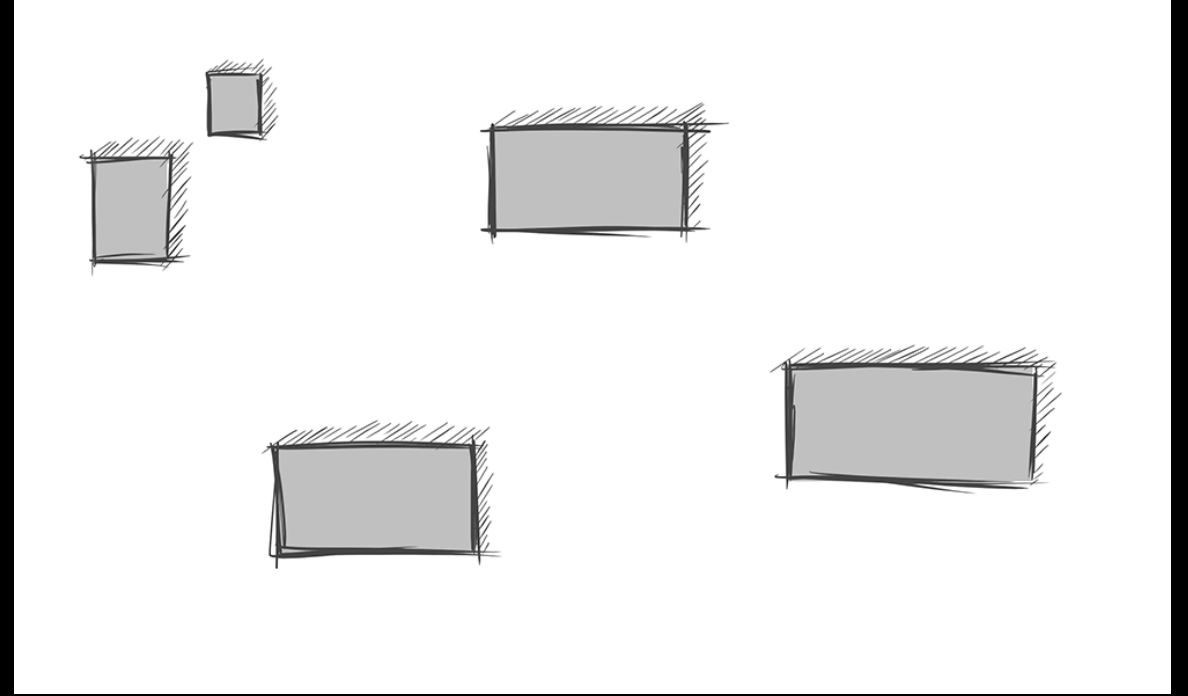






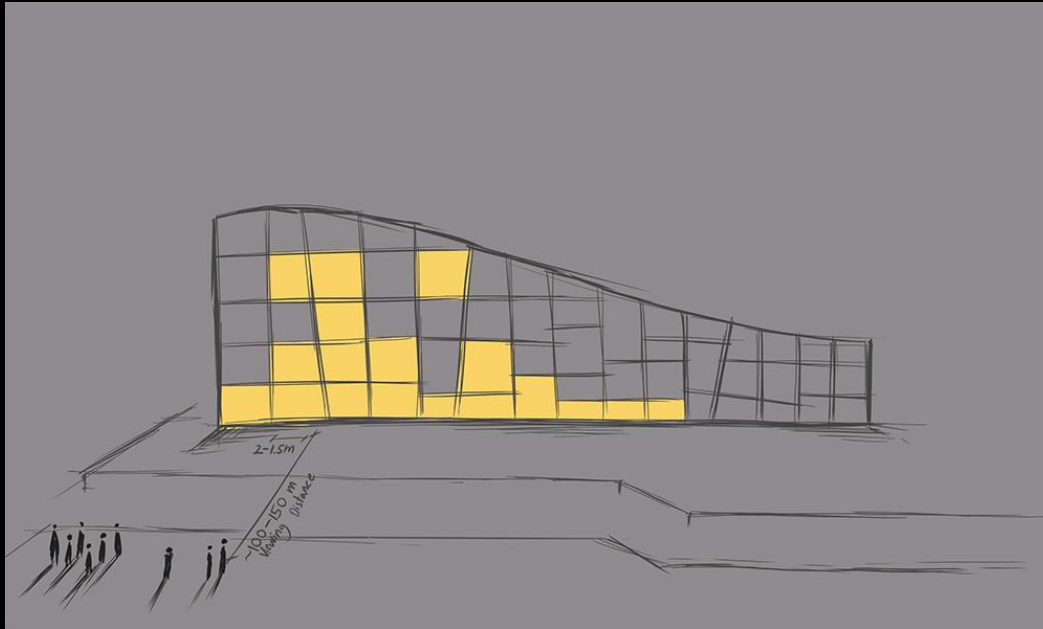


Isolated architecture

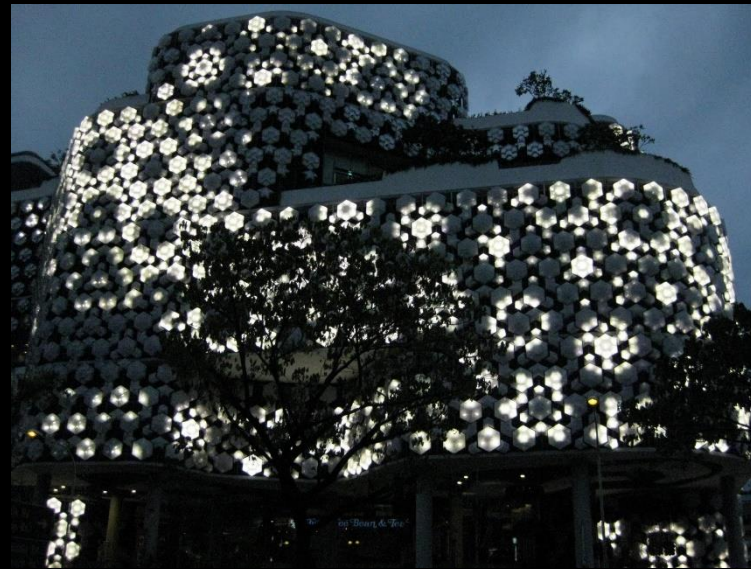


Responsive architecture

Media Facade



BIX façade, Kunsthaus Graz

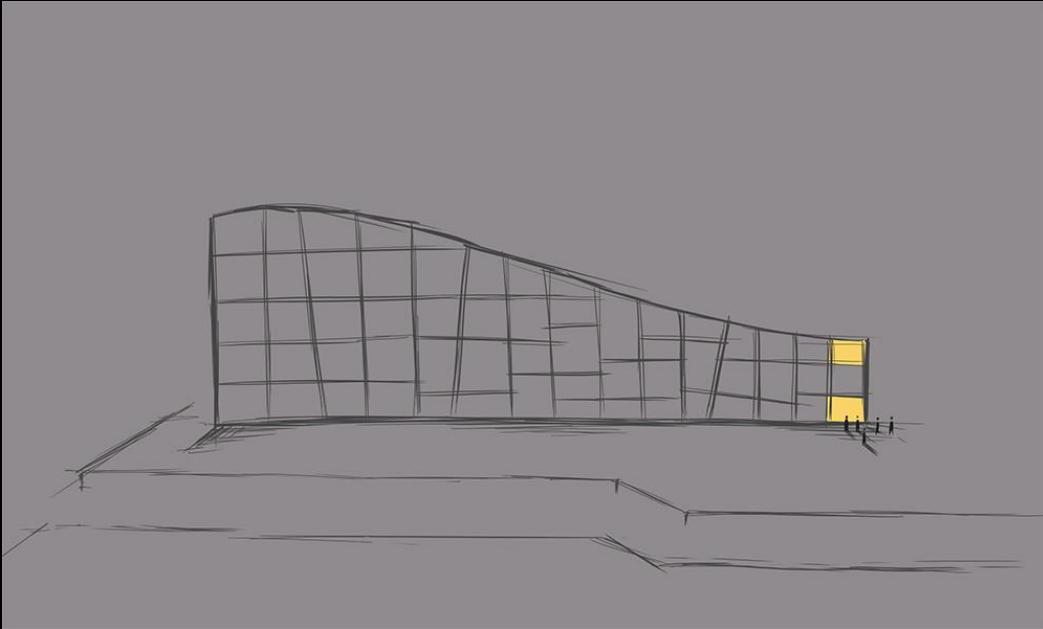


Illuma, Singapore



La Porte, Osaka

Interactive-Responsive Facade



Performative interaction –
tracking people by cameras and sensors



Direct Interaction –
tracking position of user and his direction
by touch

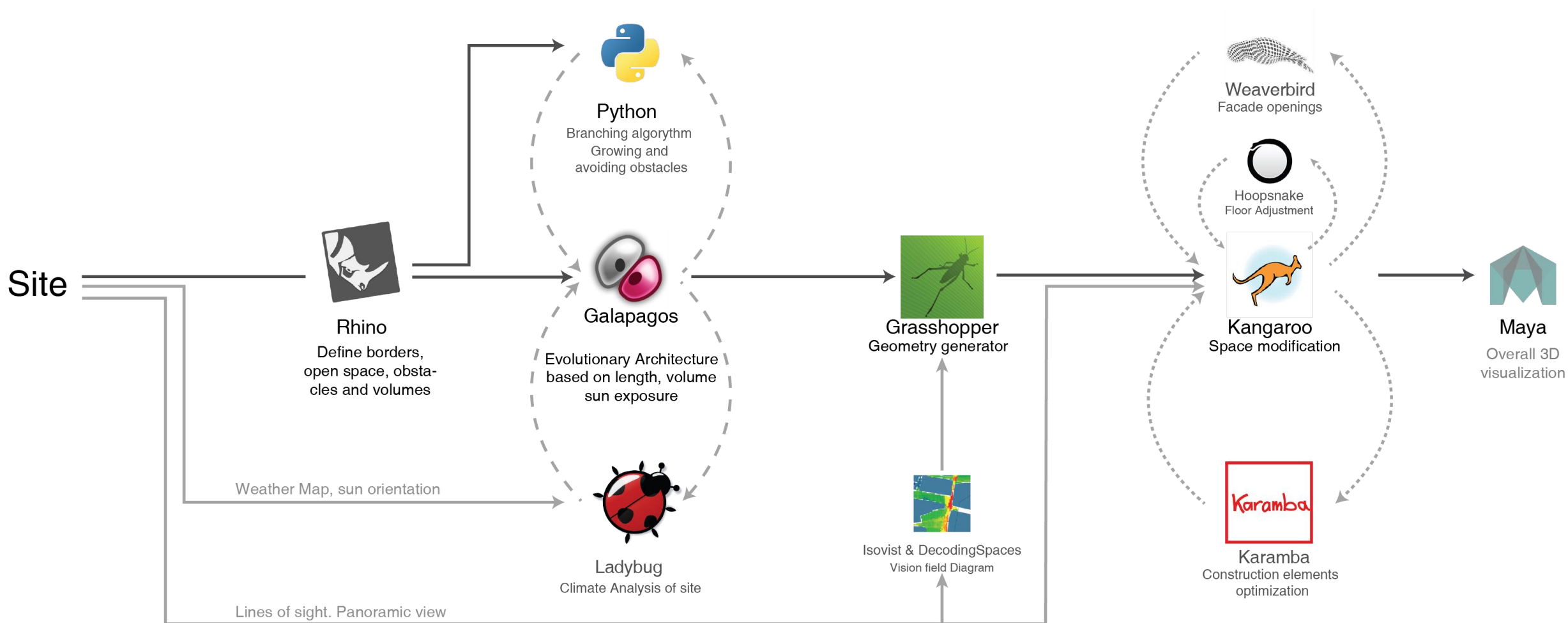


Indirect interaction –
using mobile device or other users input

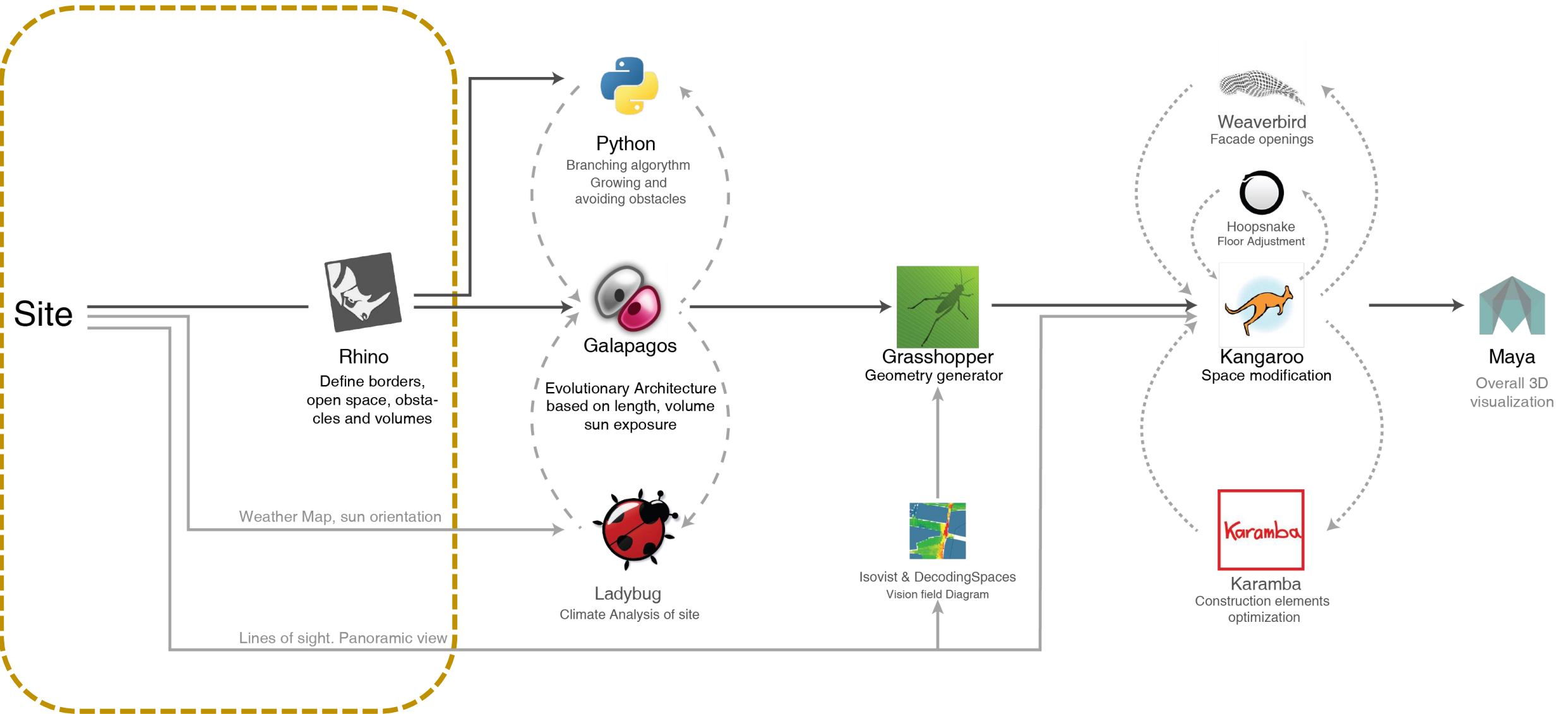


Mixed reality –
VR or Augmented reality, device and
environment

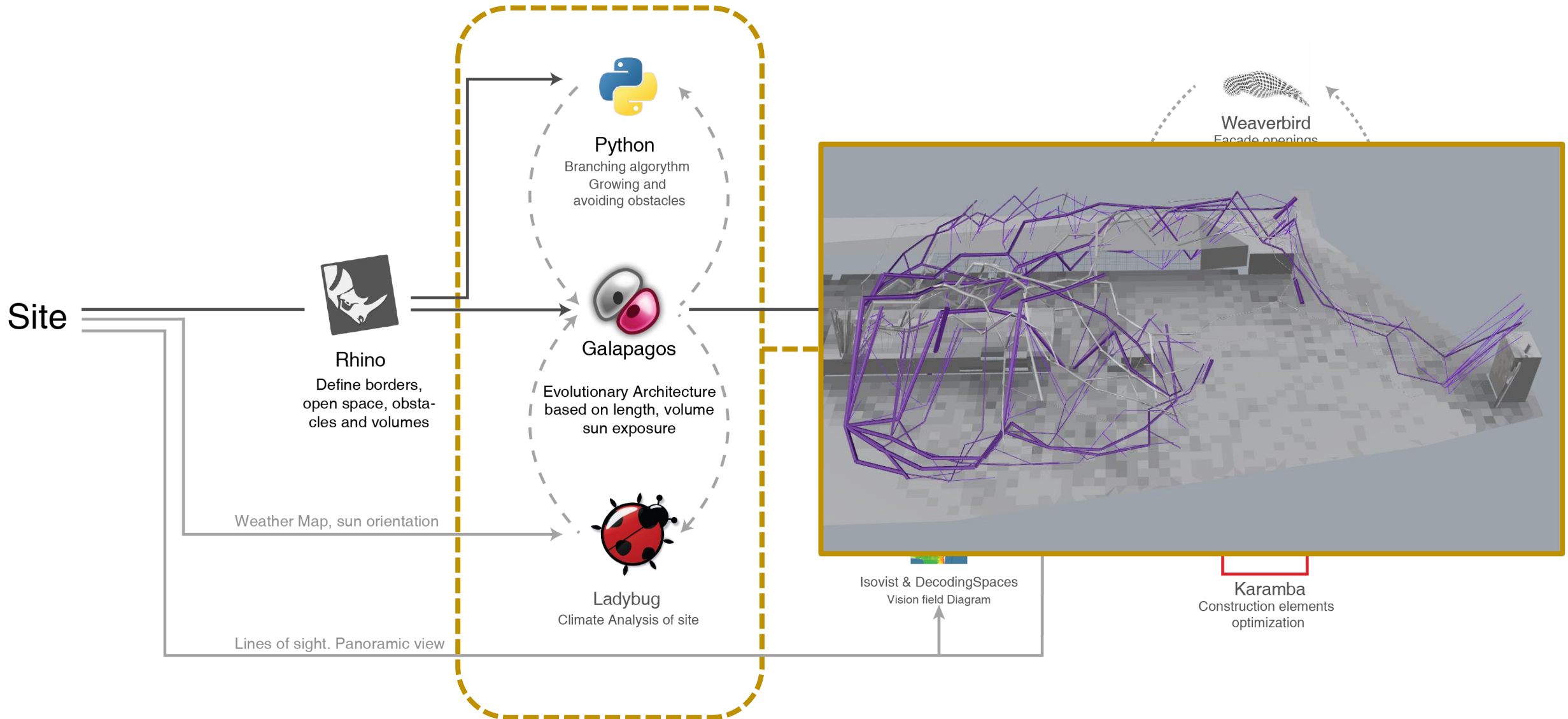
Computational strategy



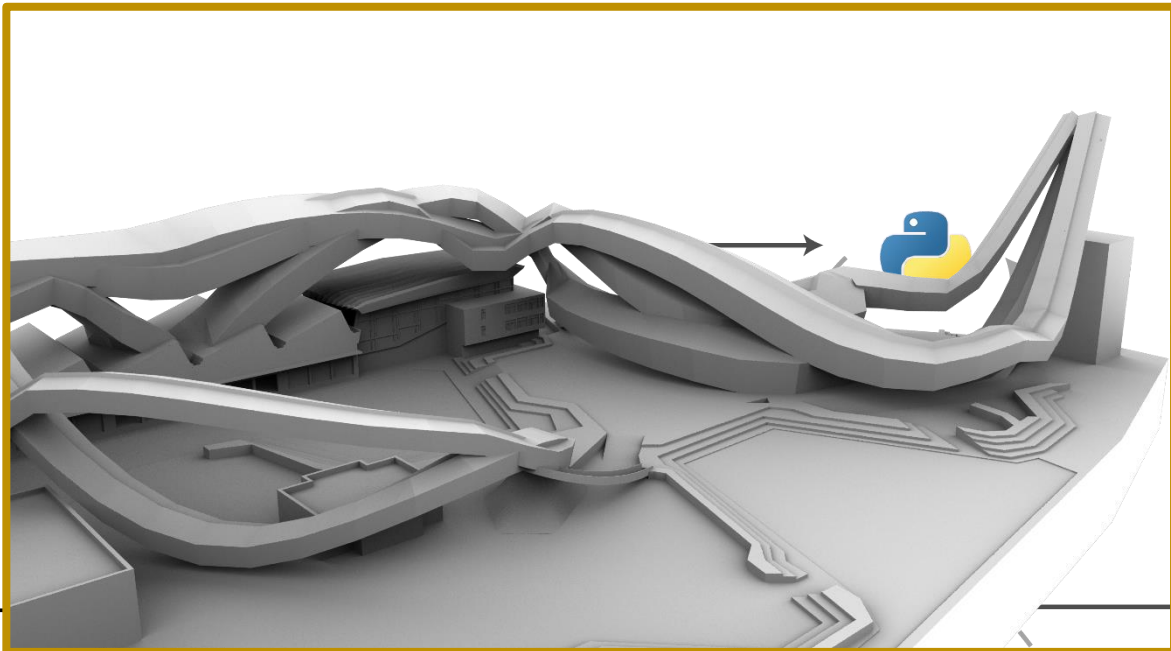
Collecting data and conceptual architectural decisions



Base Architectural Diagram

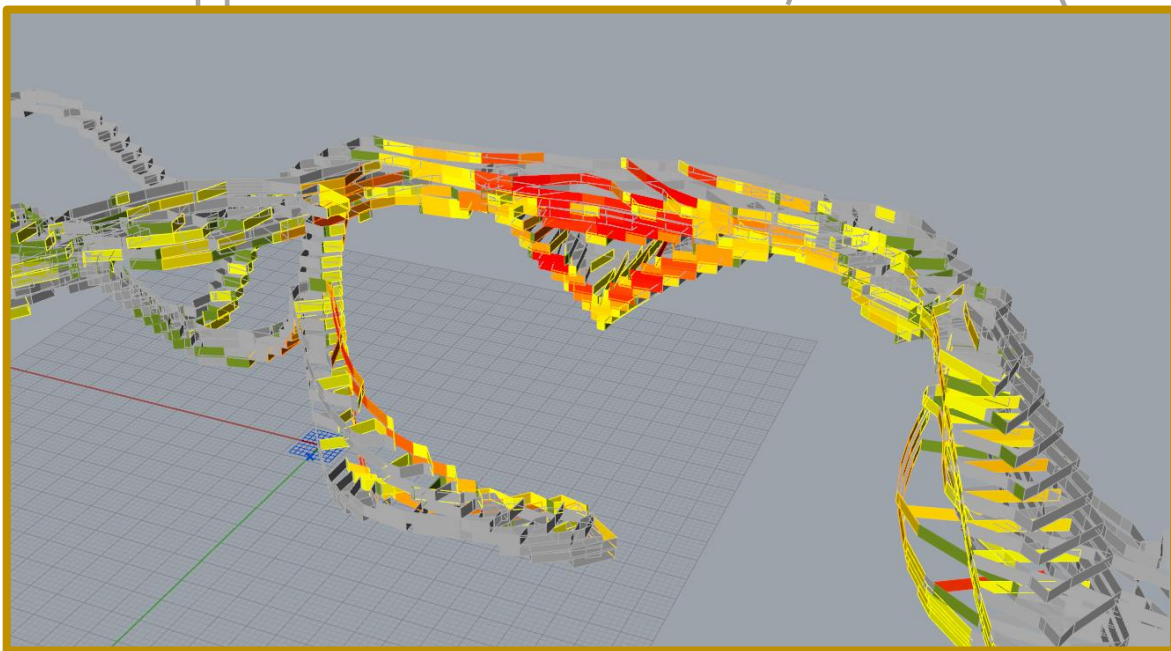


Si

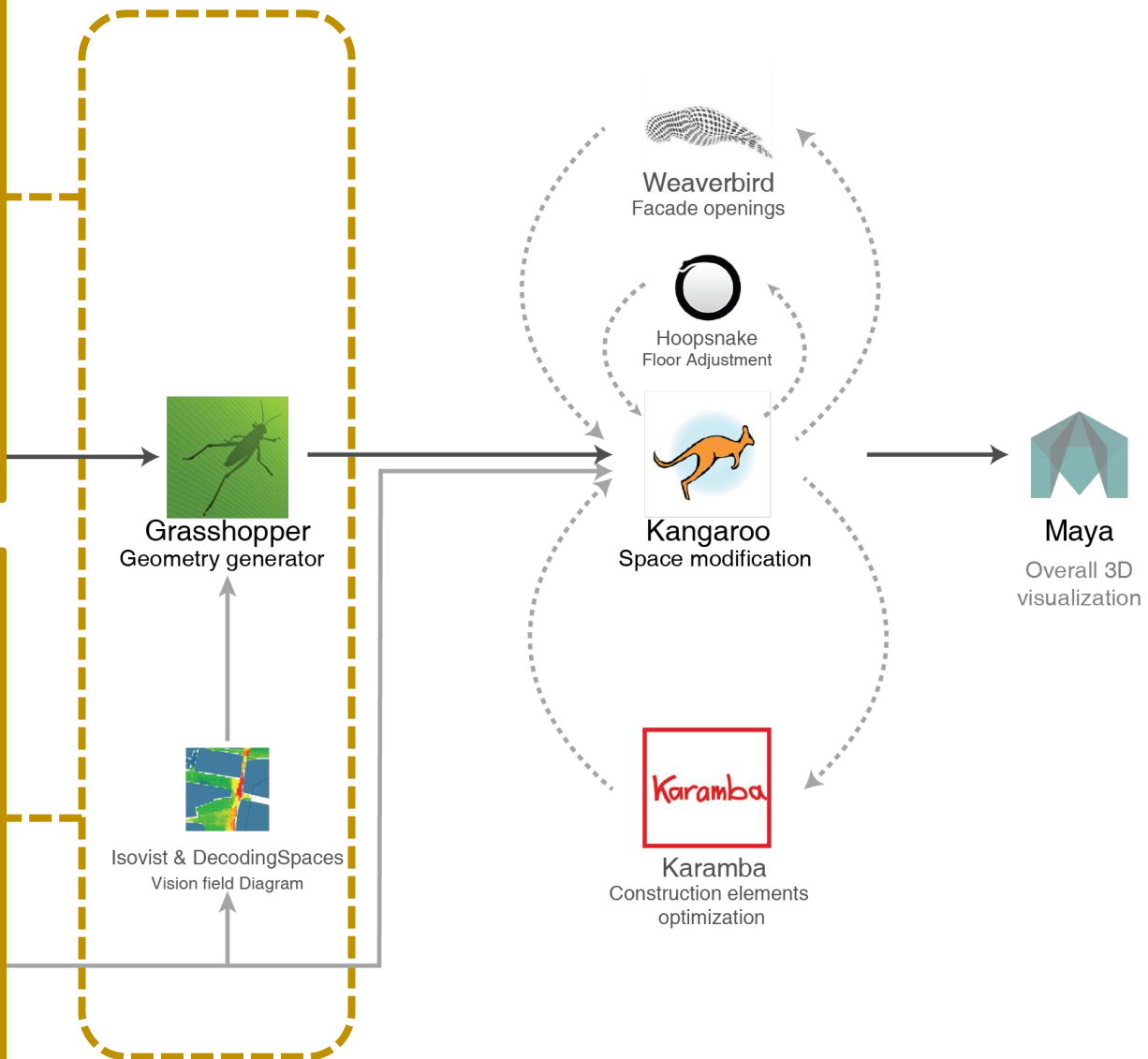


Rhino

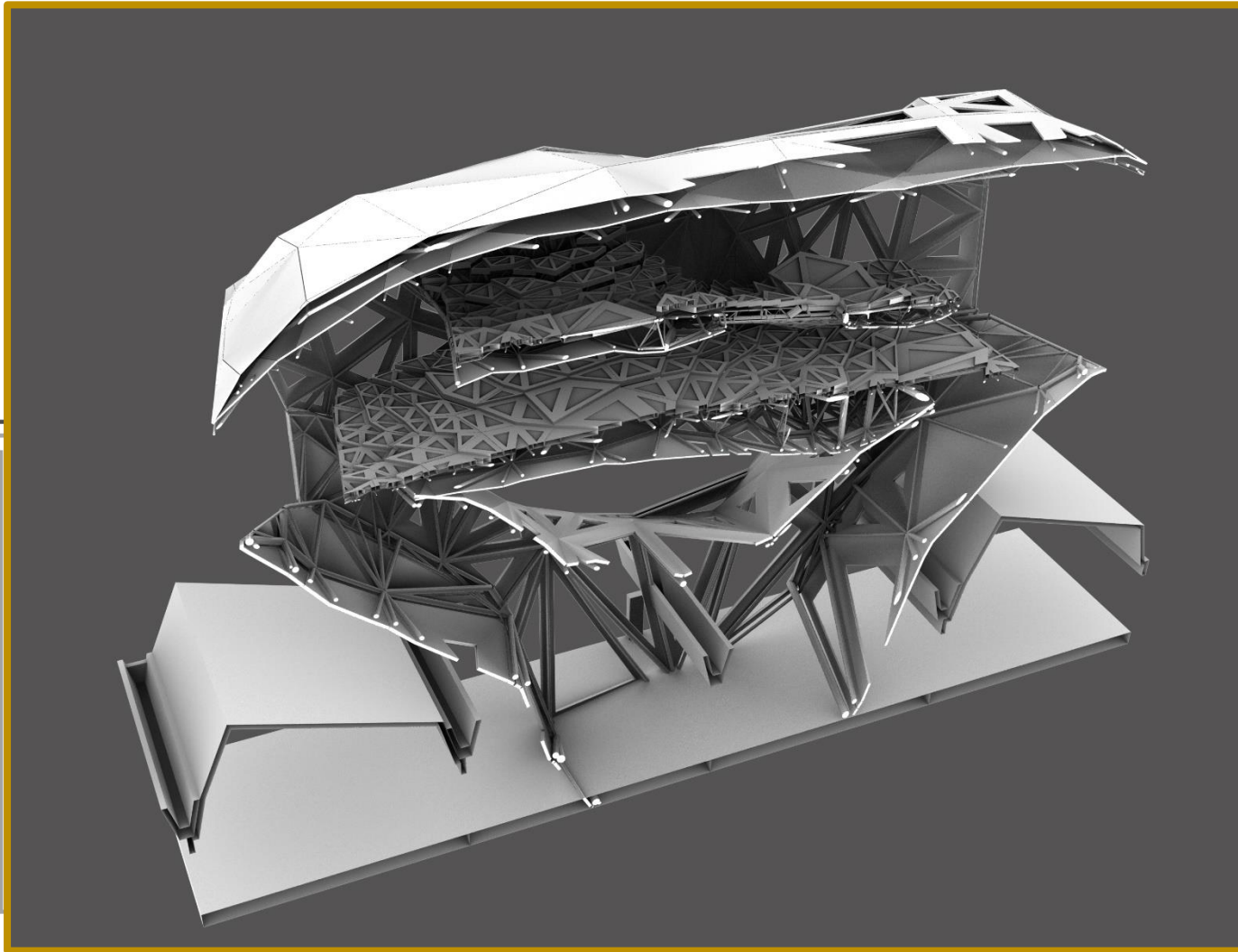
Galapagos



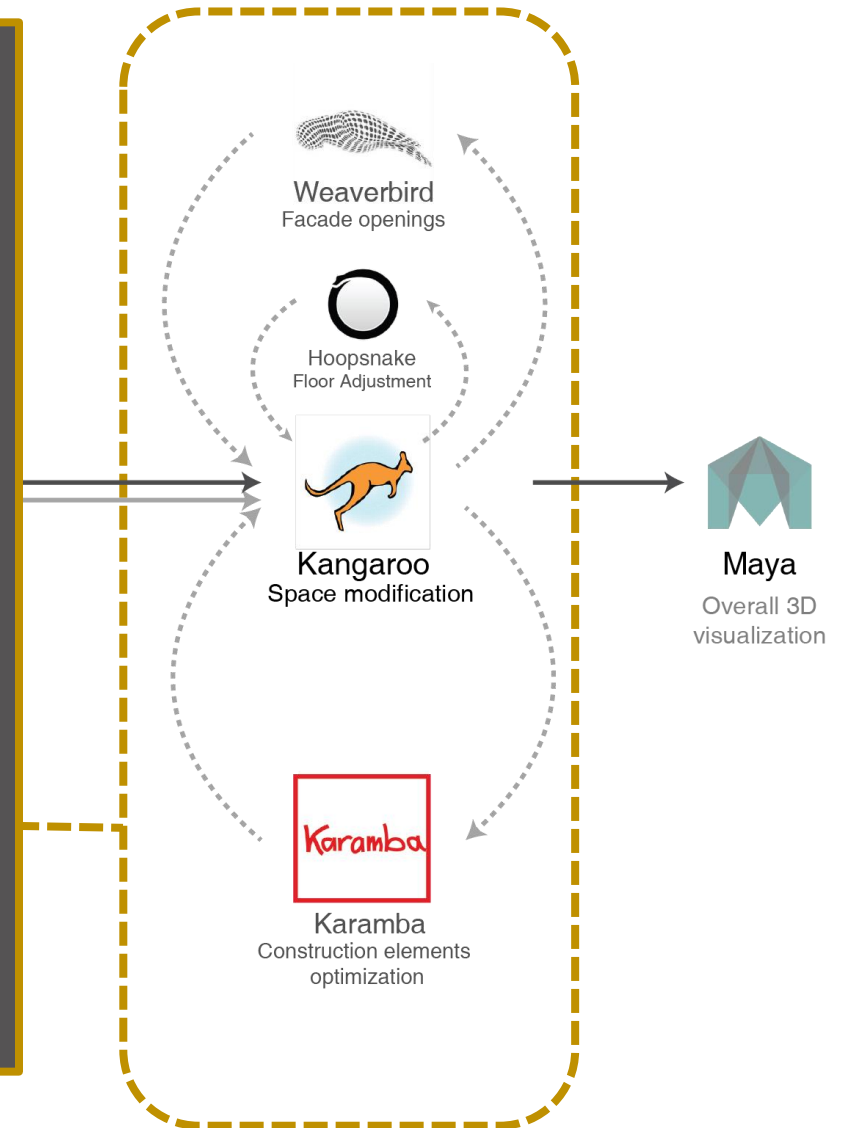
Generating Geometry

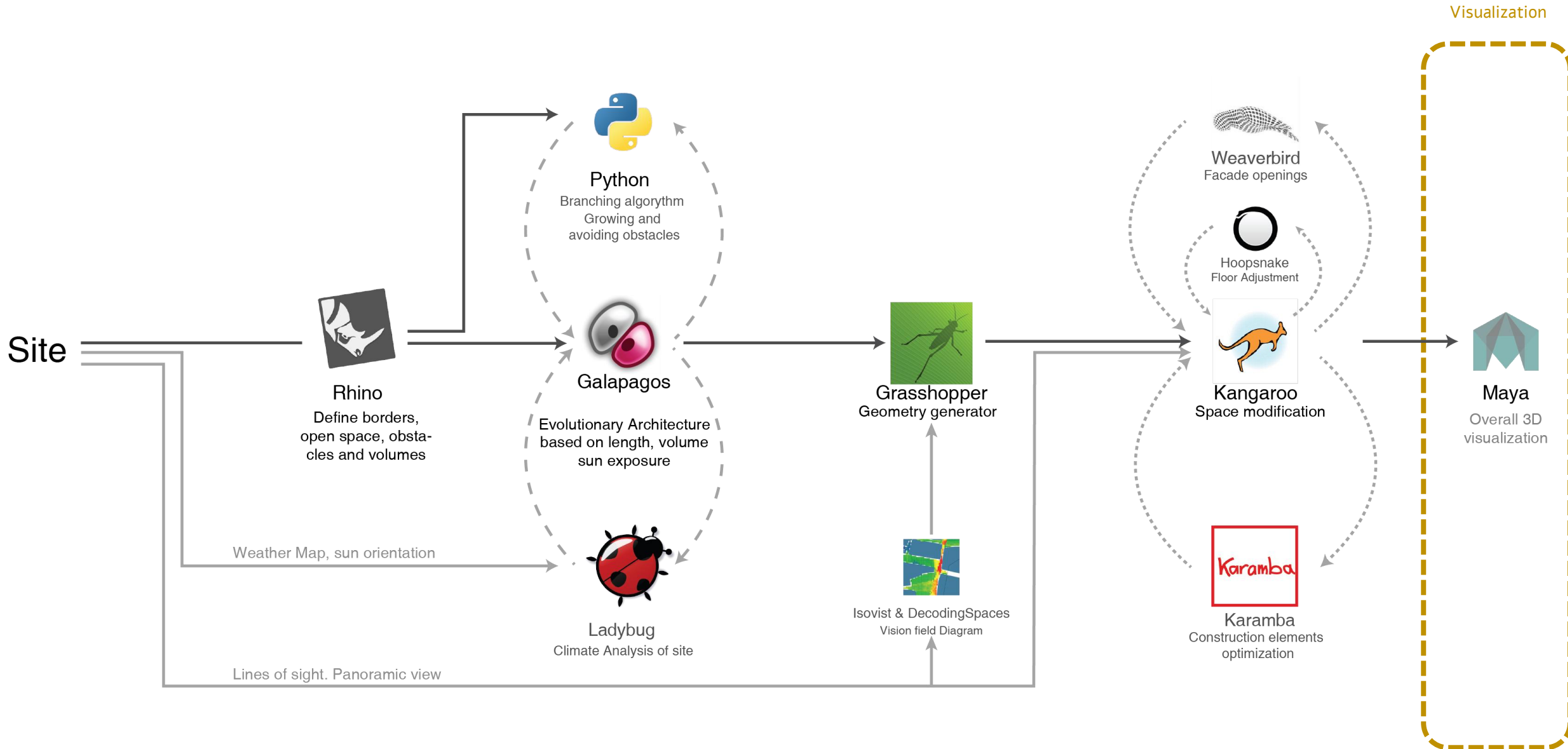


Site



Space Design





Branching algorithm

1st layer

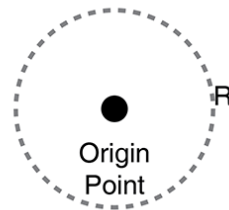
Recursive system

Simple 2D branching script

Within a field of randomness

Avoiding self intersection

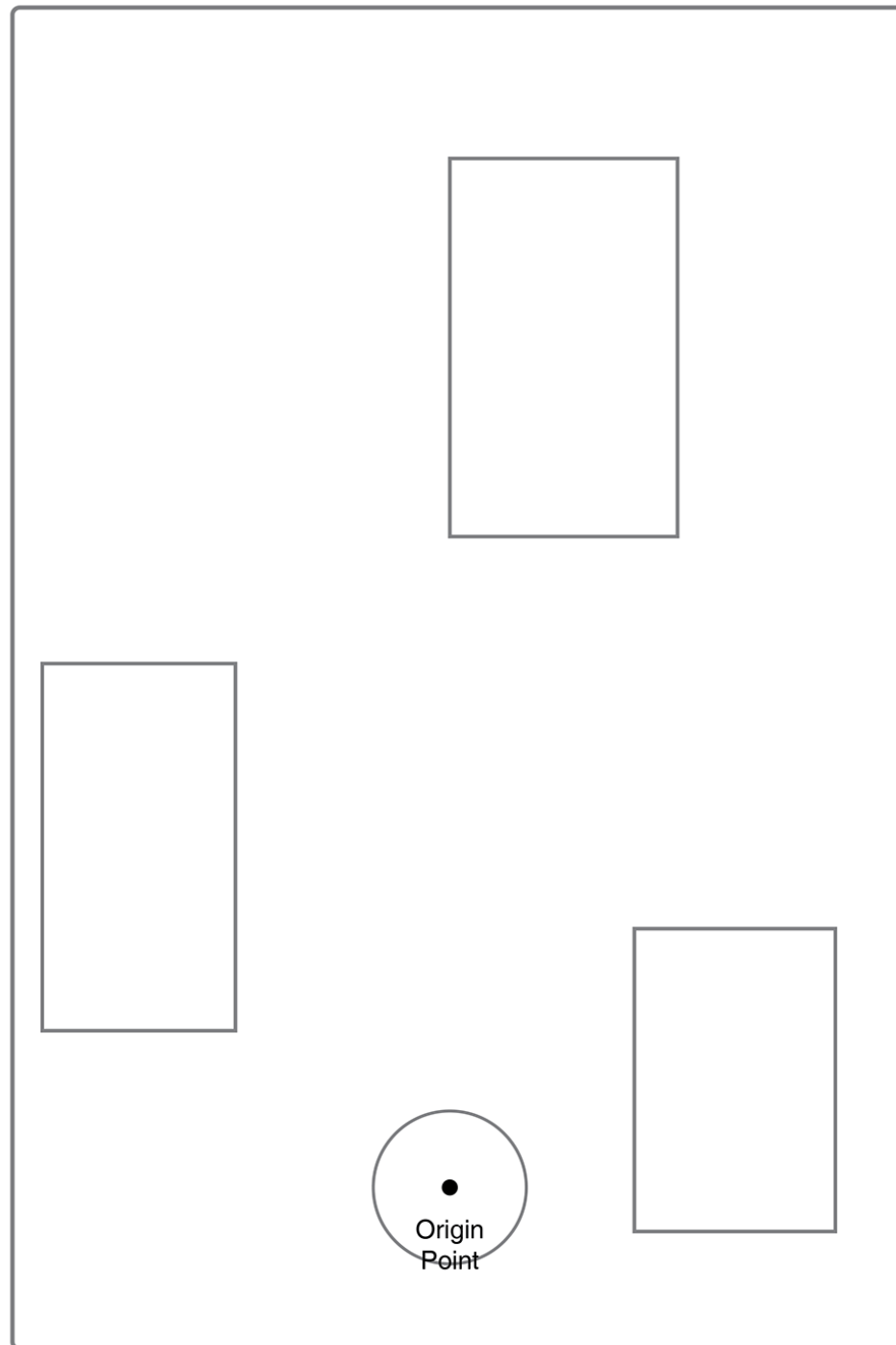
Recursive loop changing the R value.



Branching algorithm

2nd layer

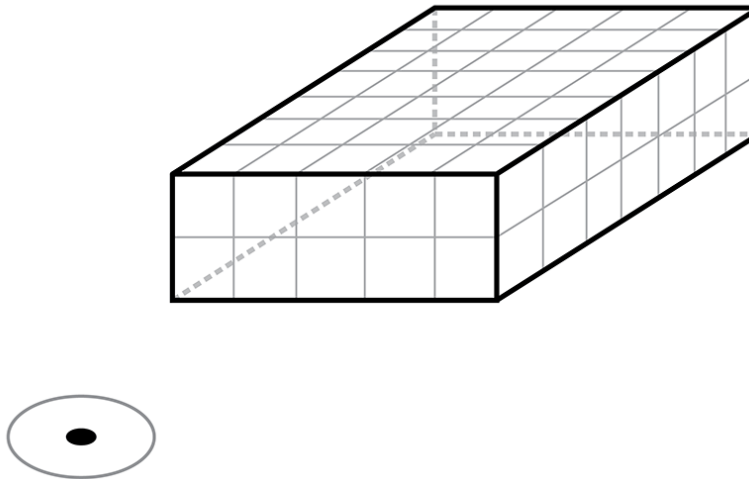
Checking for borders
(polygons) closest points
Measuring distance
Placing or canceling each
branch

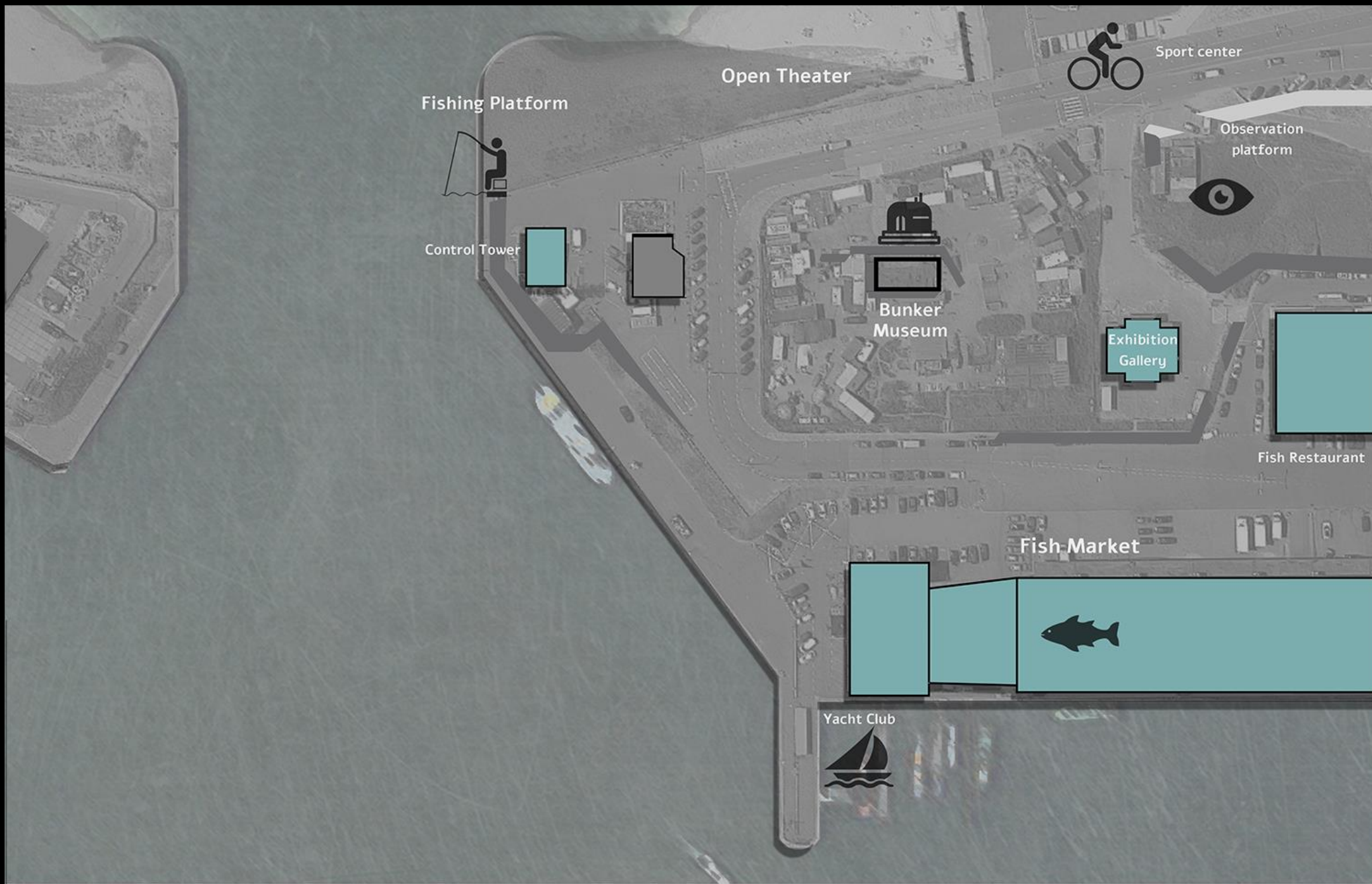


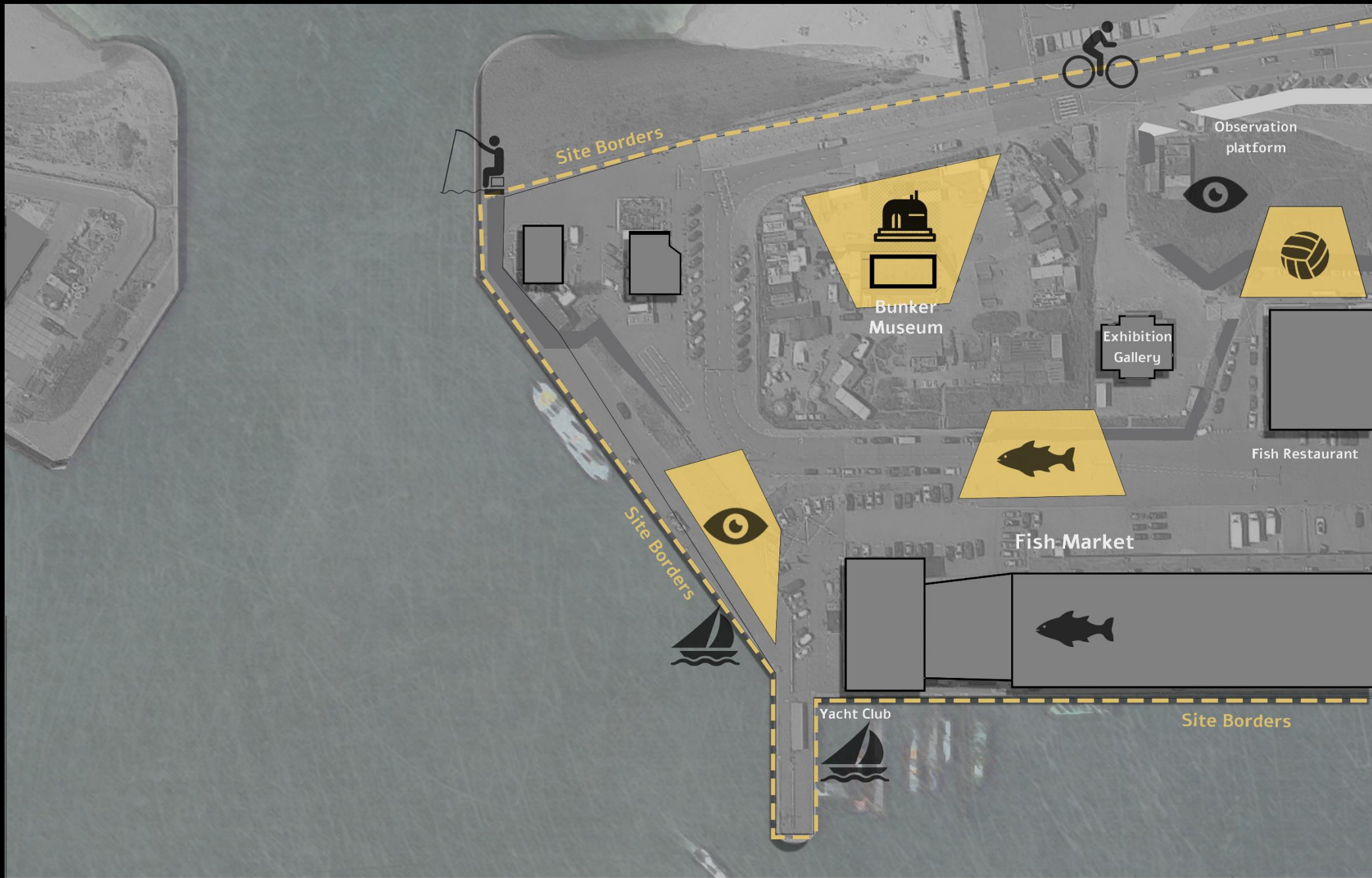
Branching algorithm

3rd layer

Checking for obstacles
proximity (meshes)
Deciding whether to grow
above mesh or under
according to certain distance.
Placing branches nearby
closest point plus safe
distance. In case of a further
branch outside obstacle –
return to zero level.







Grasshopper Branching Algorithm

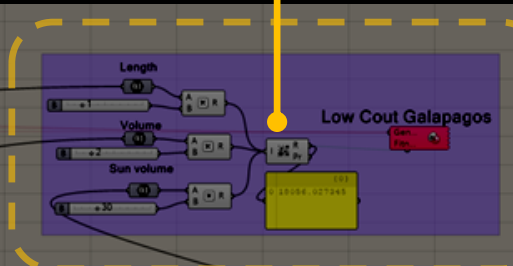
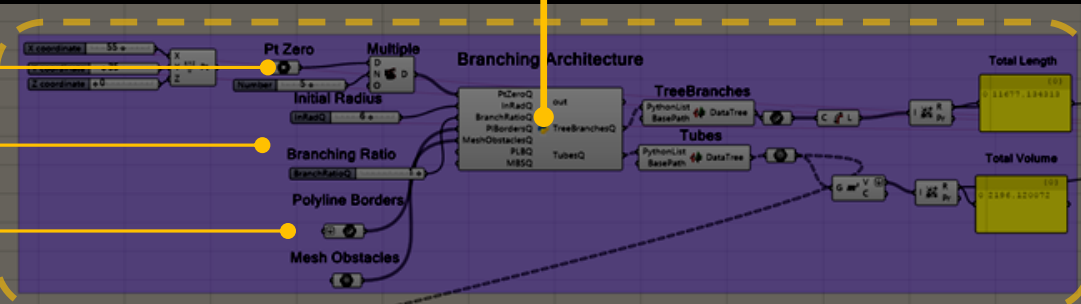
Origin Point

Adjustable parameters

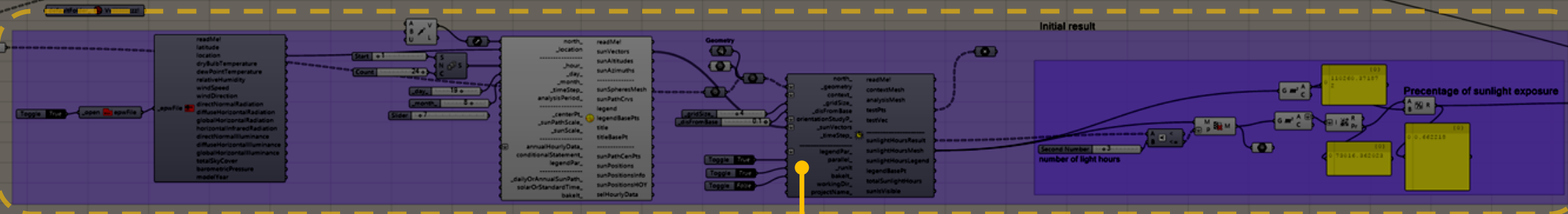
Borders and Obstacles

Branching Script

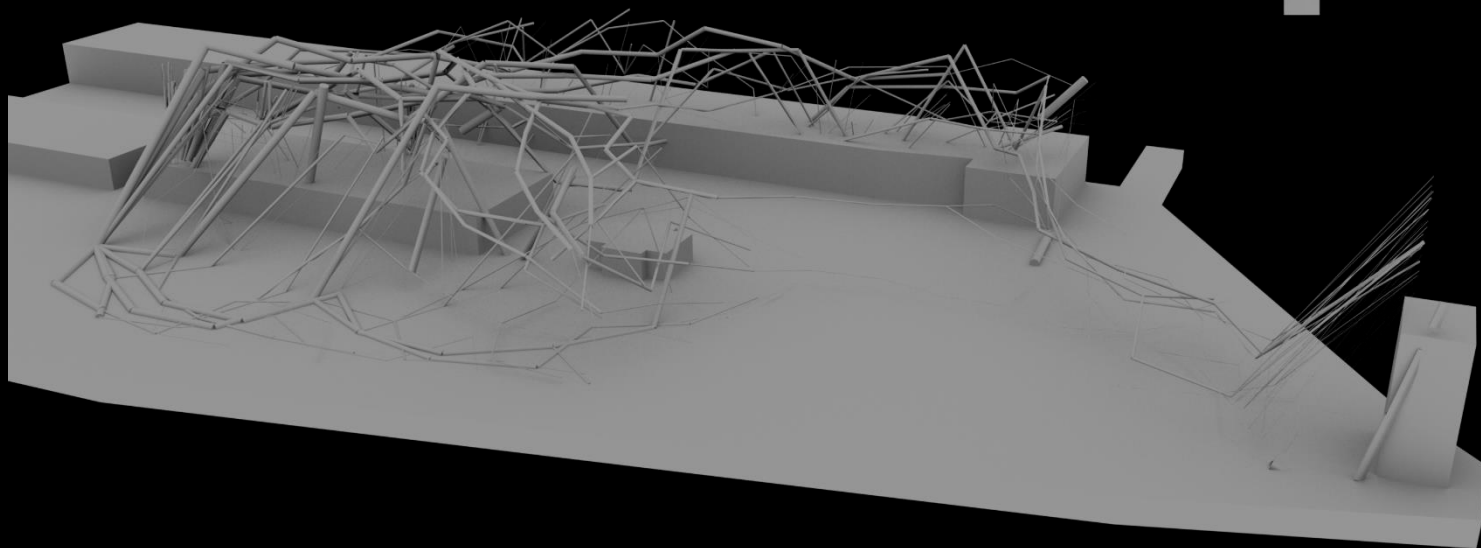
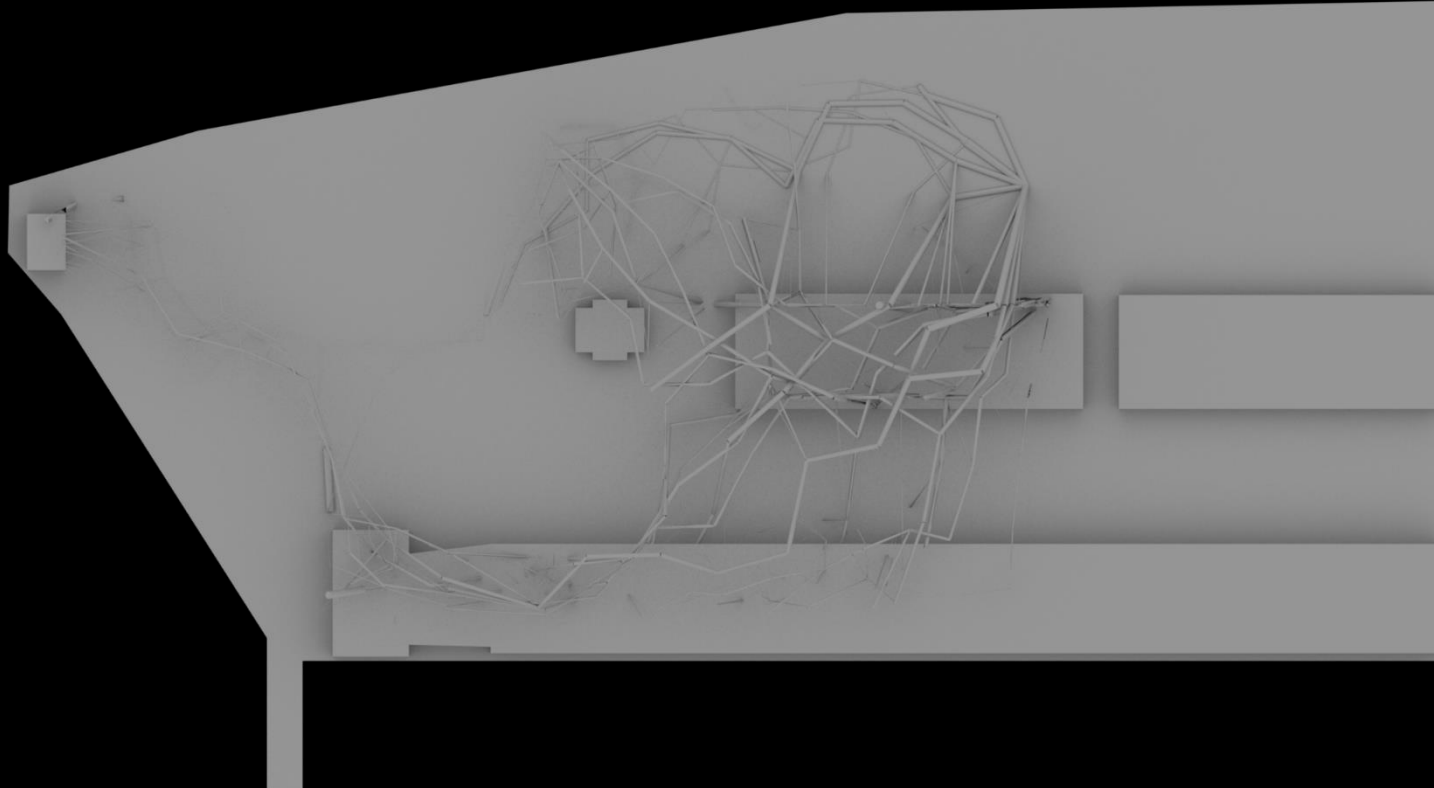
Evolutionary Process

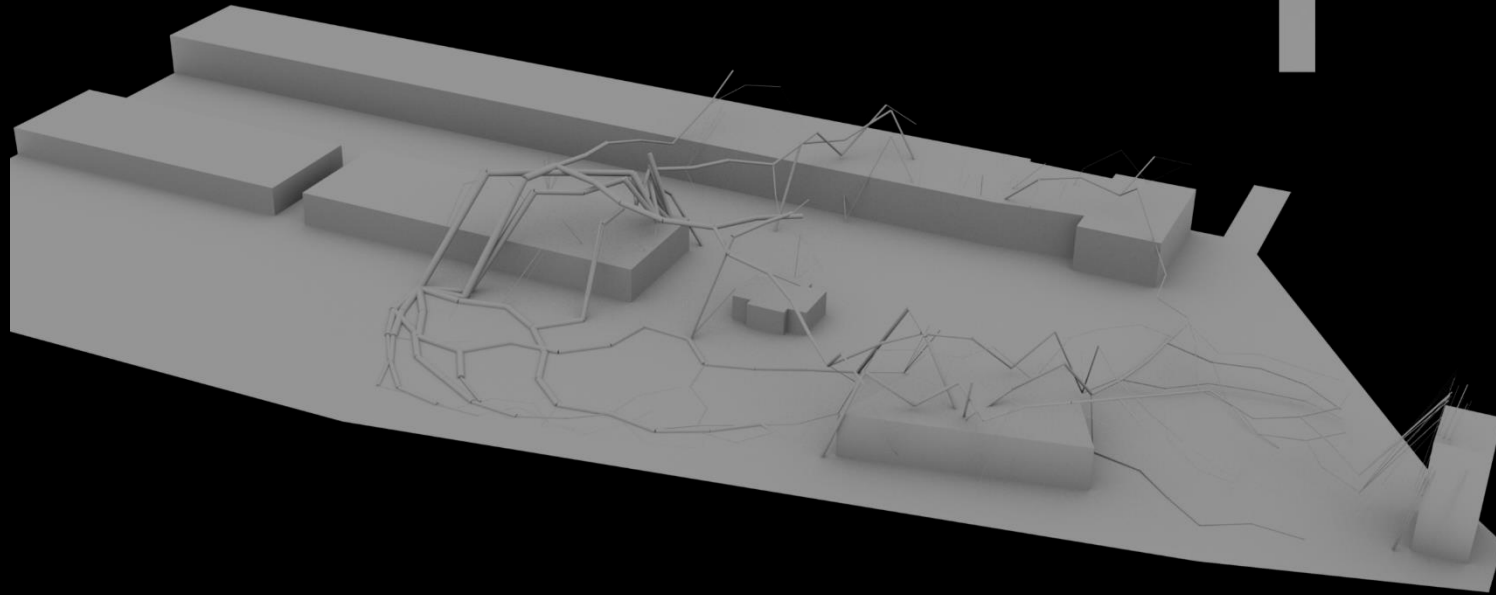
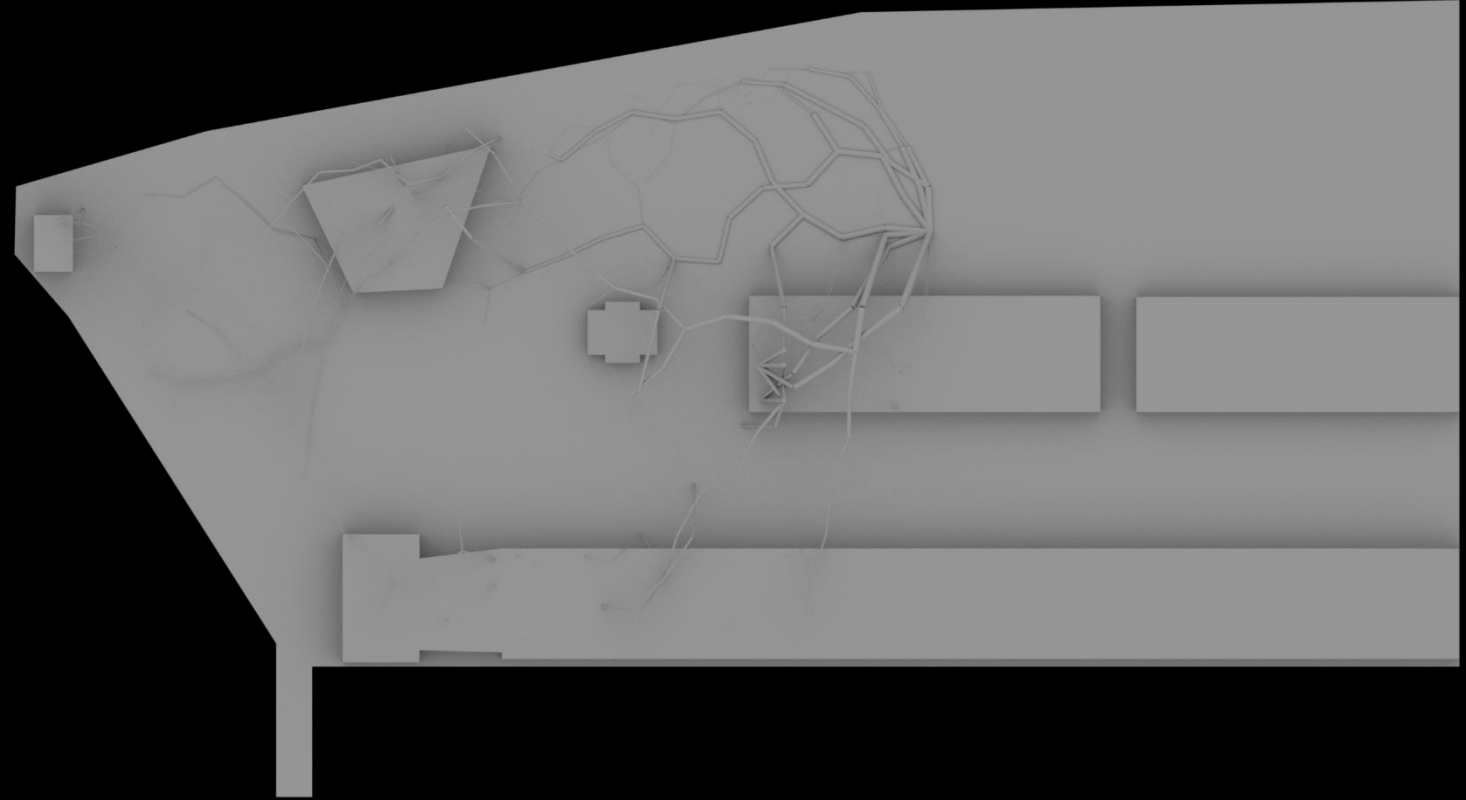


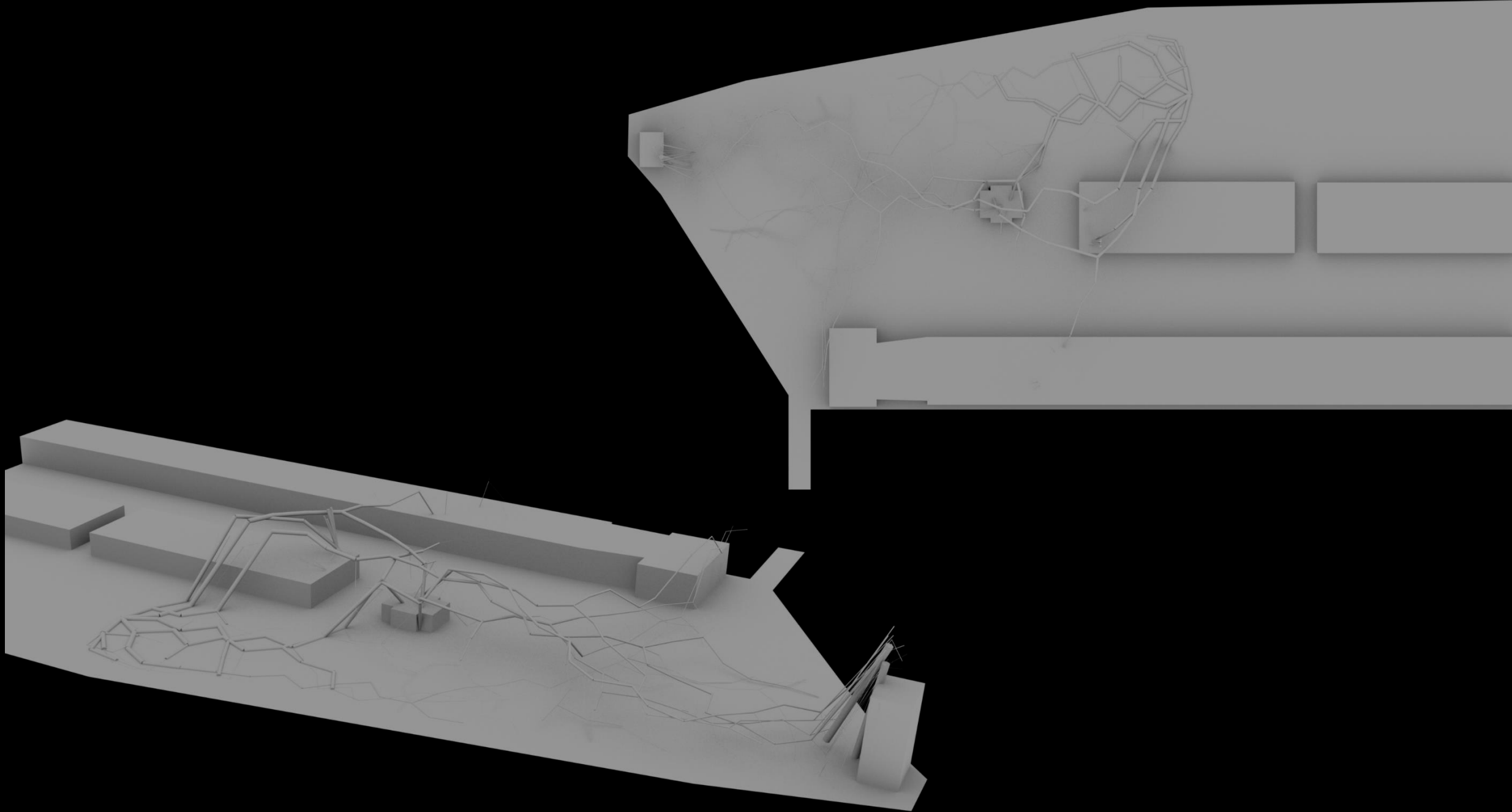
Weather Check

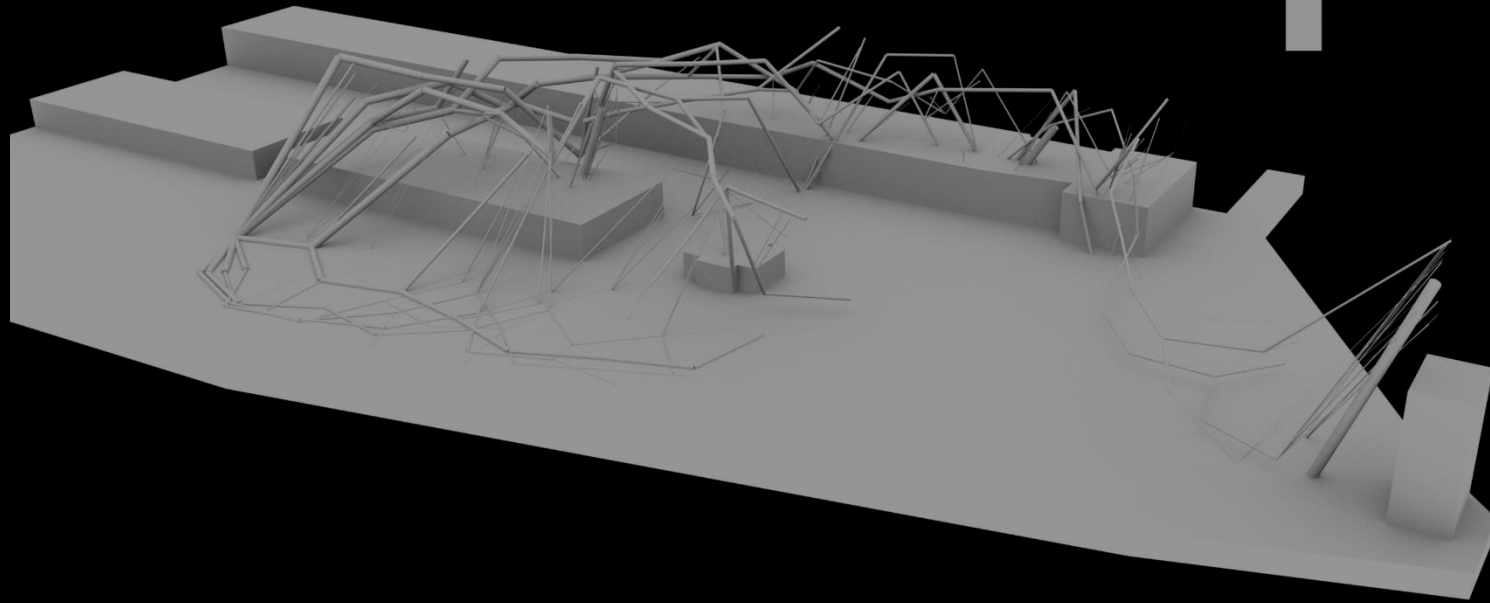
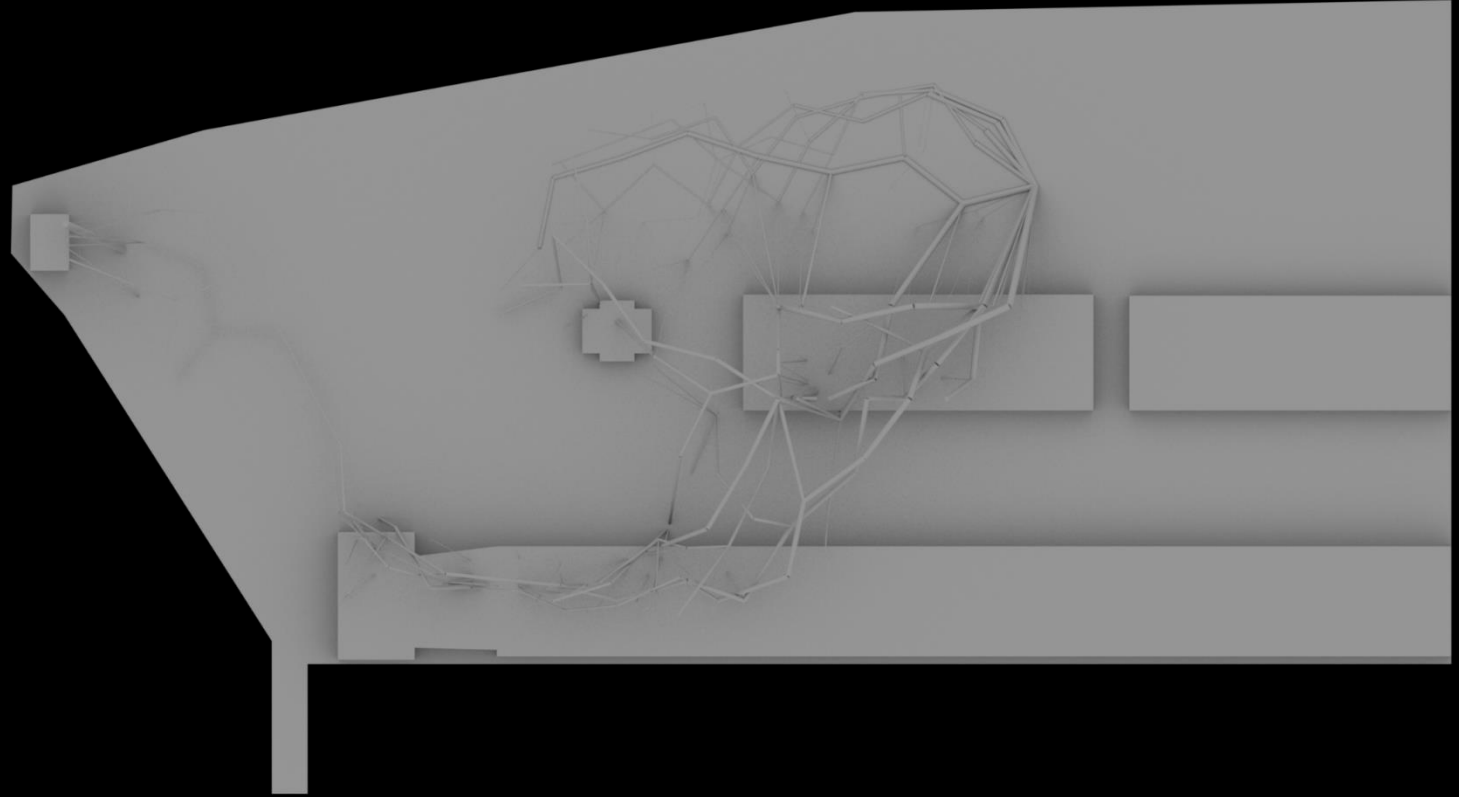


Site and building
Climate Analysis



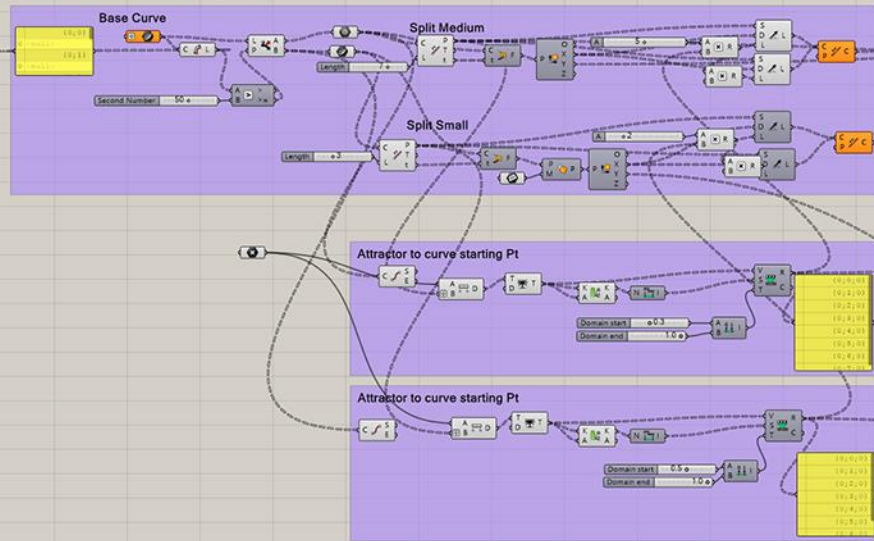




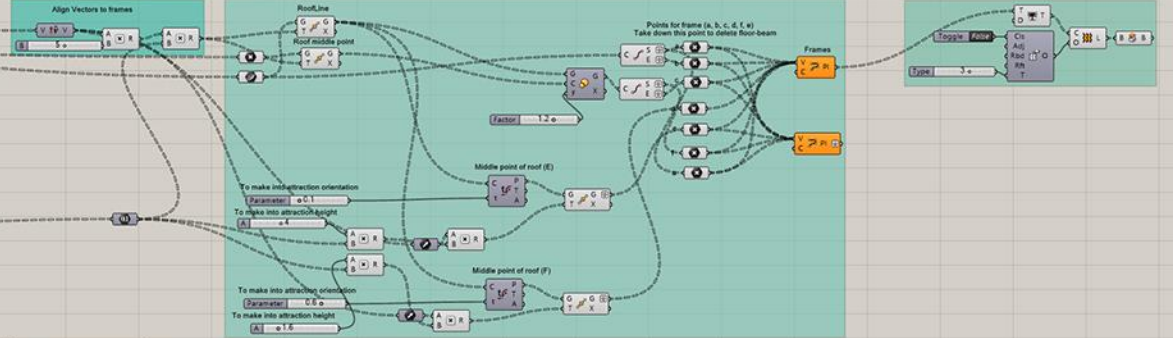


Grasshopper Geometry Code

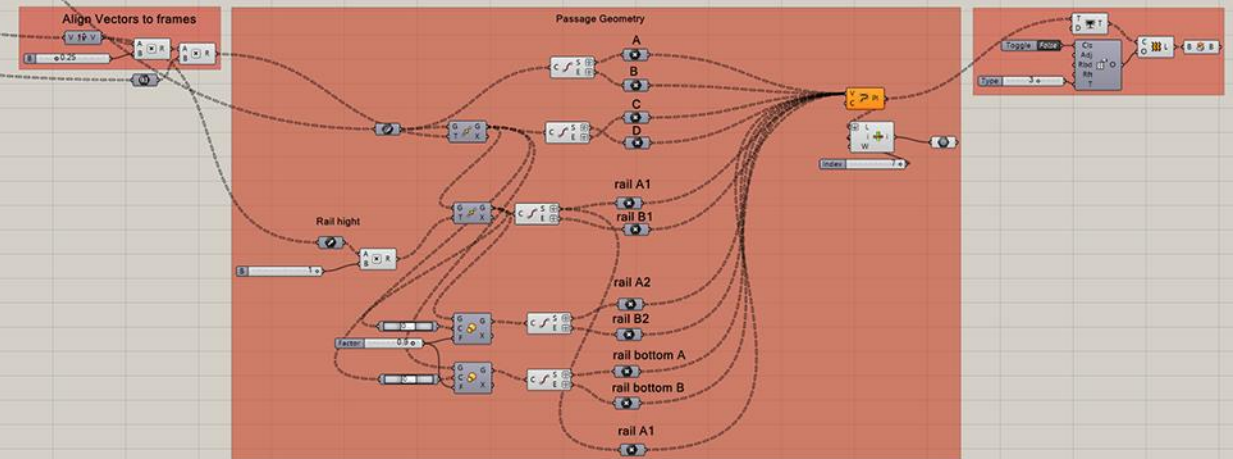
Geometry generator



volume geometry



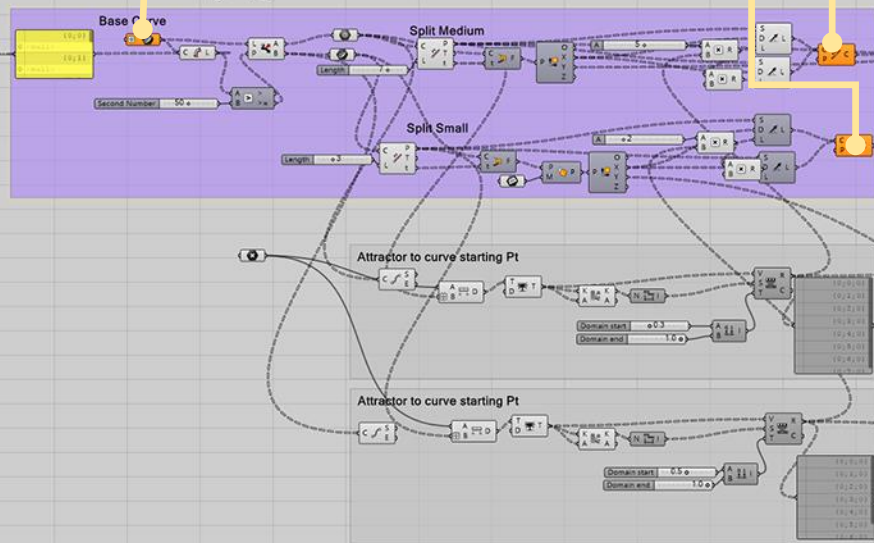
Path geometry



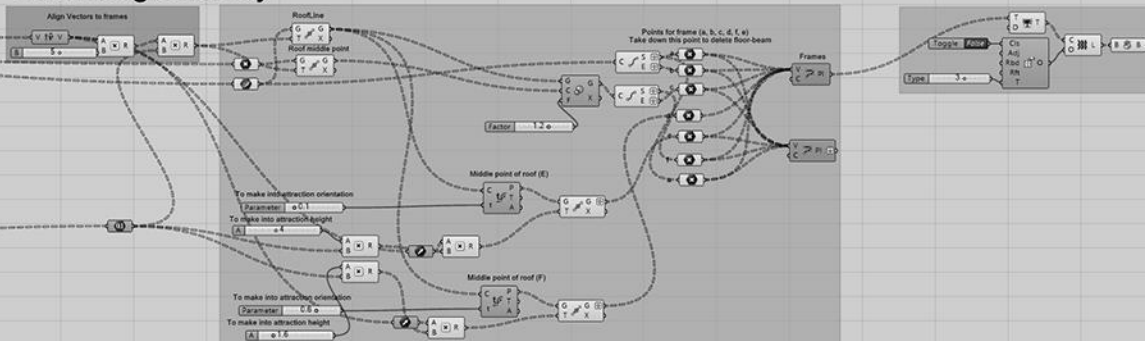
Curves collection

Split into volumes or paths

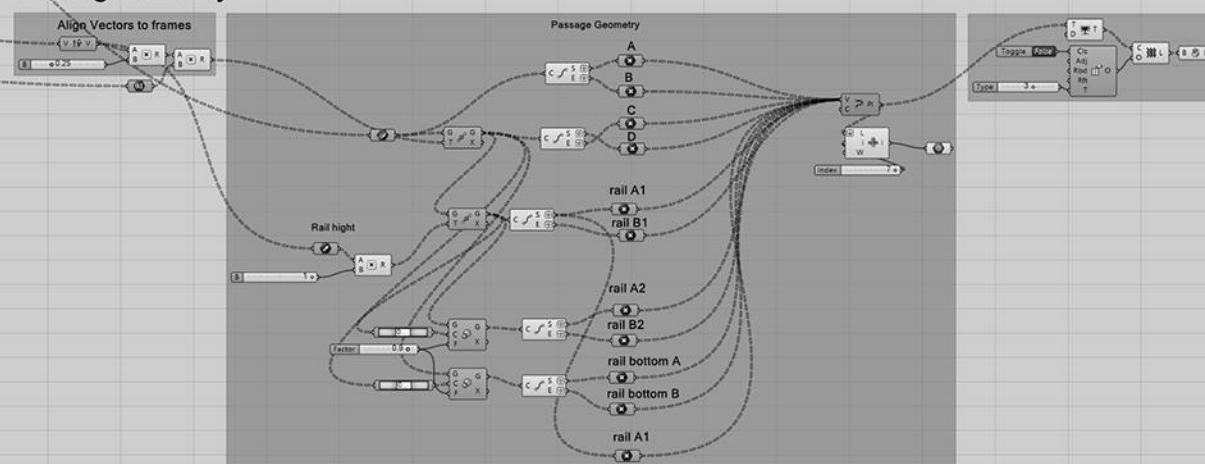
Geometry generator



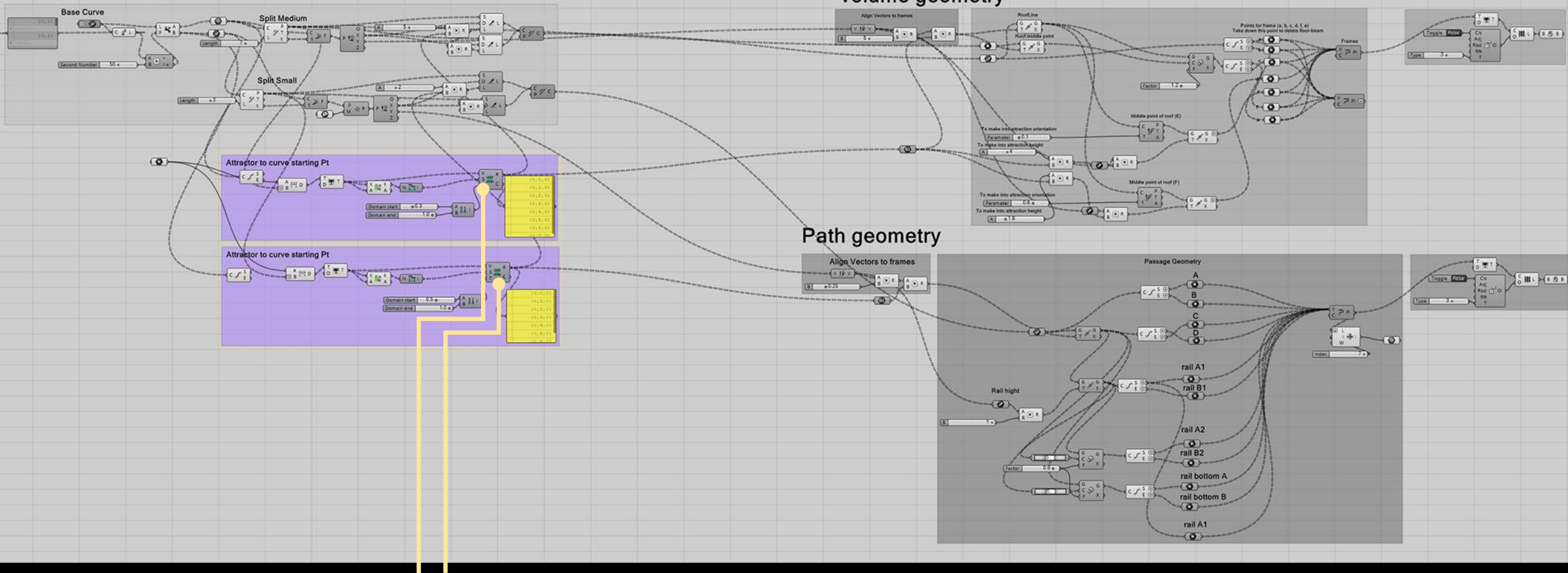
volume geometry



Path geometry

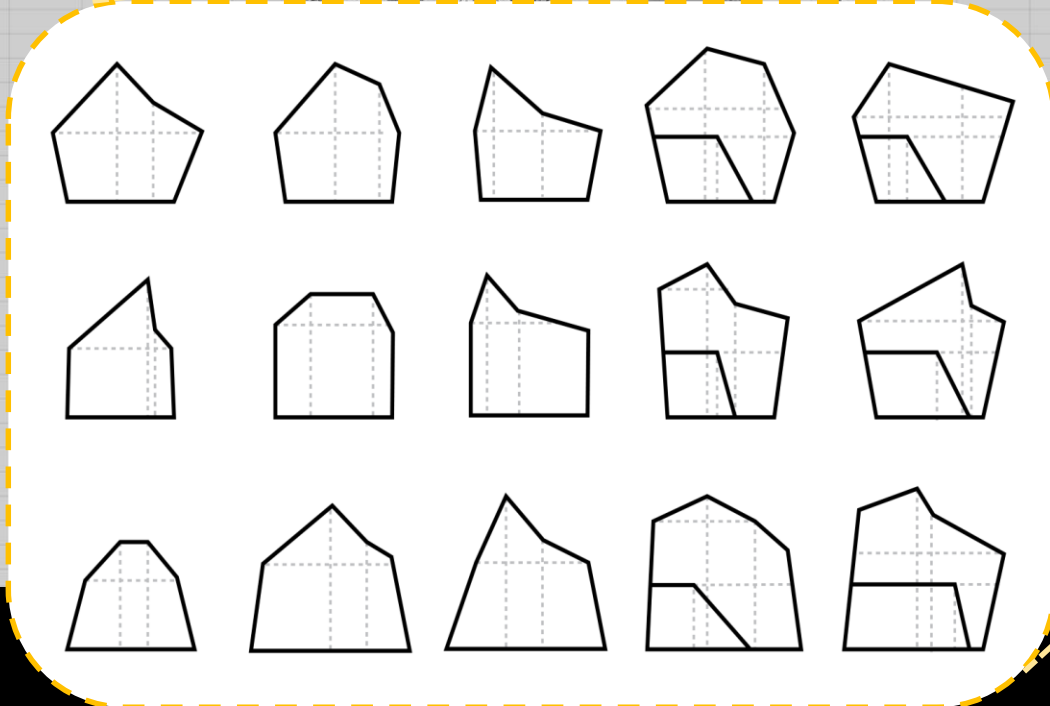
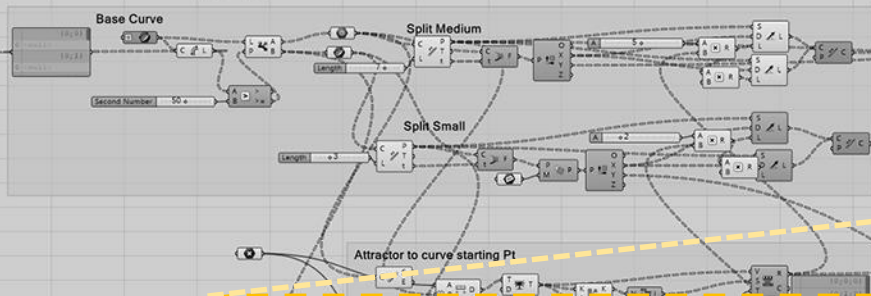


Geometry generator



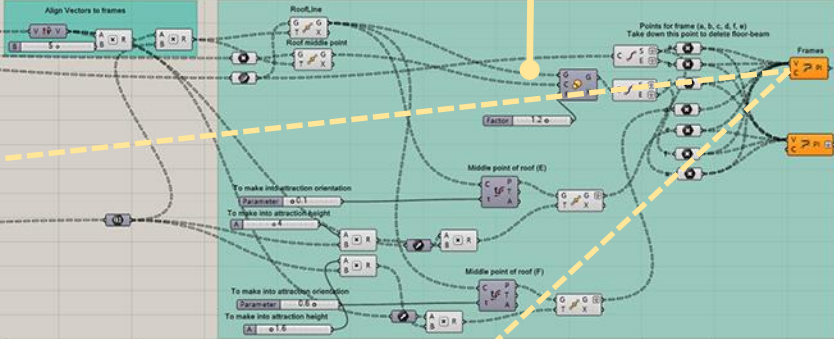
Size adaptation (attractors)

Geometry generator

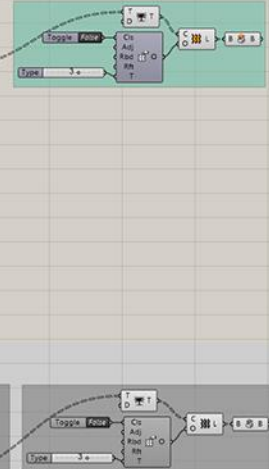
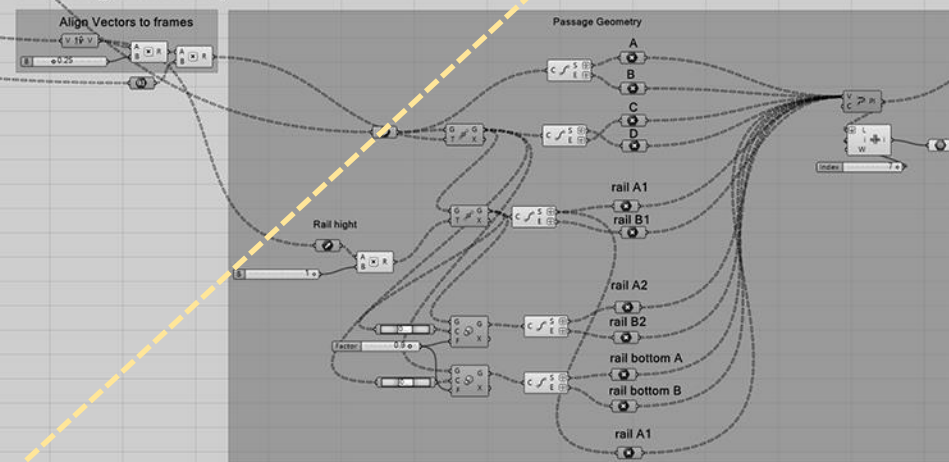


Volumes generating

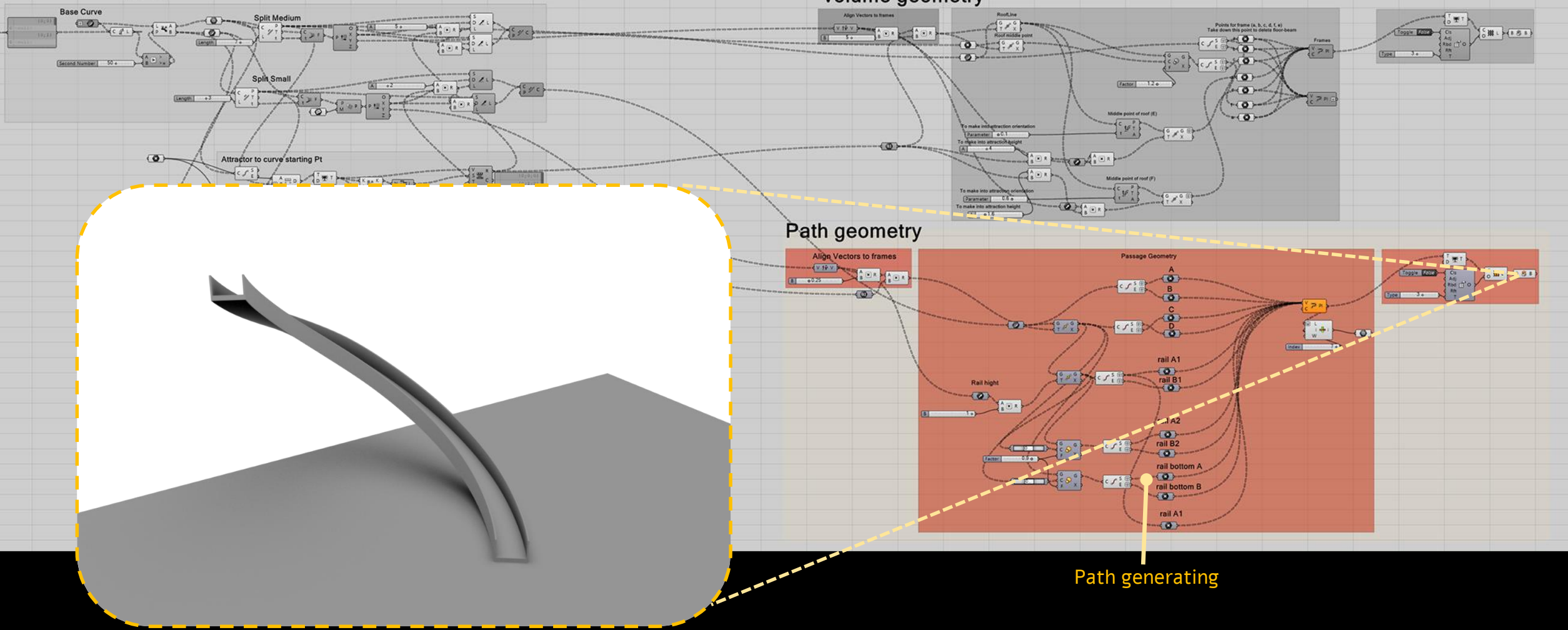
volume geometry



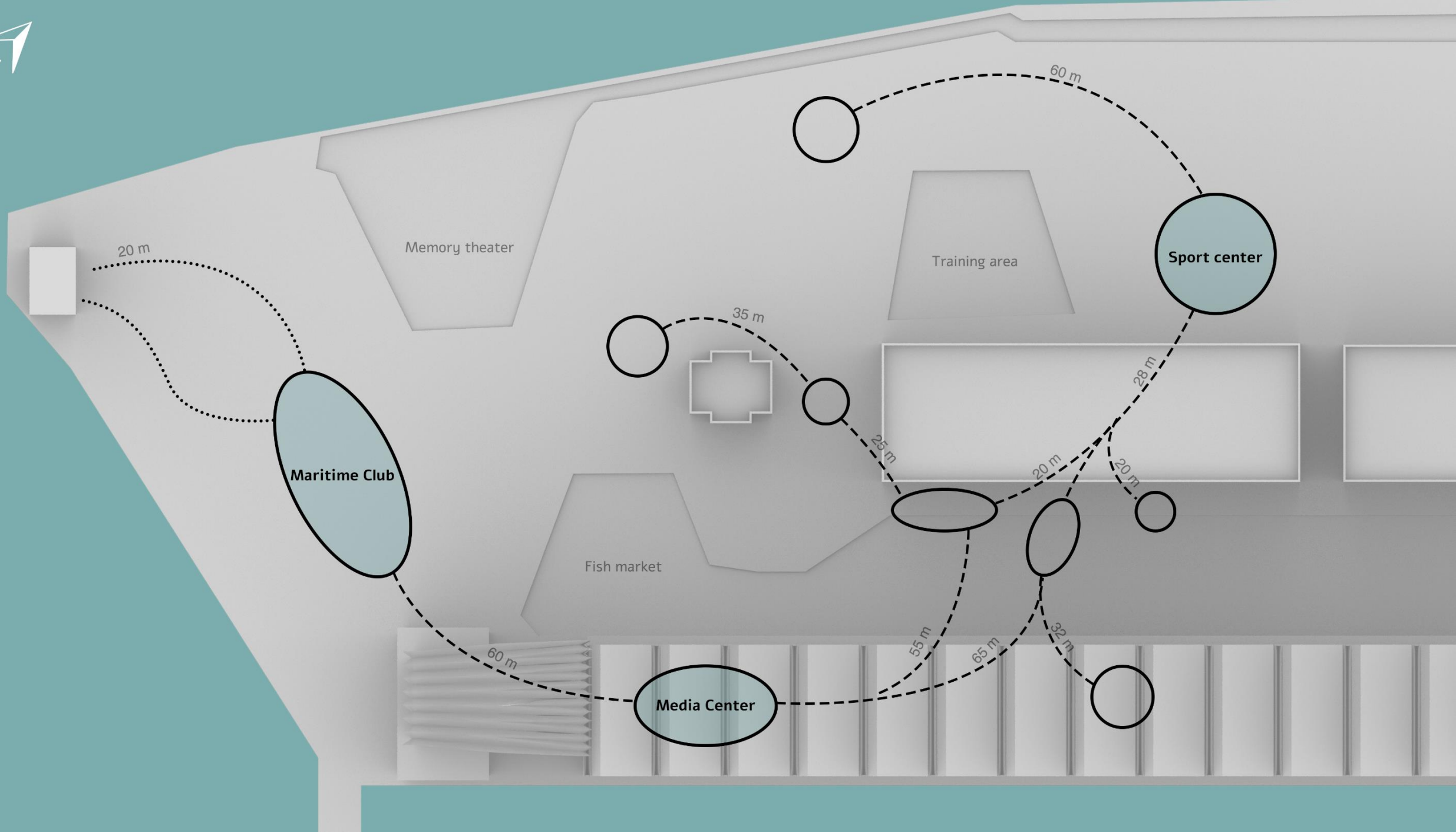
Path geometry



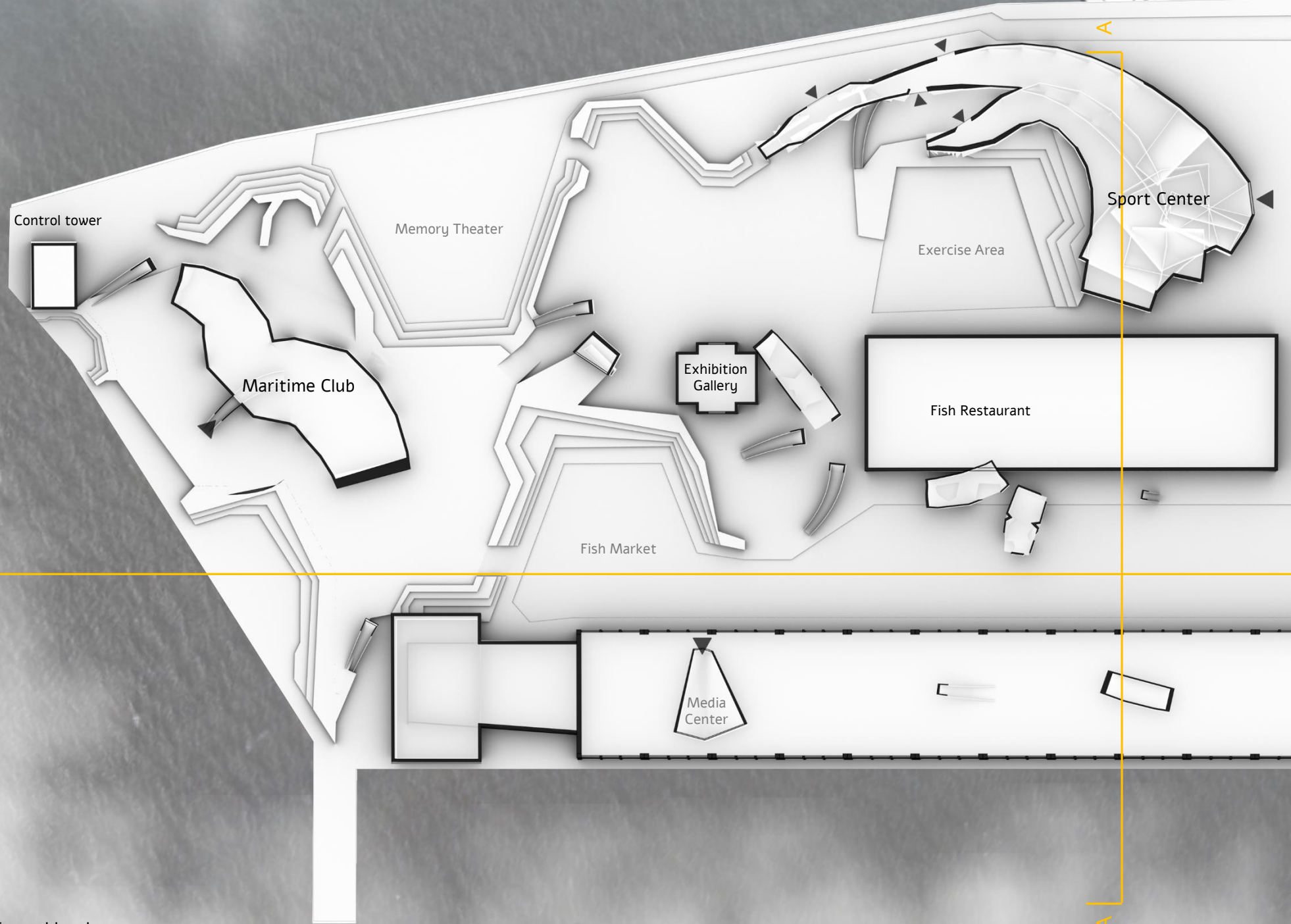
Geometry generator

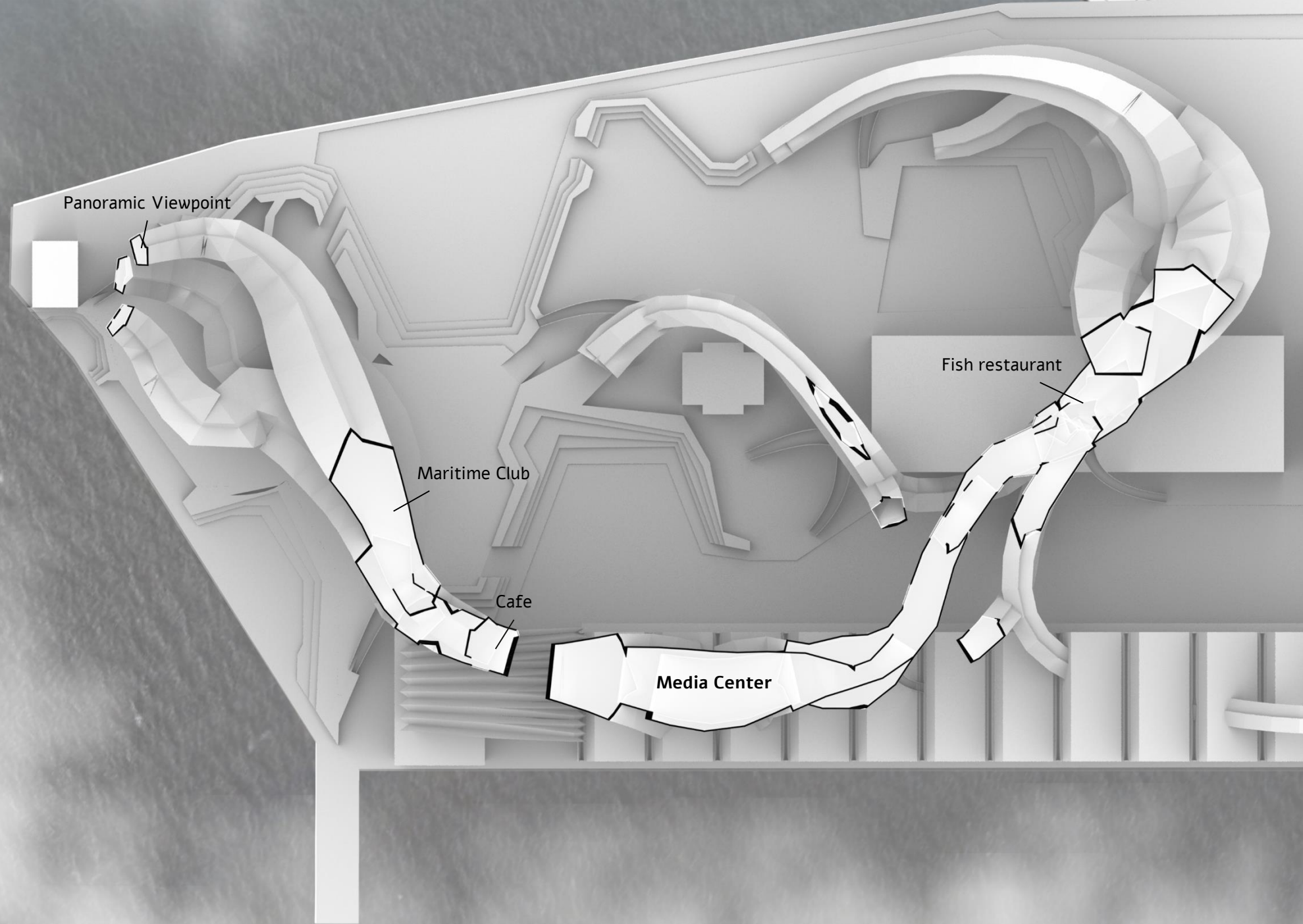


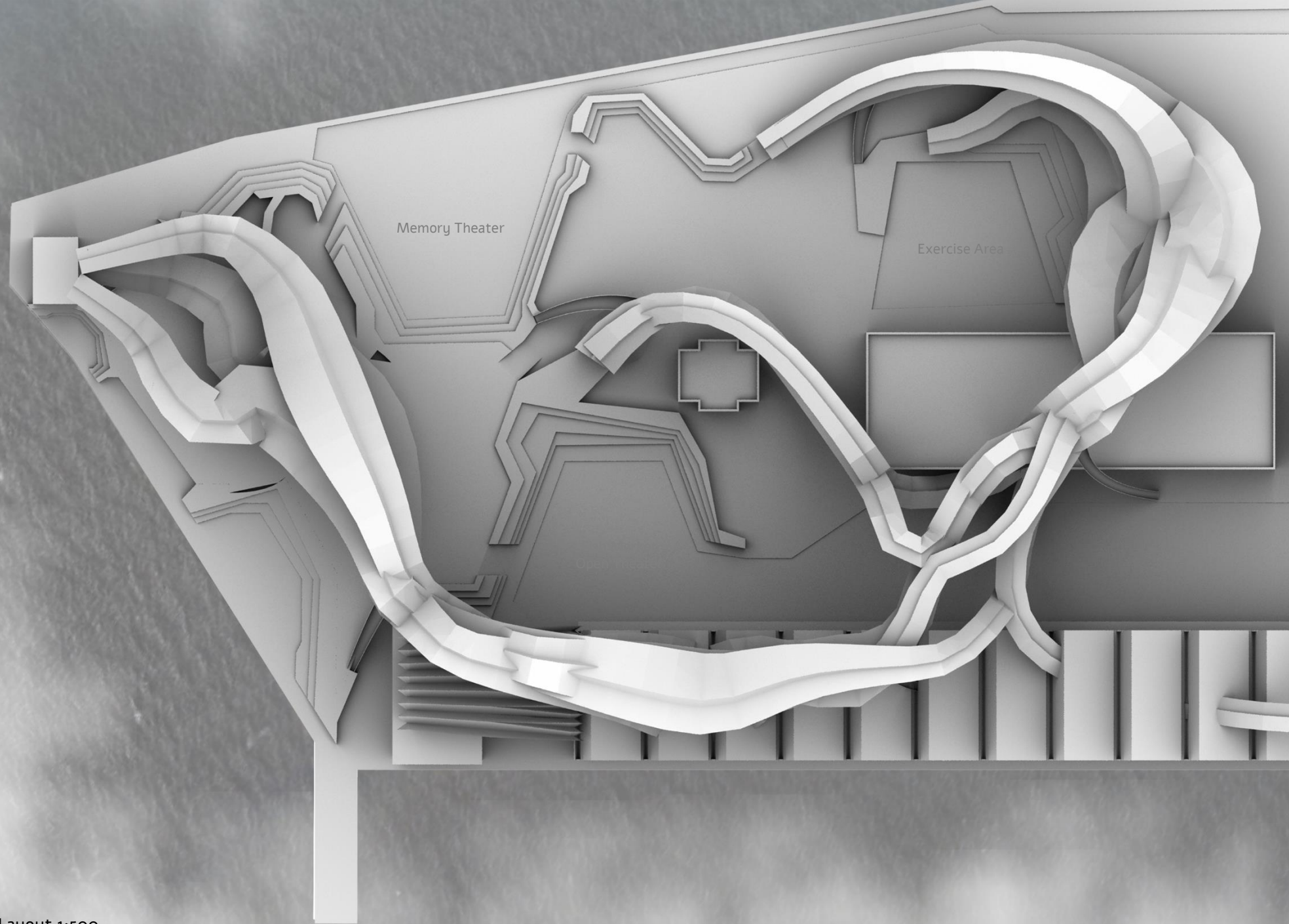
Path generating



Layout









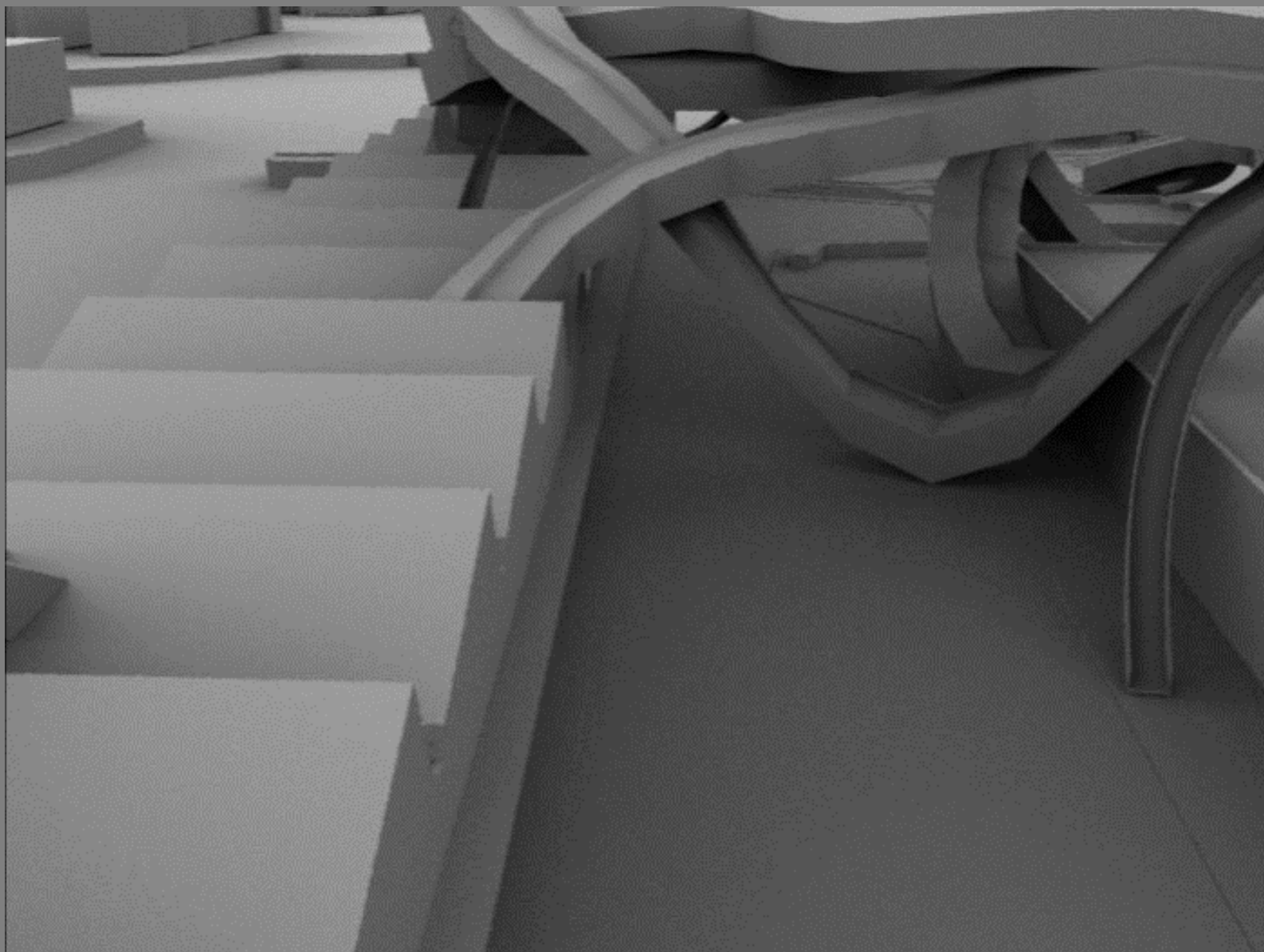


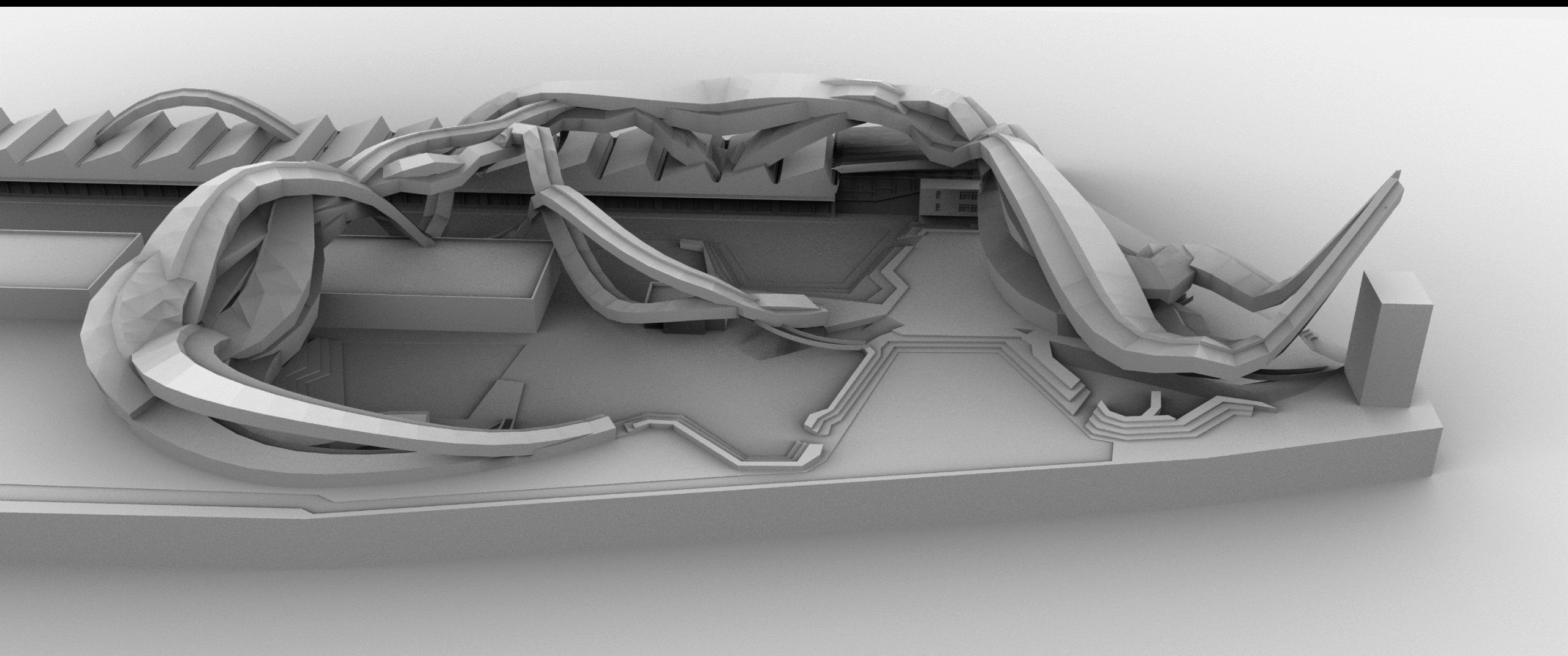
Control Tower

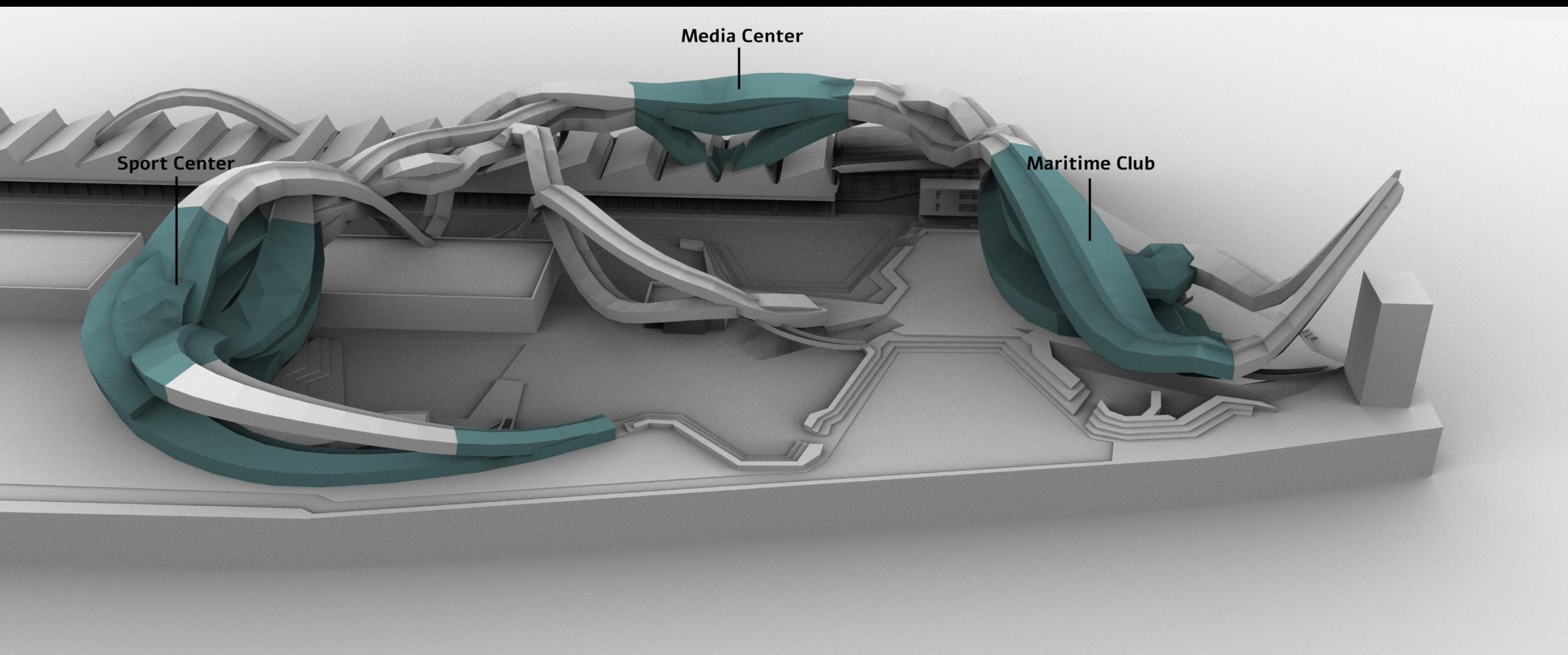
Art Gallery

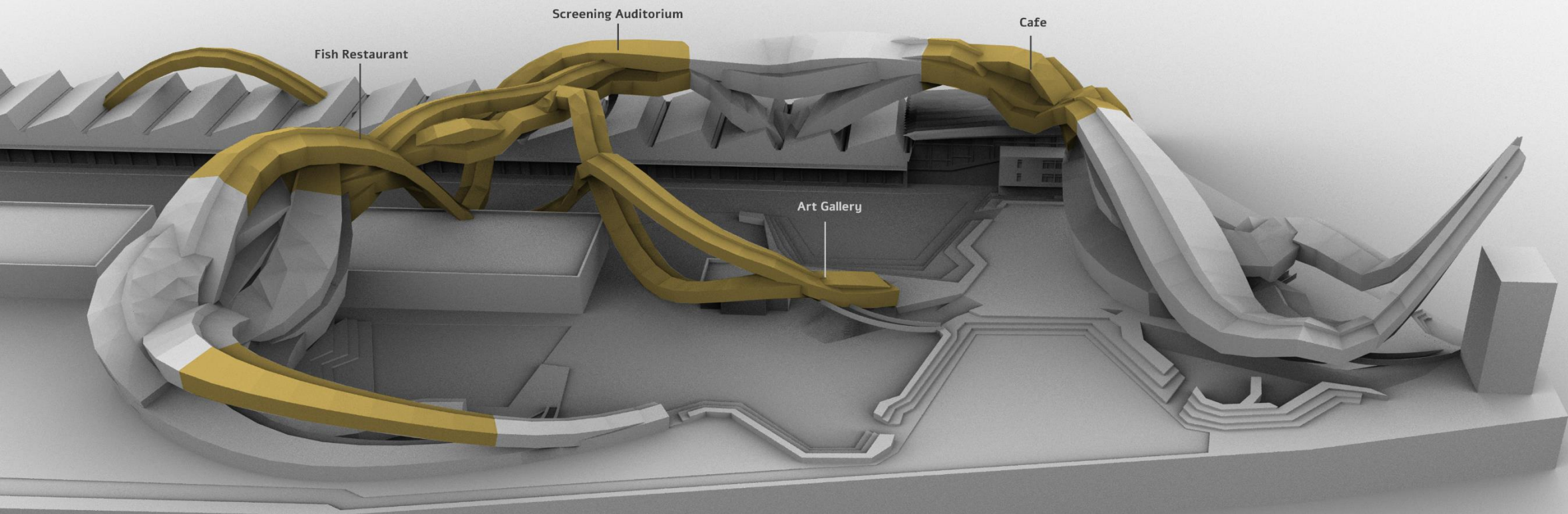
Exhibition Gallery

Fish restaurant







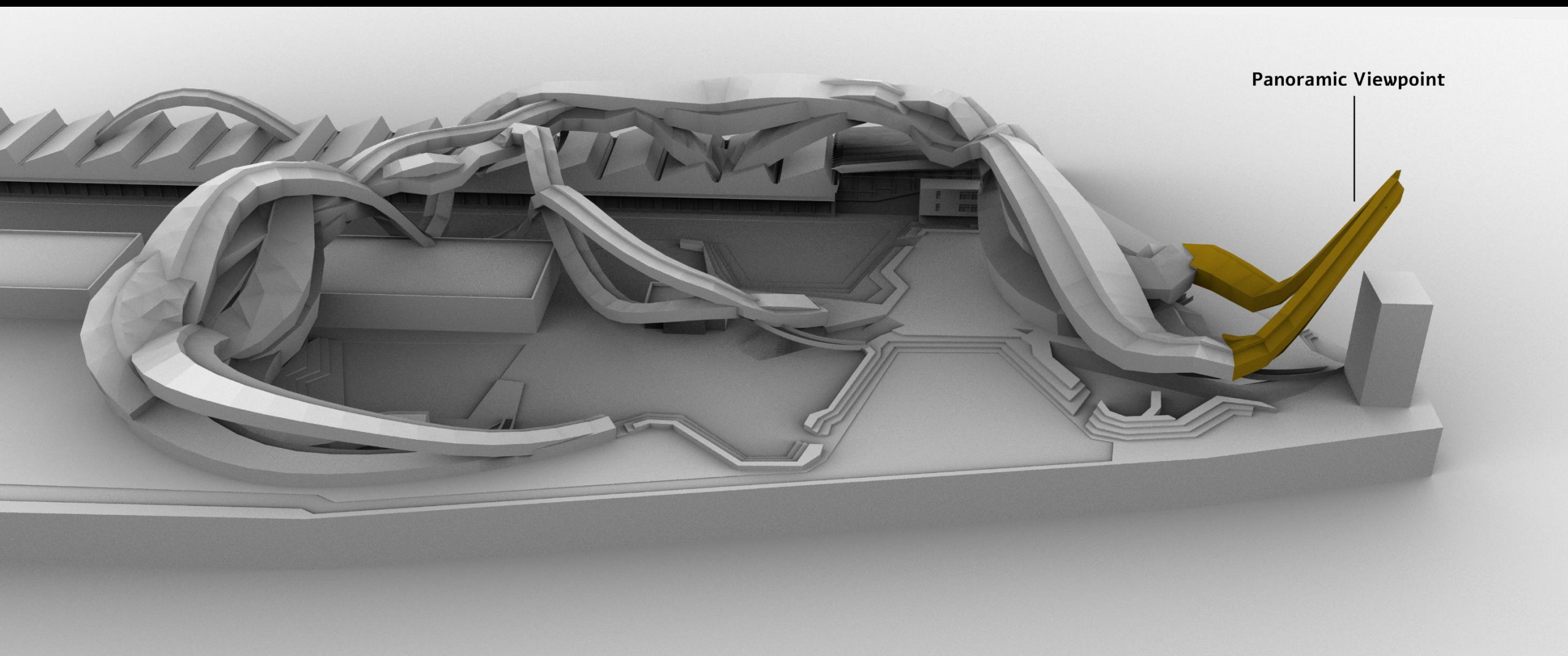


Fish Restaurant

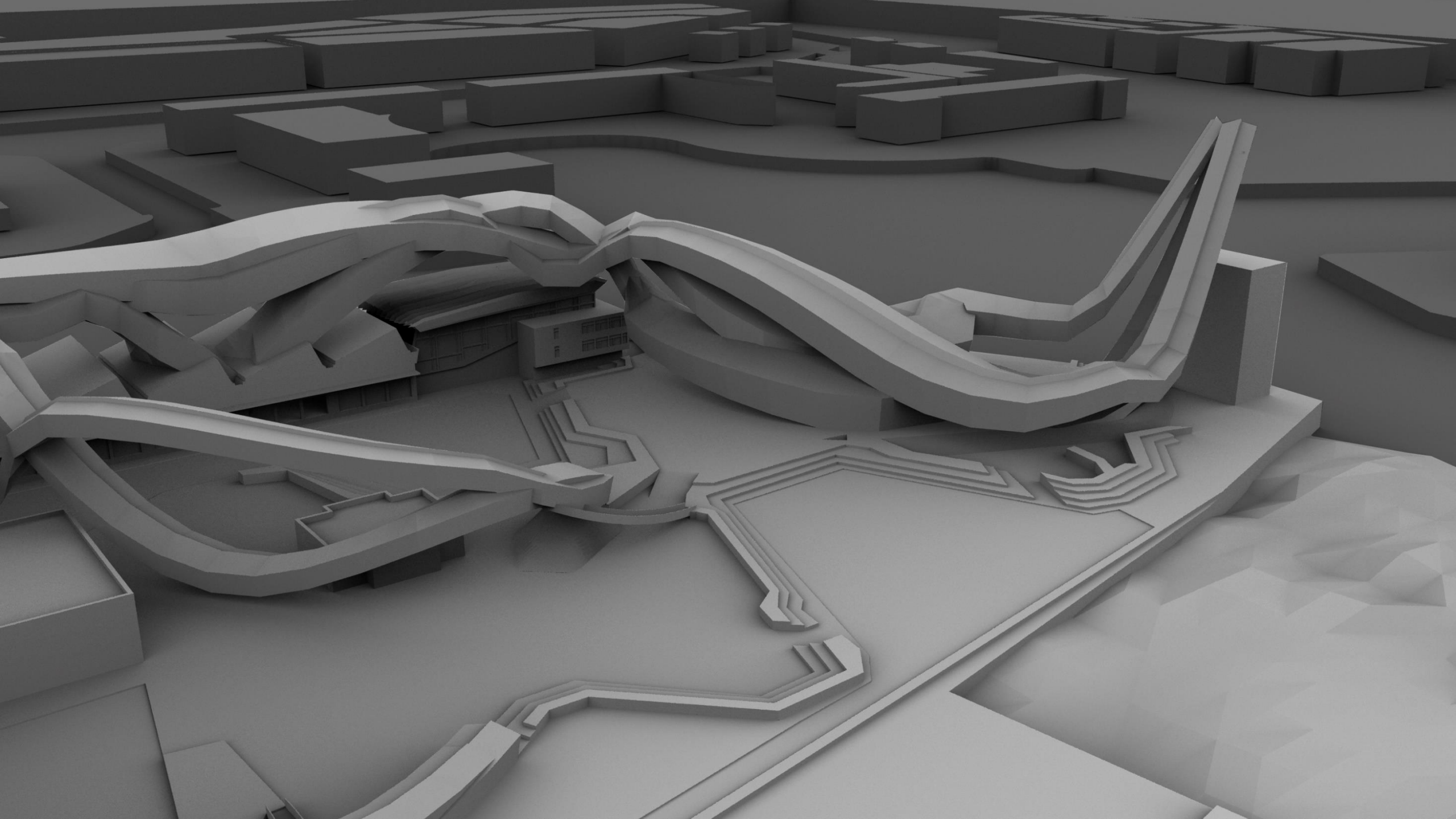
Screening Auditorium

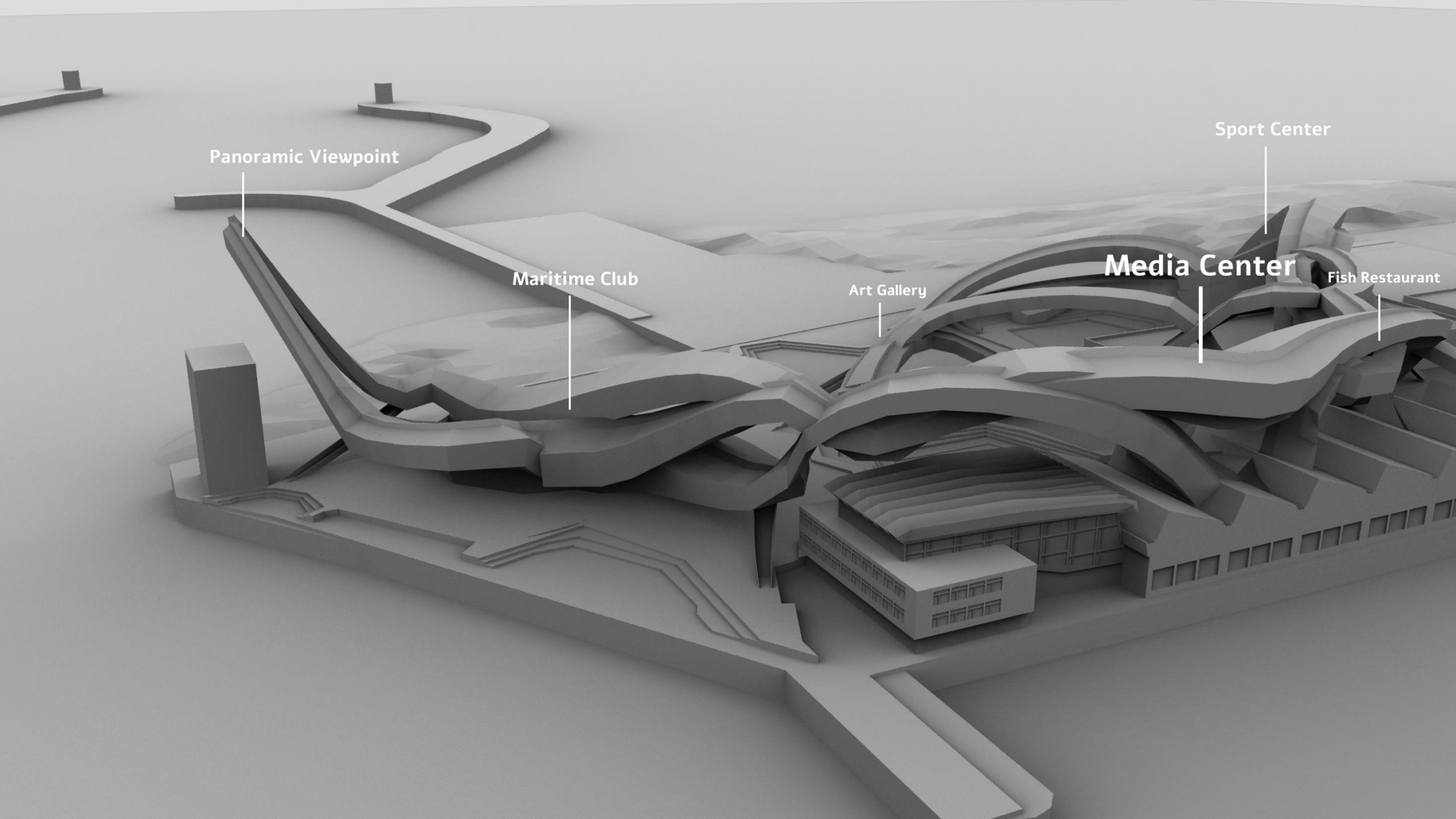
Cafe

Art Gallery



Panoramic Viewpoint





Panoramic Viewpoint

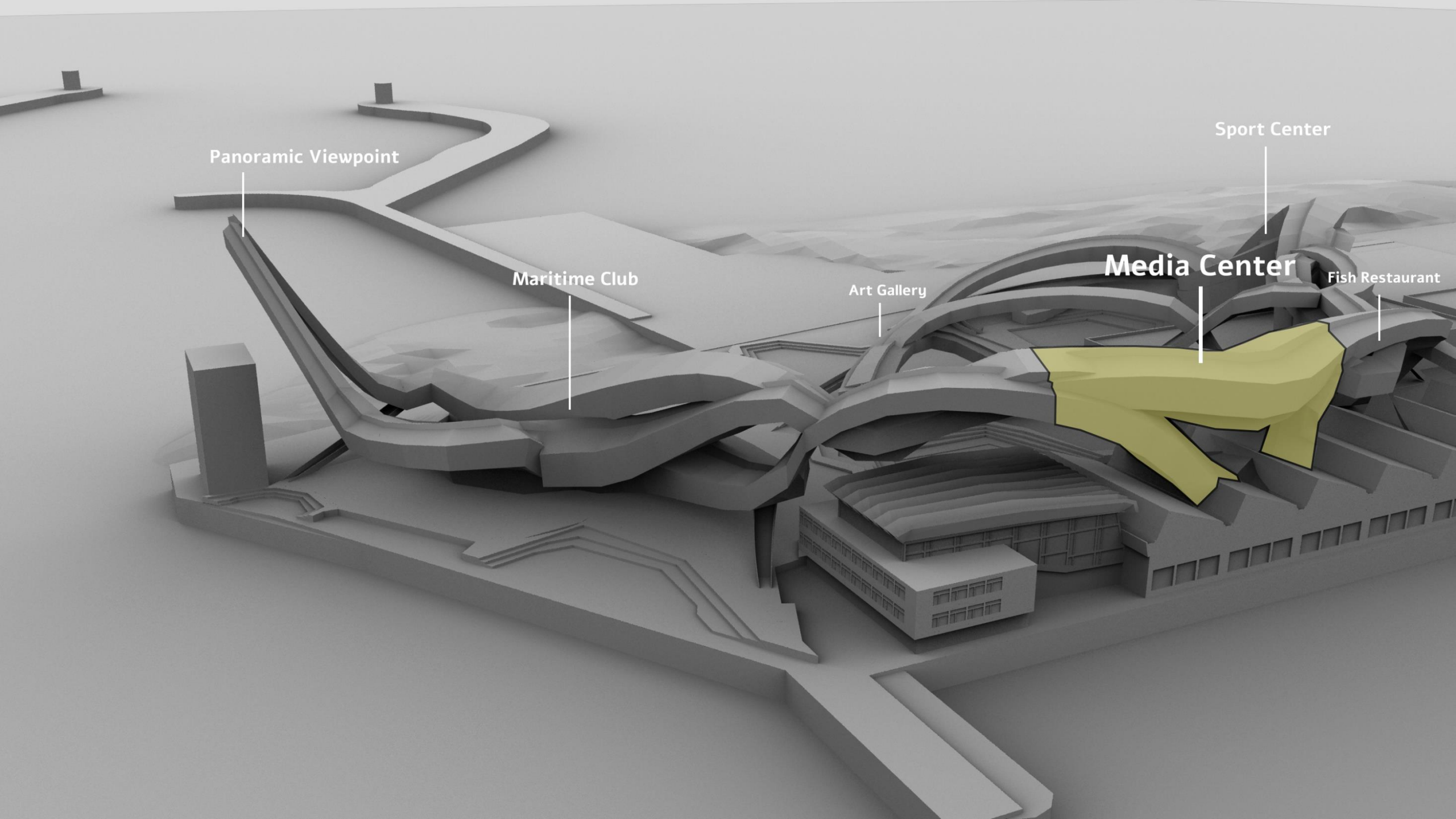
Maritime Club

Art Gallery

Media Center

Sport Center

Fish Restaurant



Panoramic Viewpoint

Maritime Club

Art Gallery

Media Center

Sport Center

Fish Restaurant

Urban Screen Facade

Inspirational Facades



Media-art facade

BIX façade, Kunsthhaus Graz,
Colin Fournier, Peter Cook,

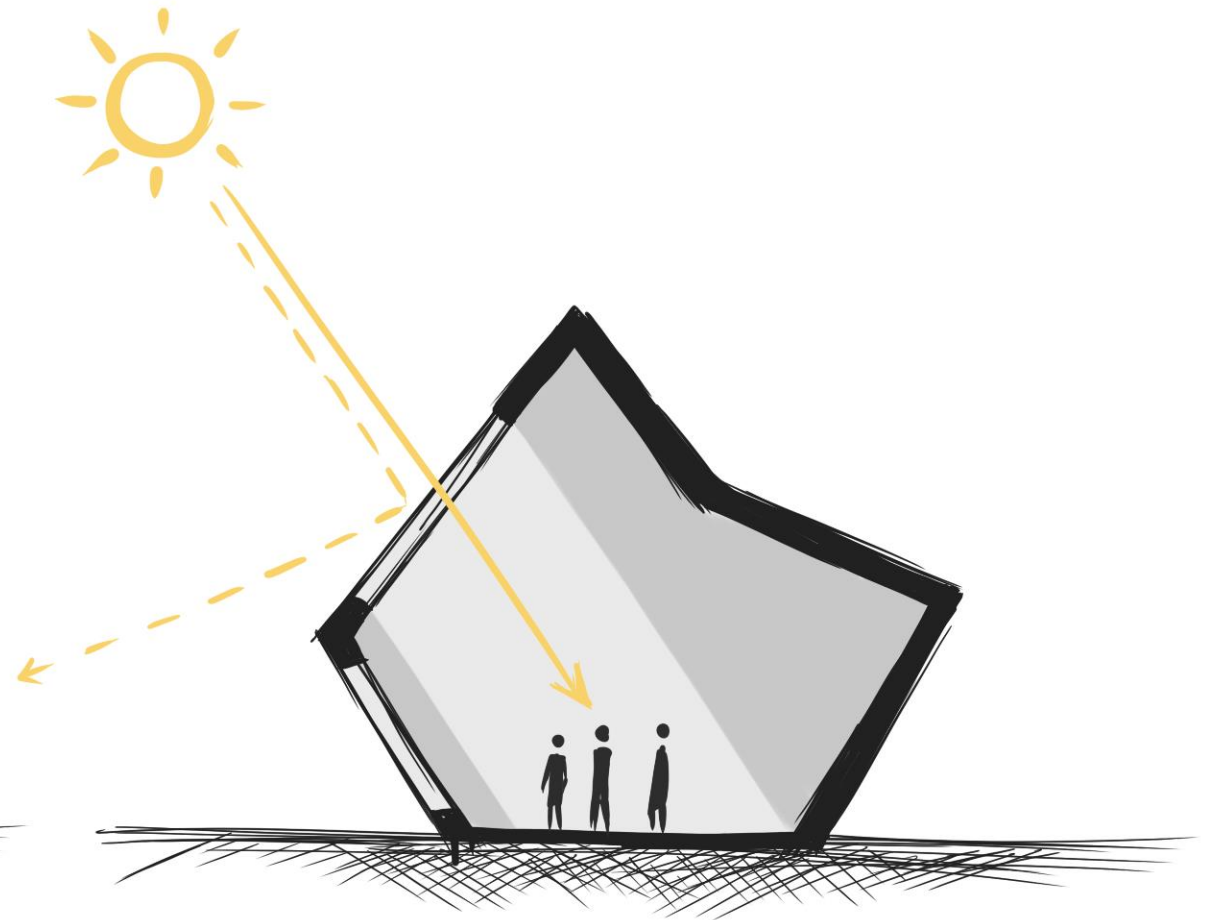


Climate regulating facade

AlBahar Tower, Abu Dhabi
Aedes Architects



Night period
Screening mode



Day period
Climate mode



Smart Glass

Intelligent Glass
Switchable Glass

Thermotropic

By temperature

Passive

Gasotropic

A chemical reaction between
gas and coated layers

Gas leakages, Water
condensation, still under
development

Electrotropic

By electrical pulse

Liquid crystal

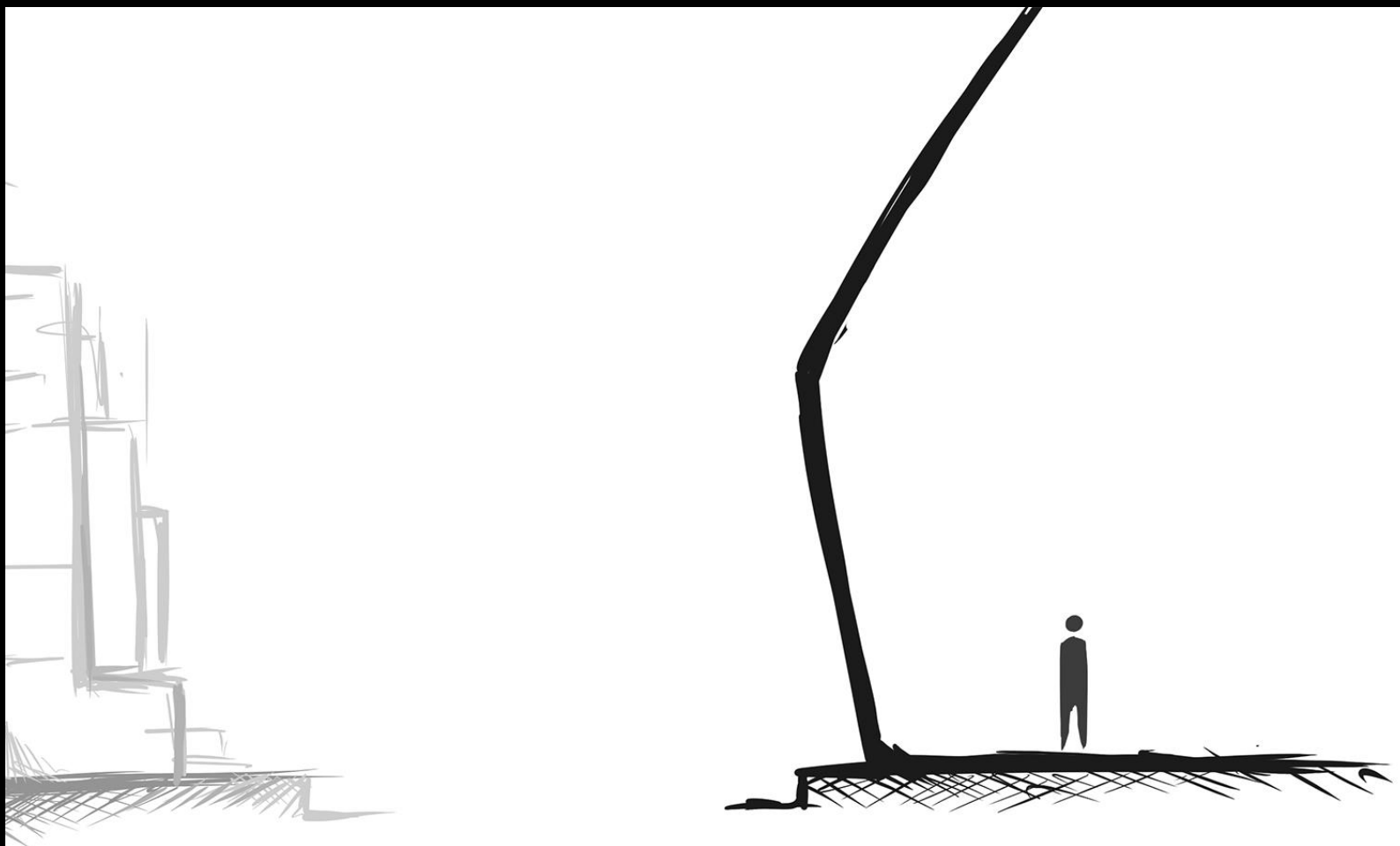
A layer of crystal
Changing orientation when
administrating voltage.
Not efficient for Infra-red radiation

Electrochromic device

The layer changes its brightness by
electrical pulse.

Suspended Practical devise (SPD)

A combination of the two, very
efficient still under development,
expensive. Ugly.





Line of sights and
urban icons



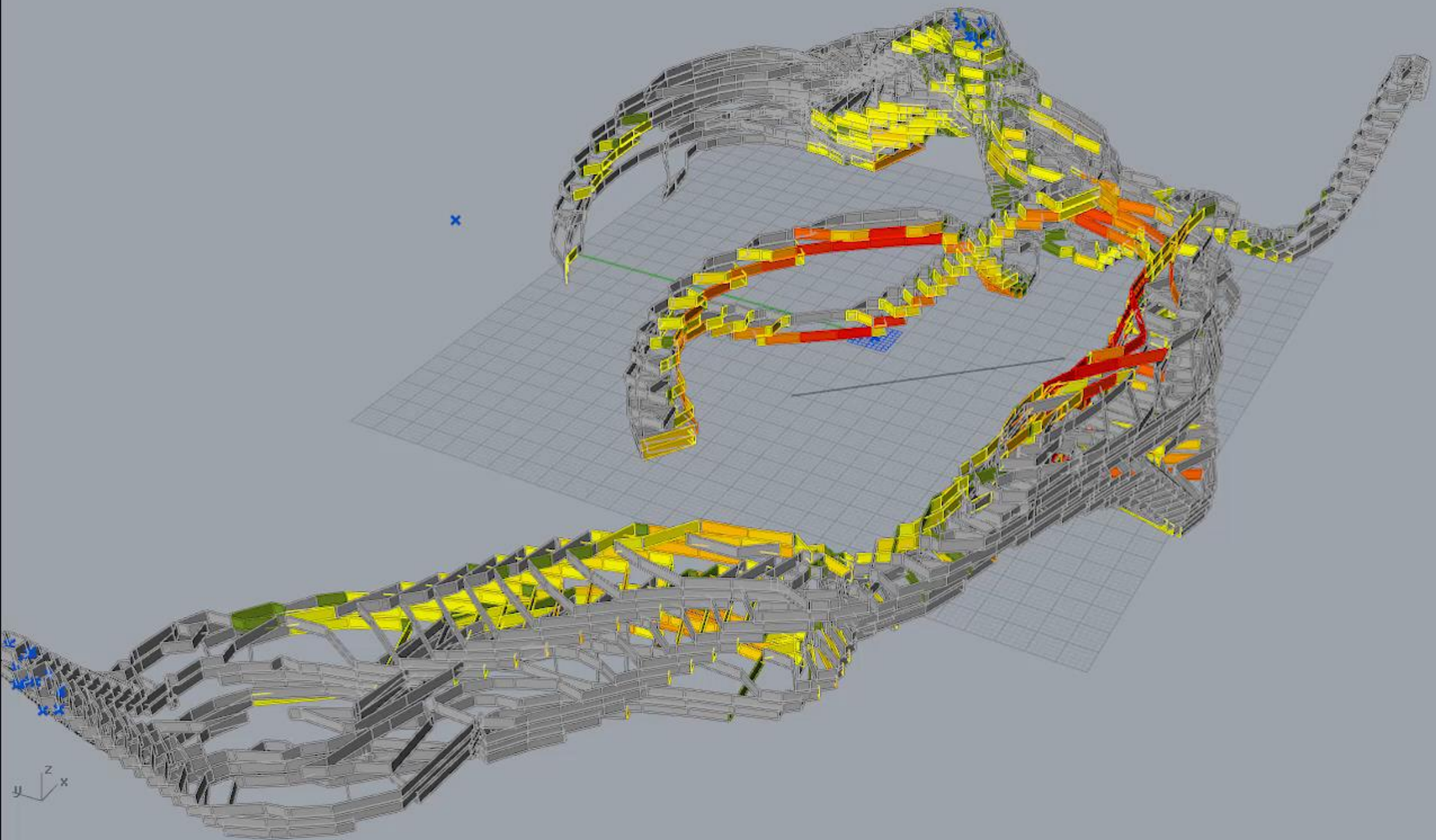
Lines of sight

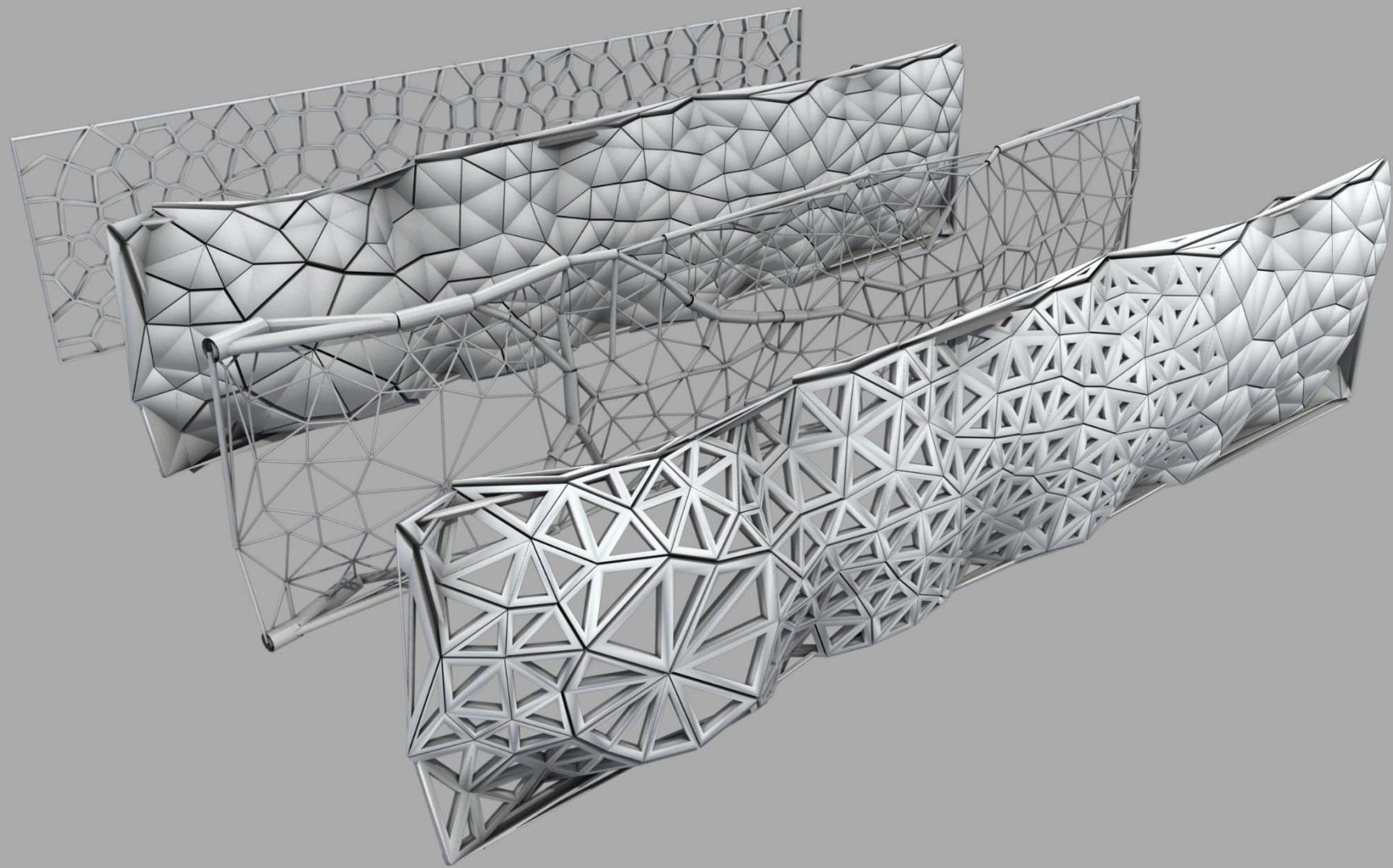


Screening distance

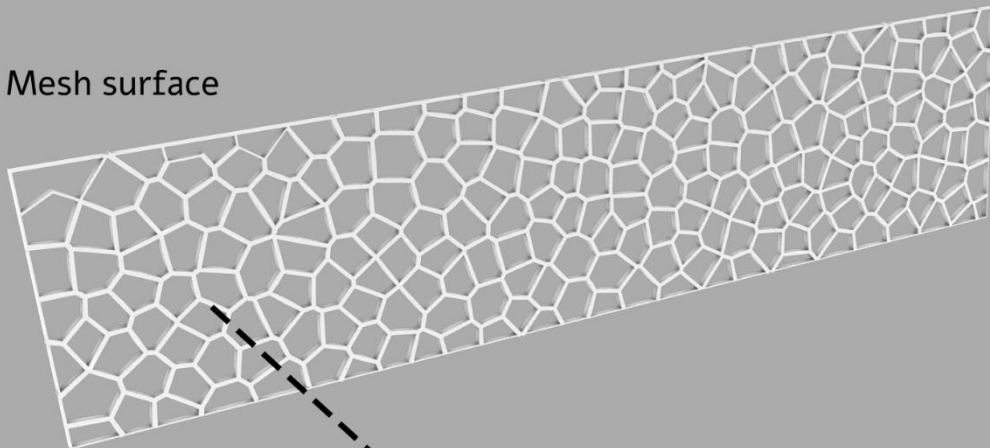


Isovist Viewing Locations

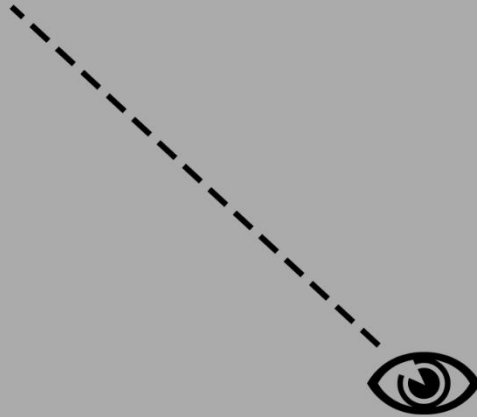
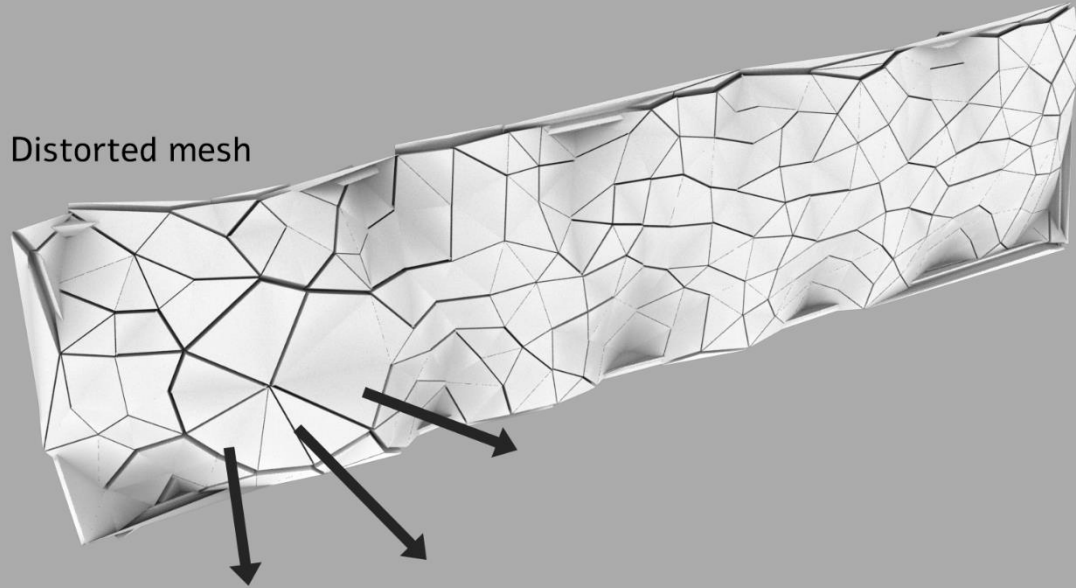




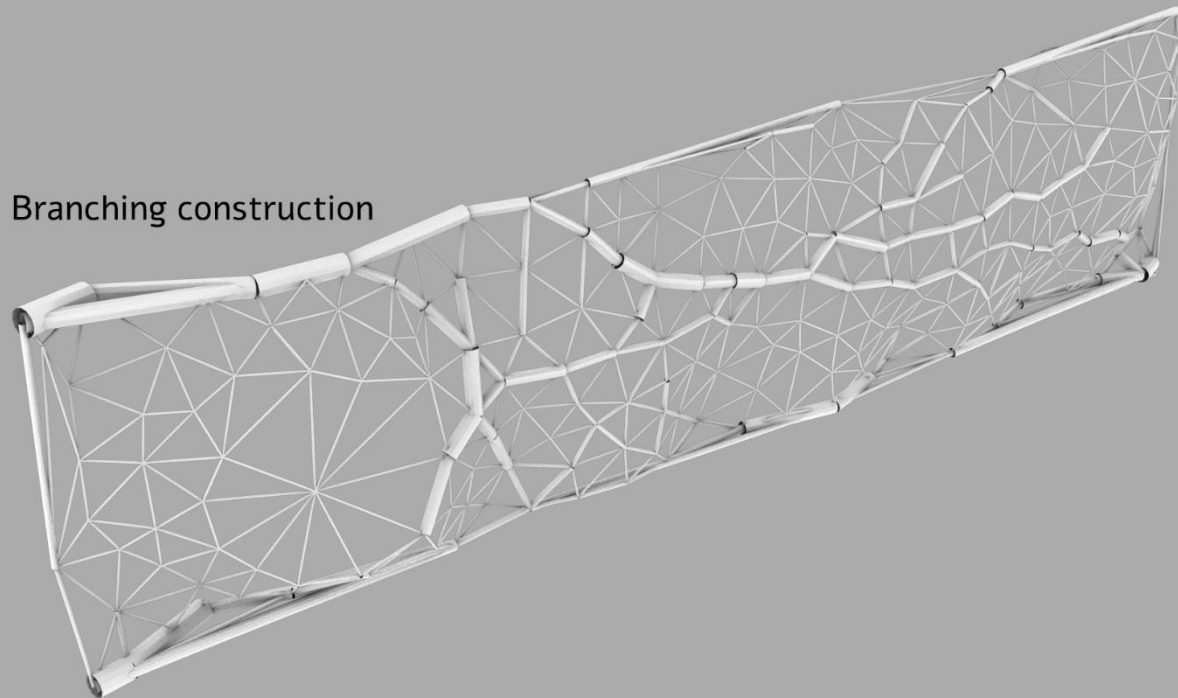
Mesh surface



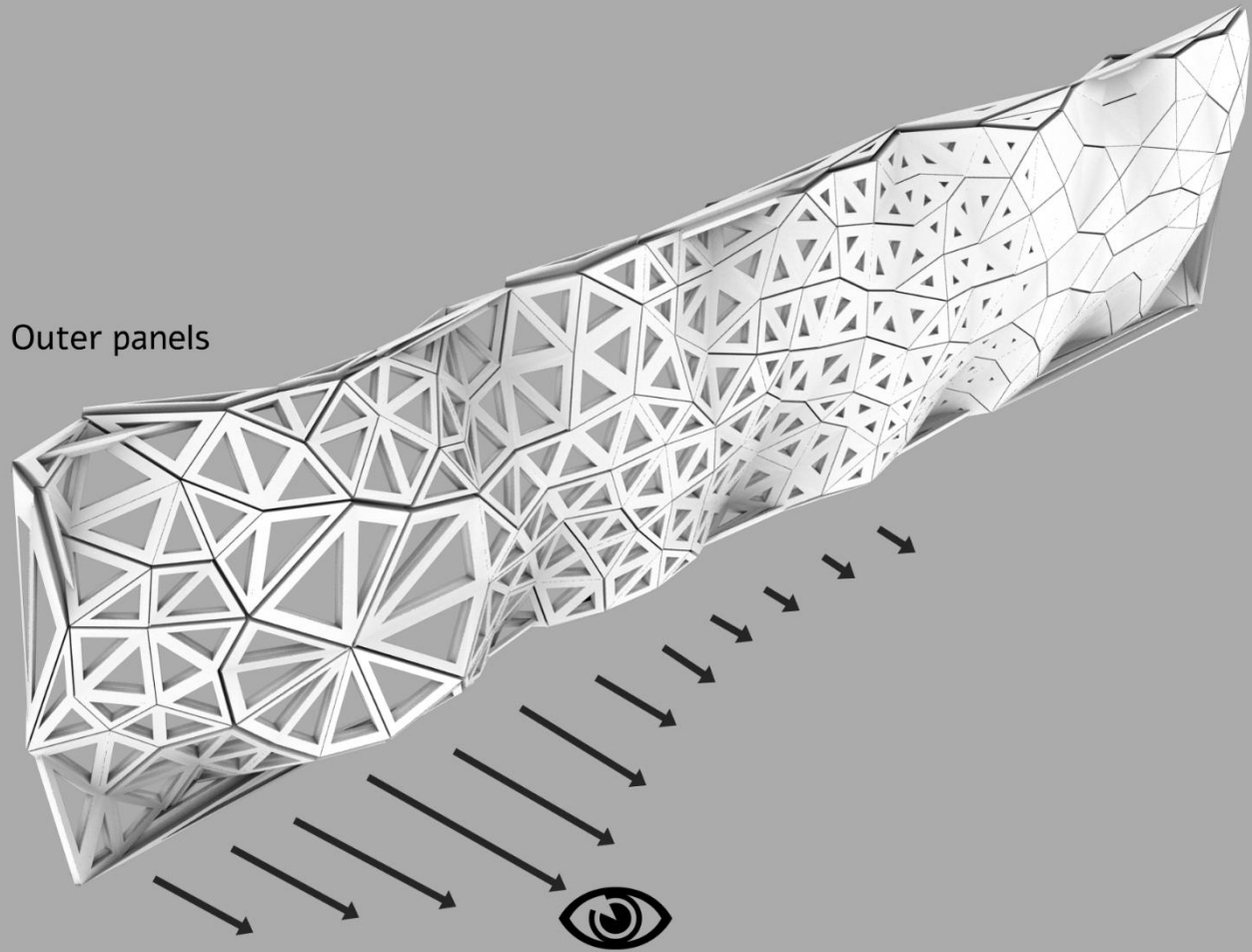
Distorted mesh



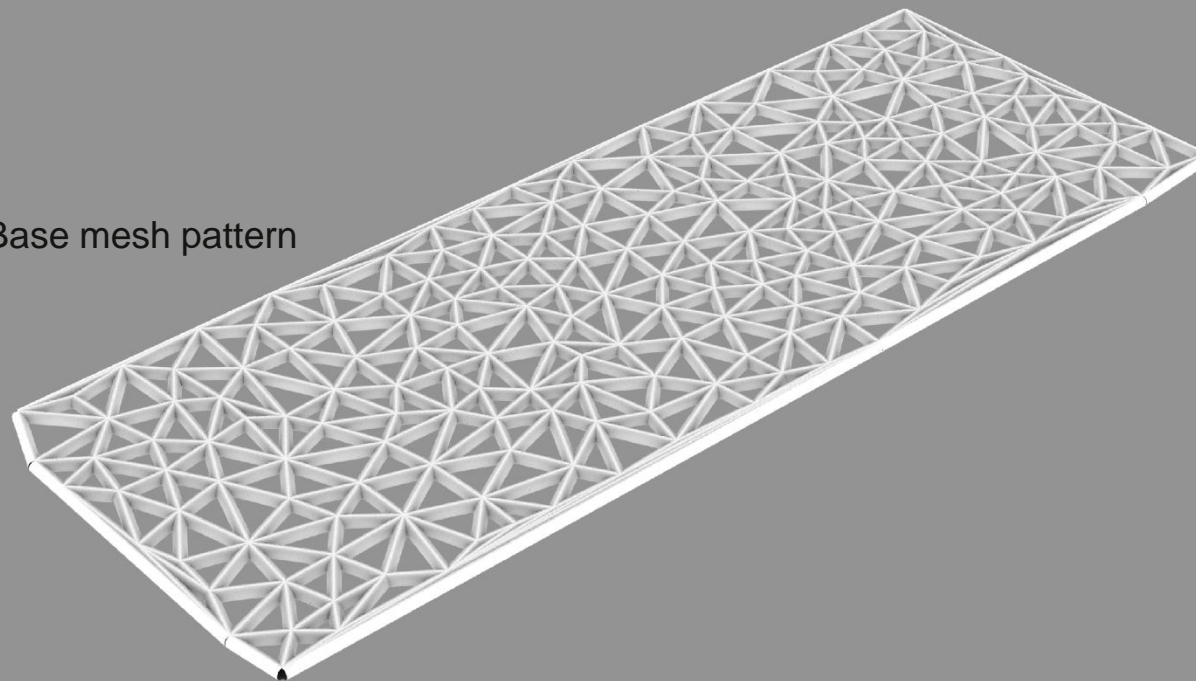
Branching construction

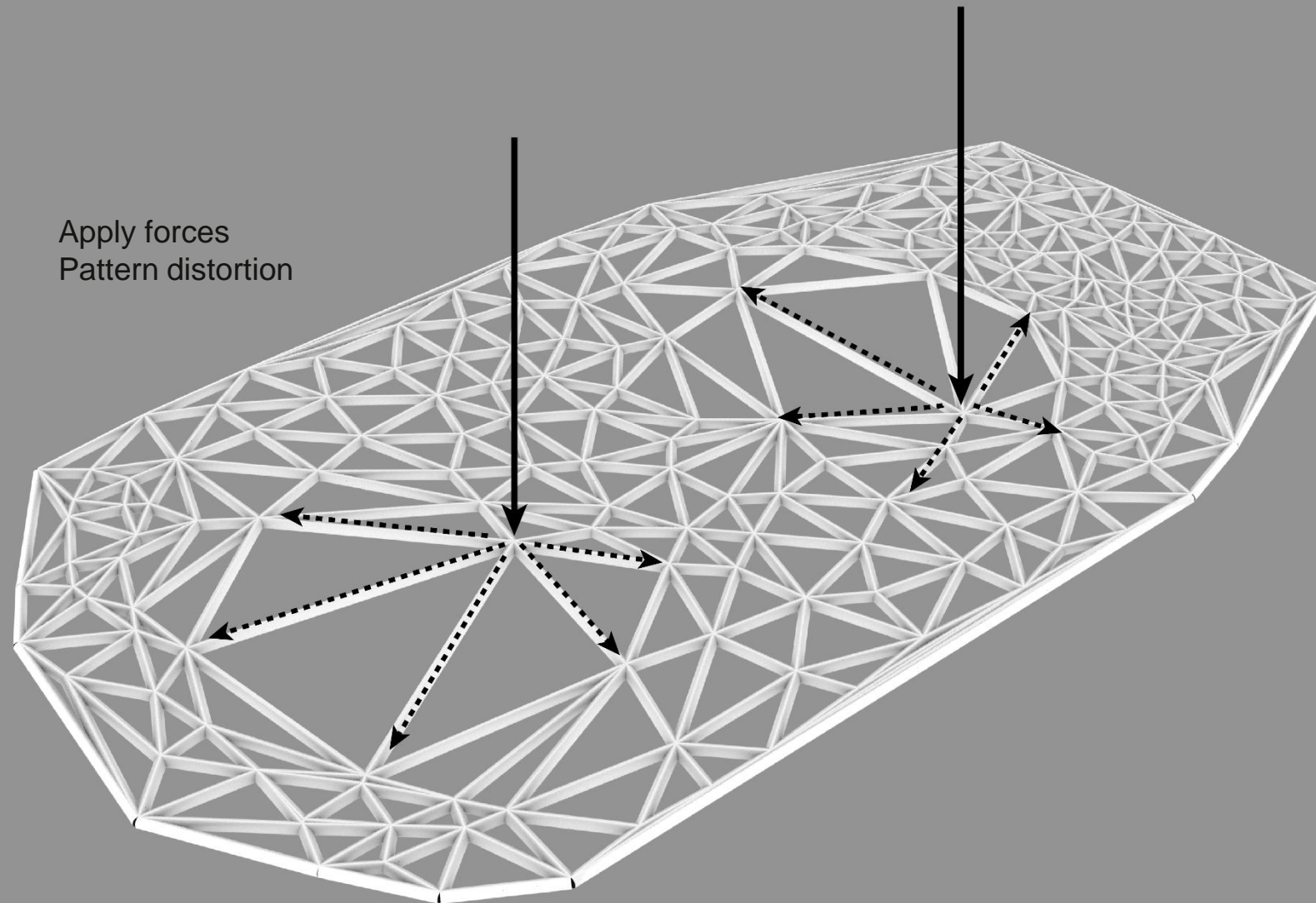


Outer panels



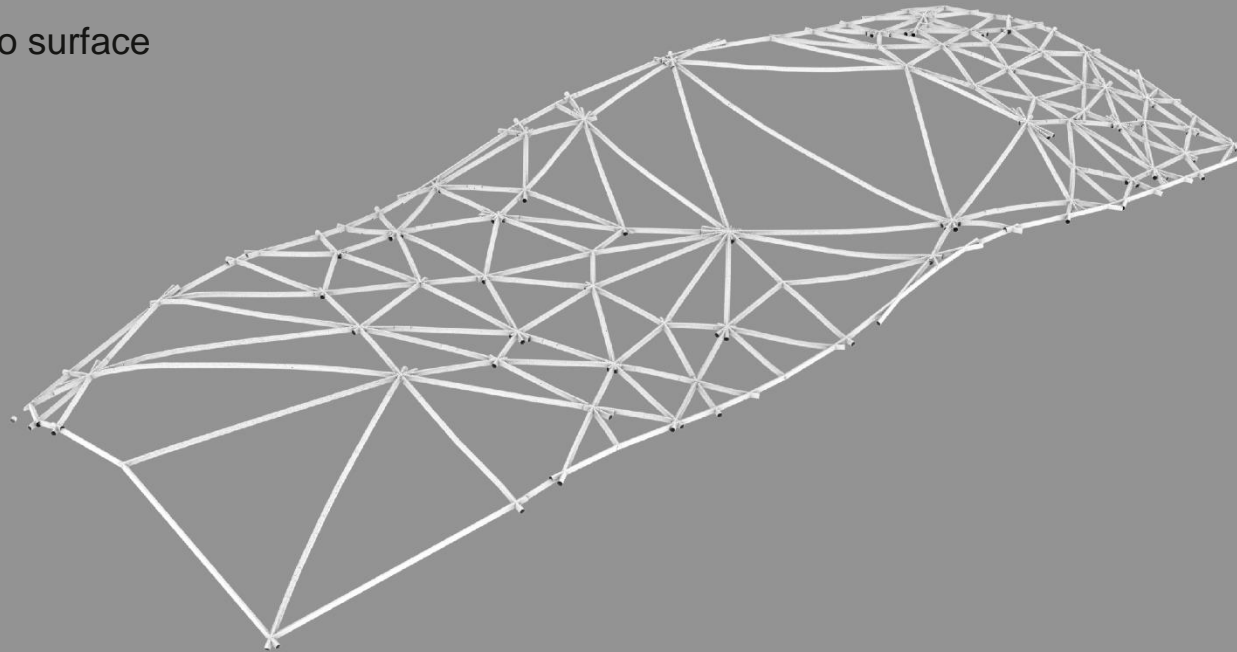
Base mesh pattern



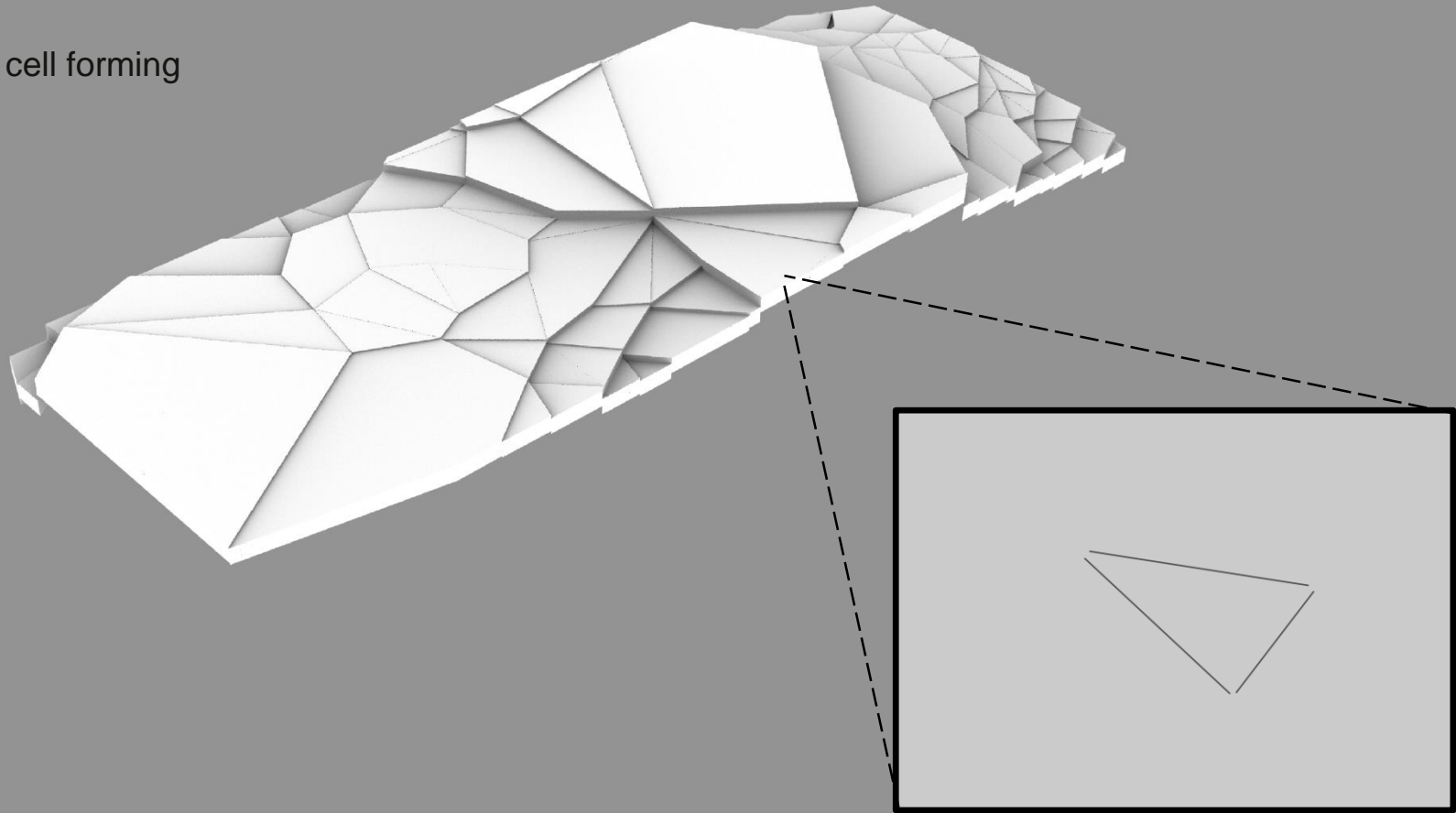


Apply forces
Pattern distortion

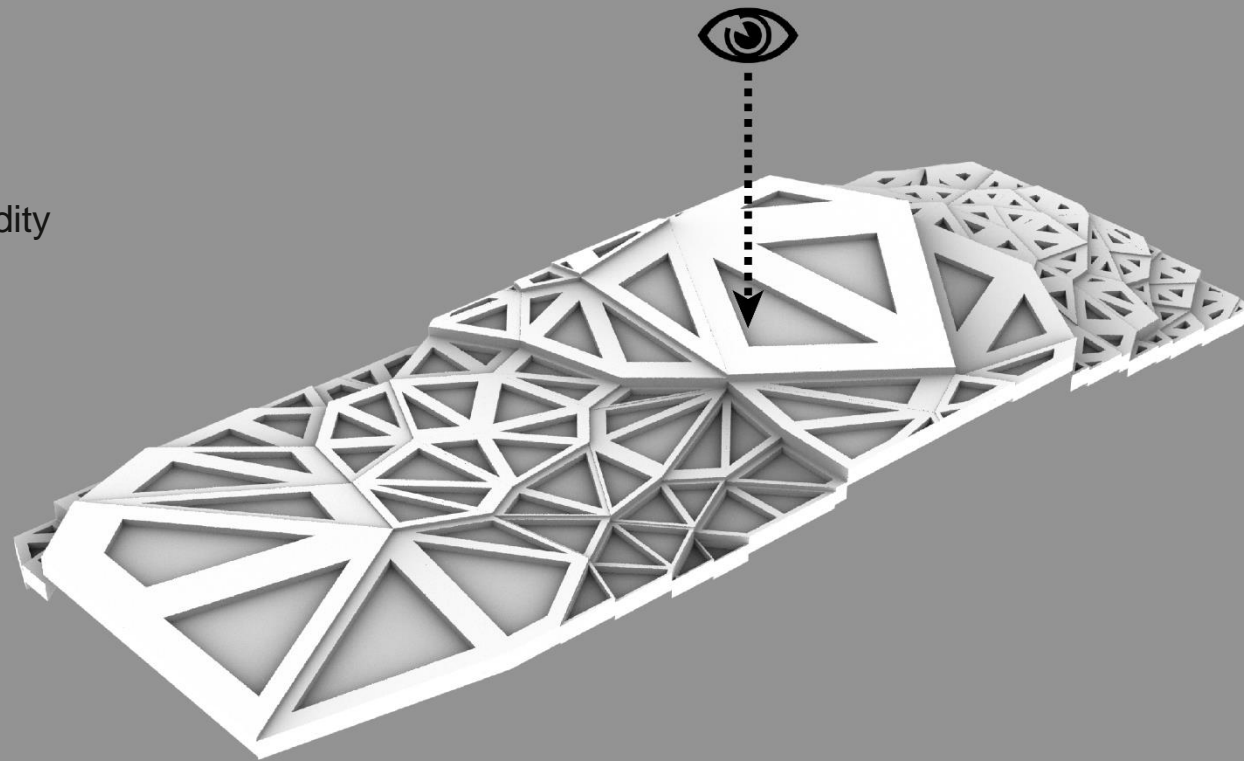
Project into surface

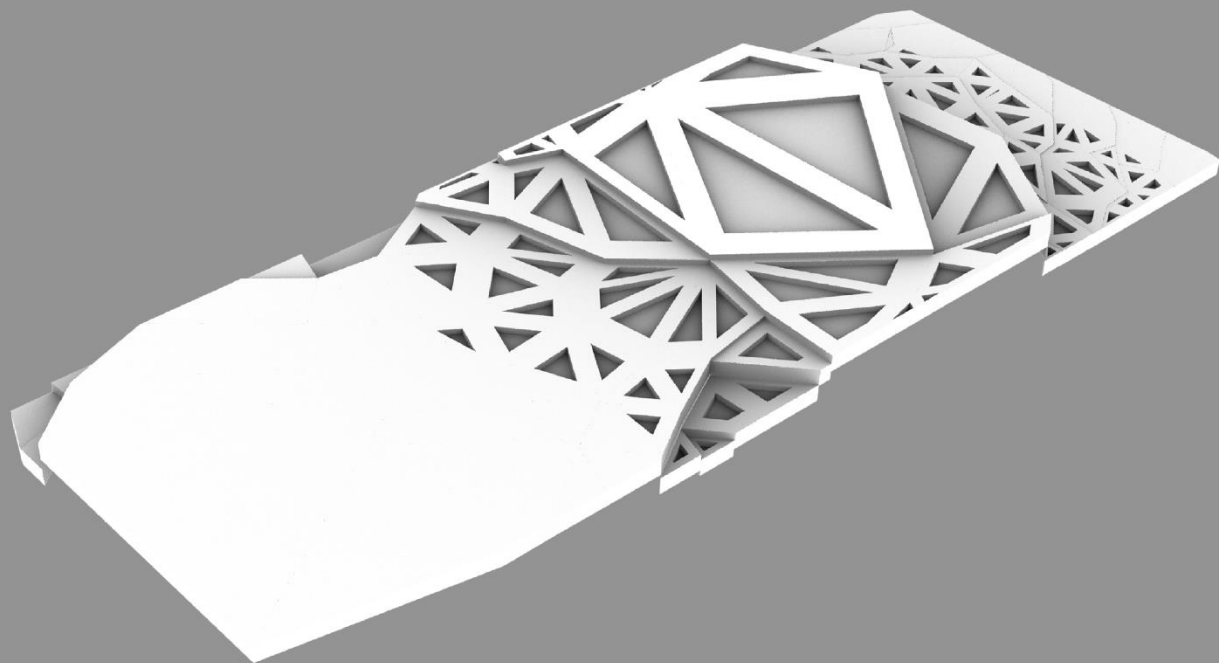


Horizontal cell forming

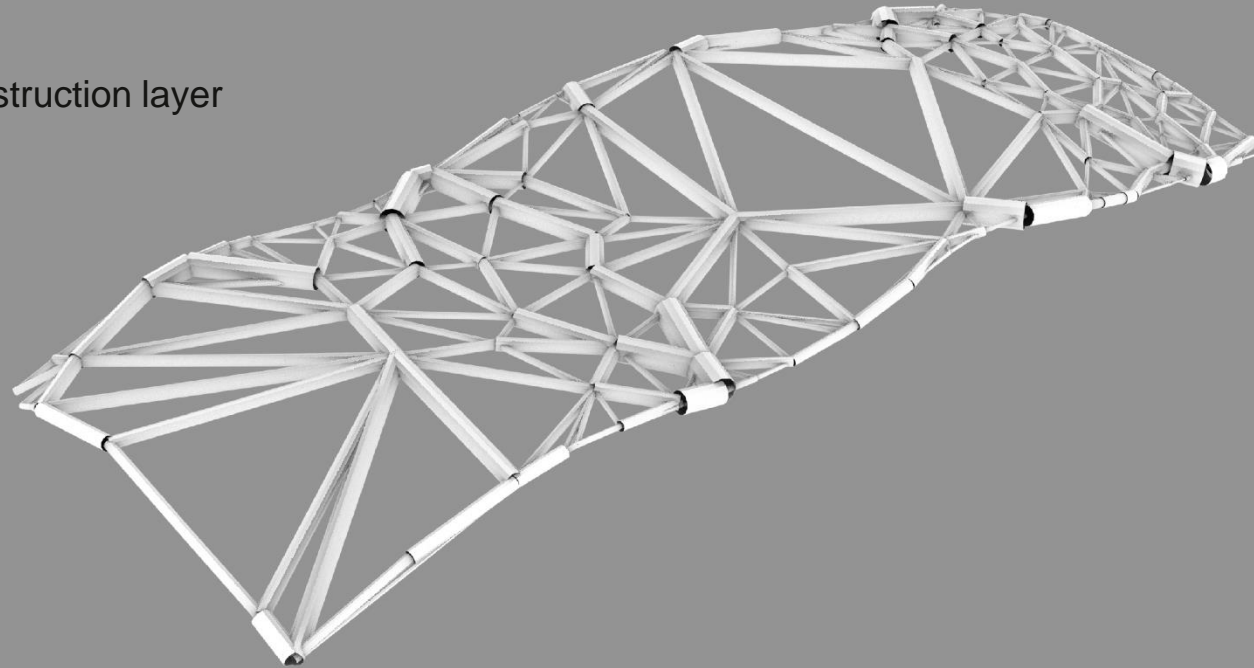


Translucidity

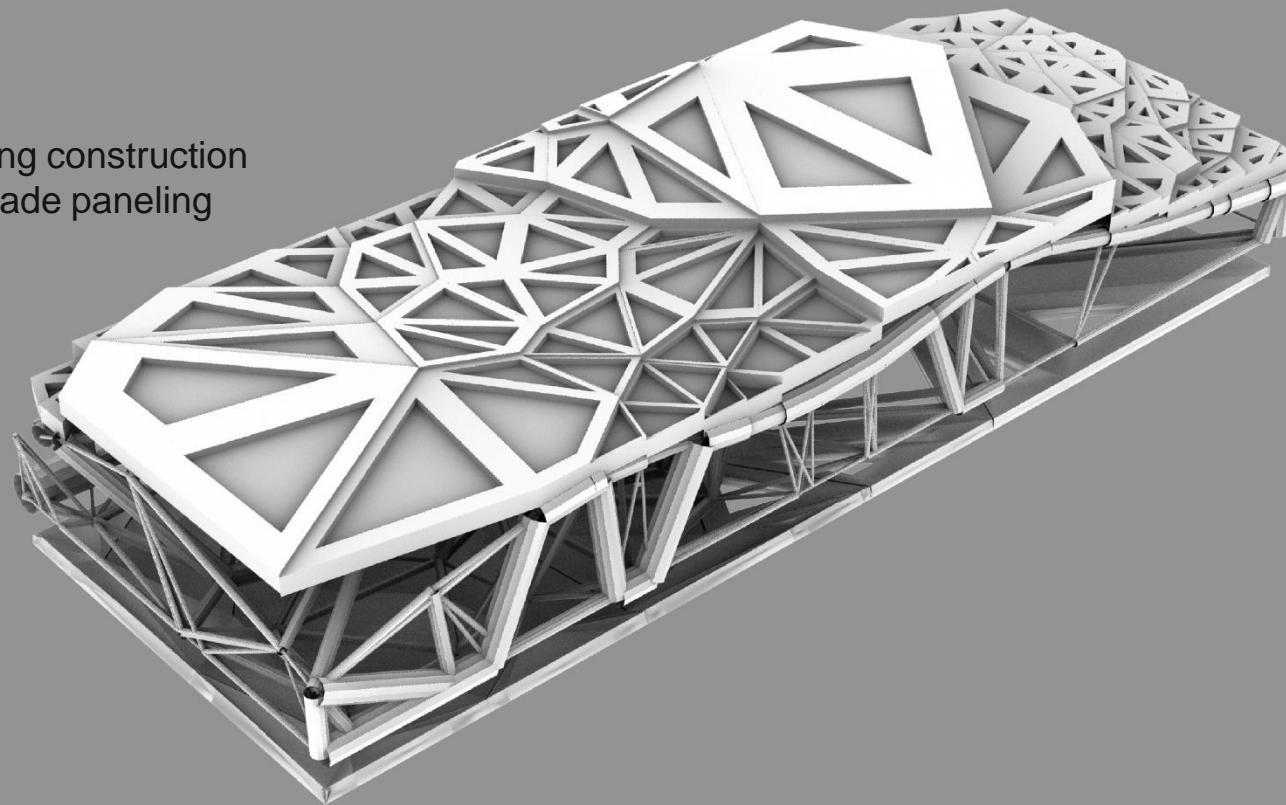


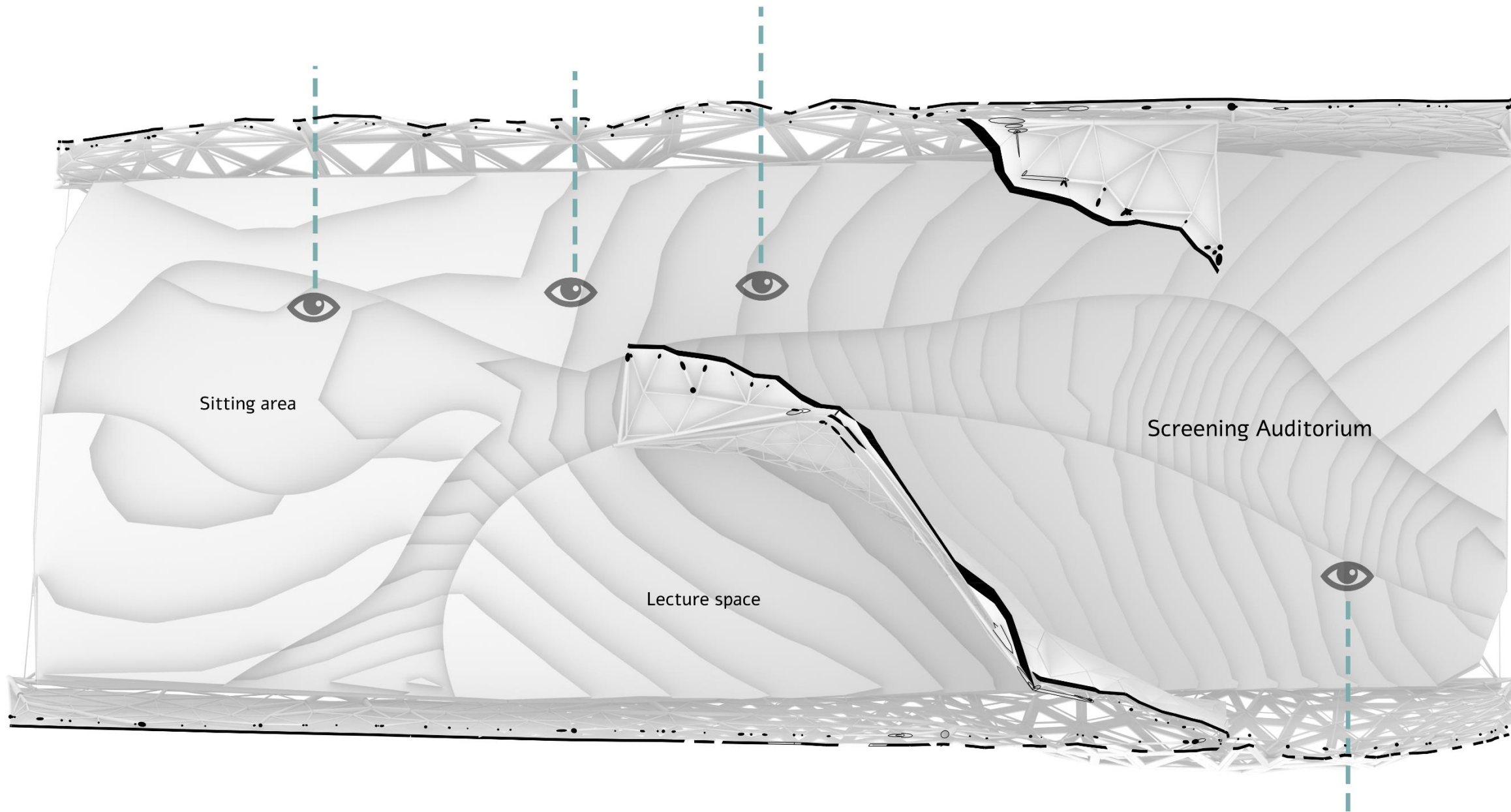


First construction layer



Interlocking construction
Outer façade paneling

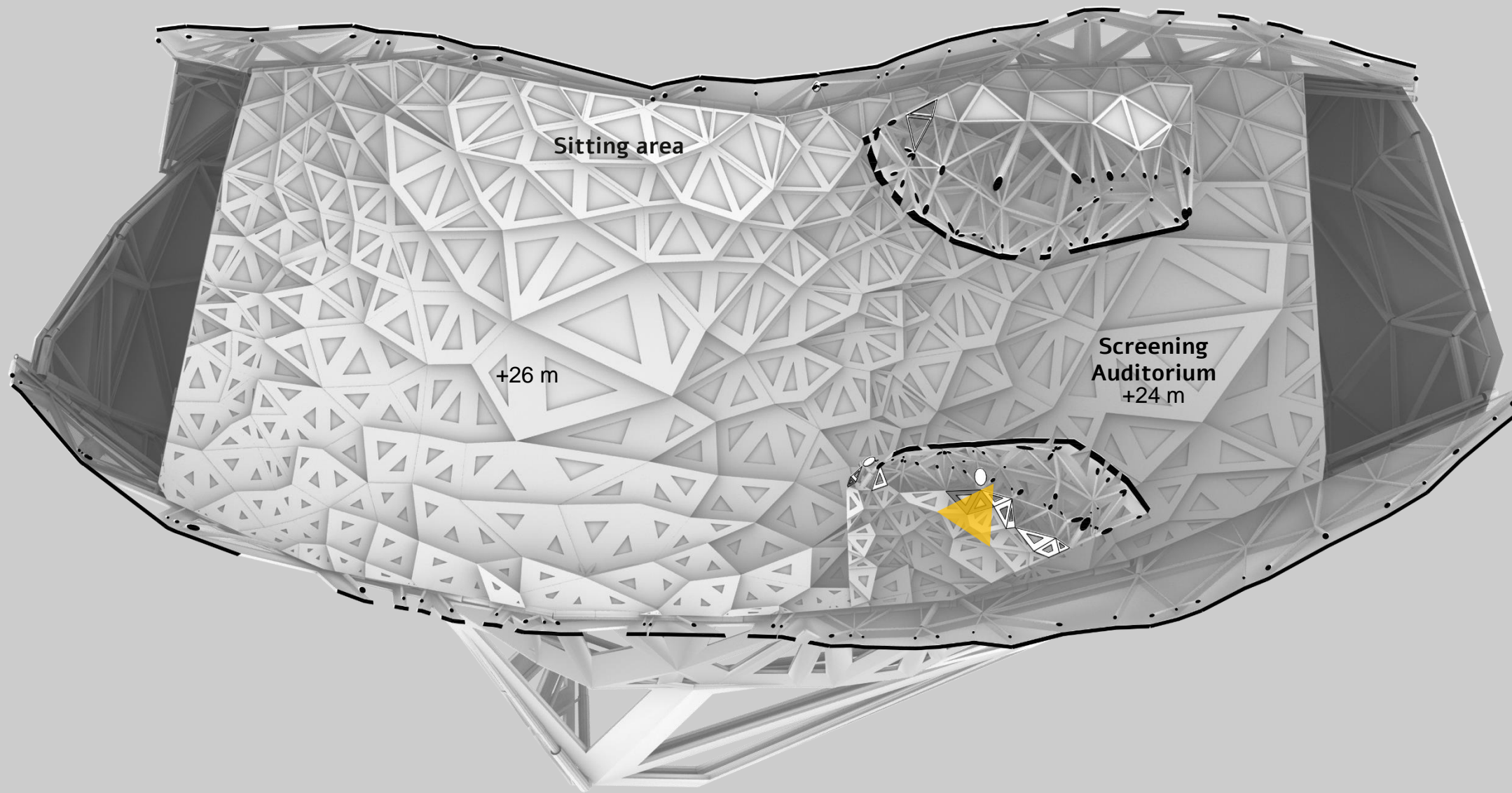


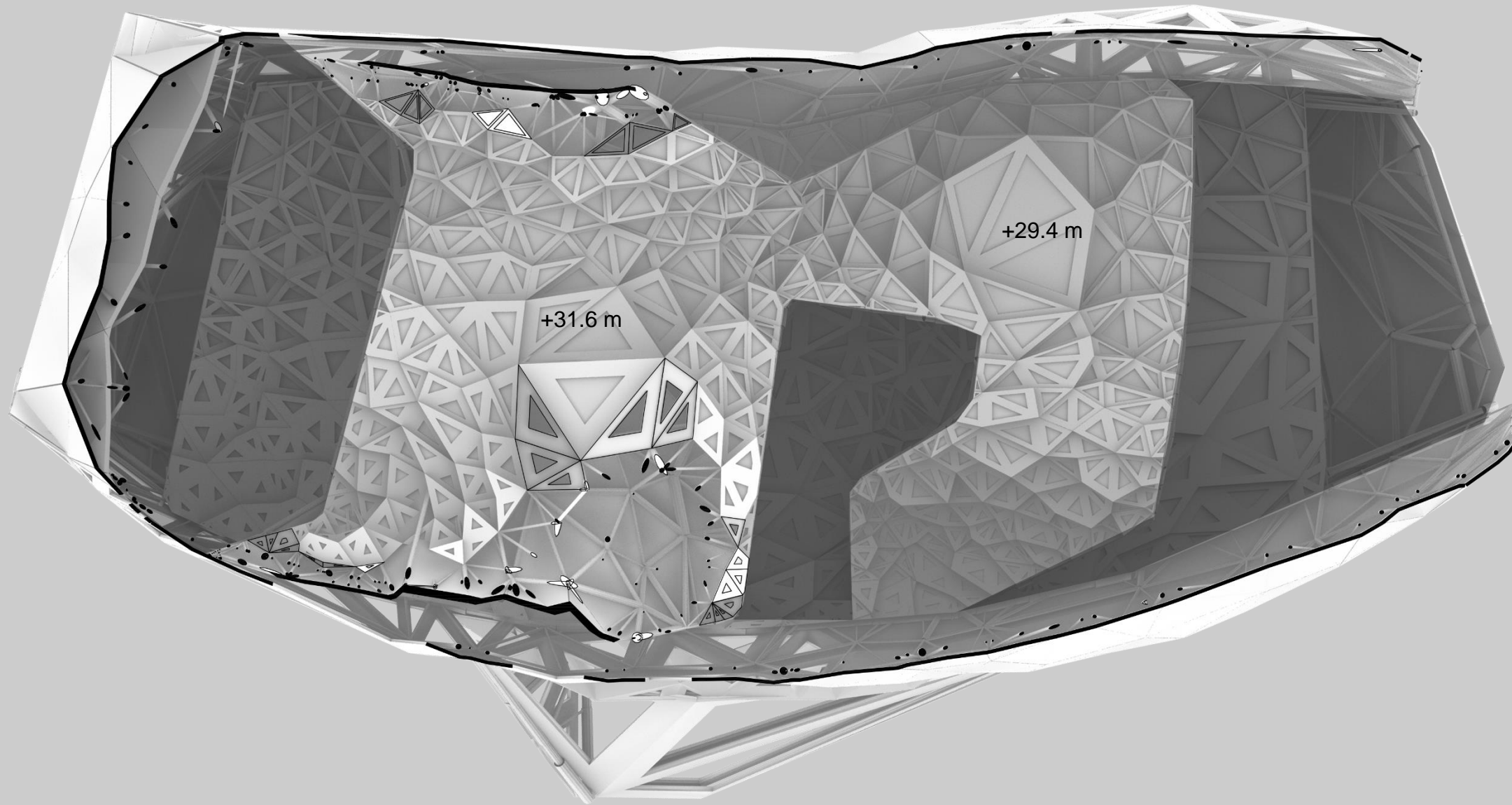


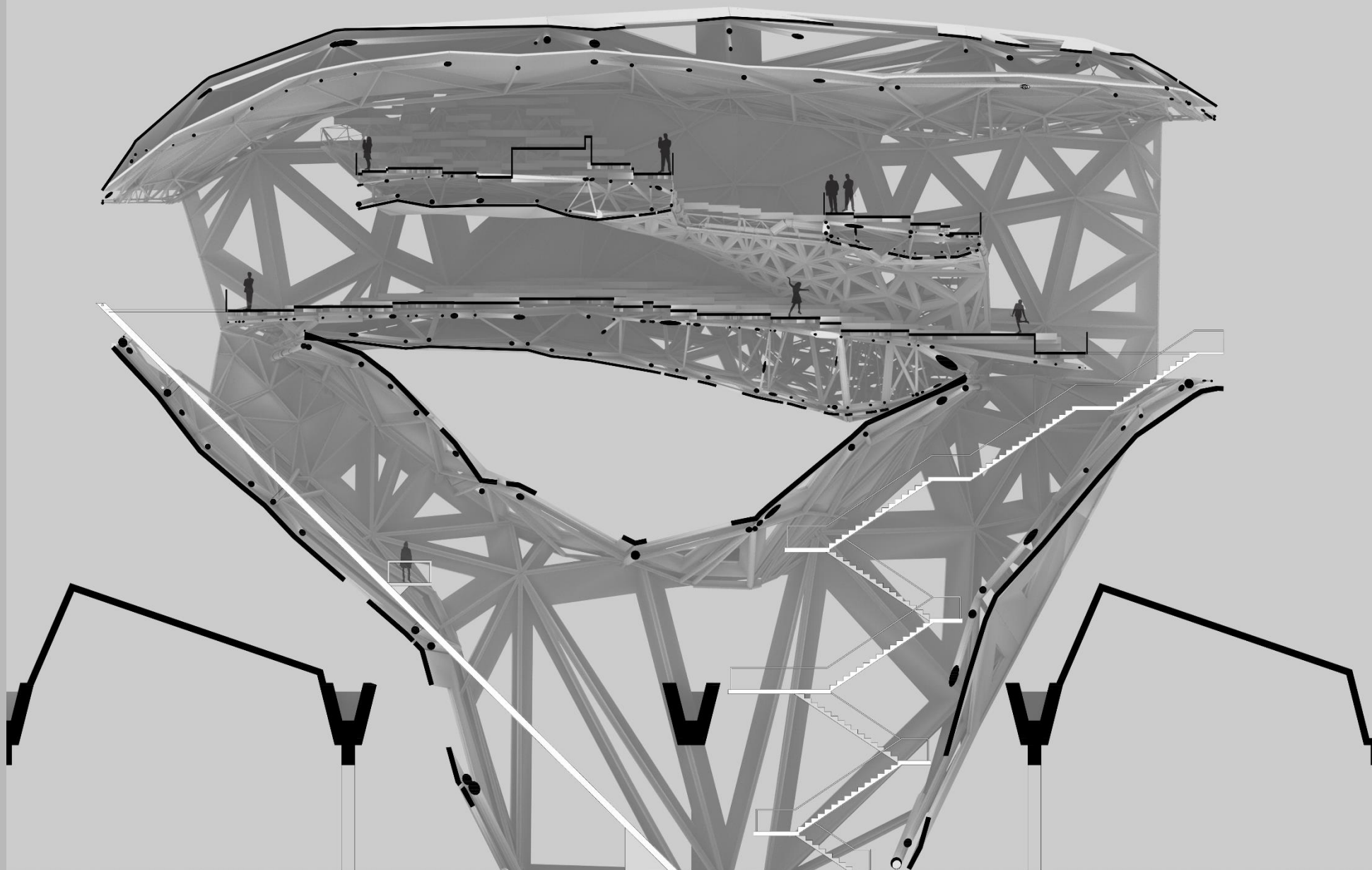
Sitting area

Lecture space

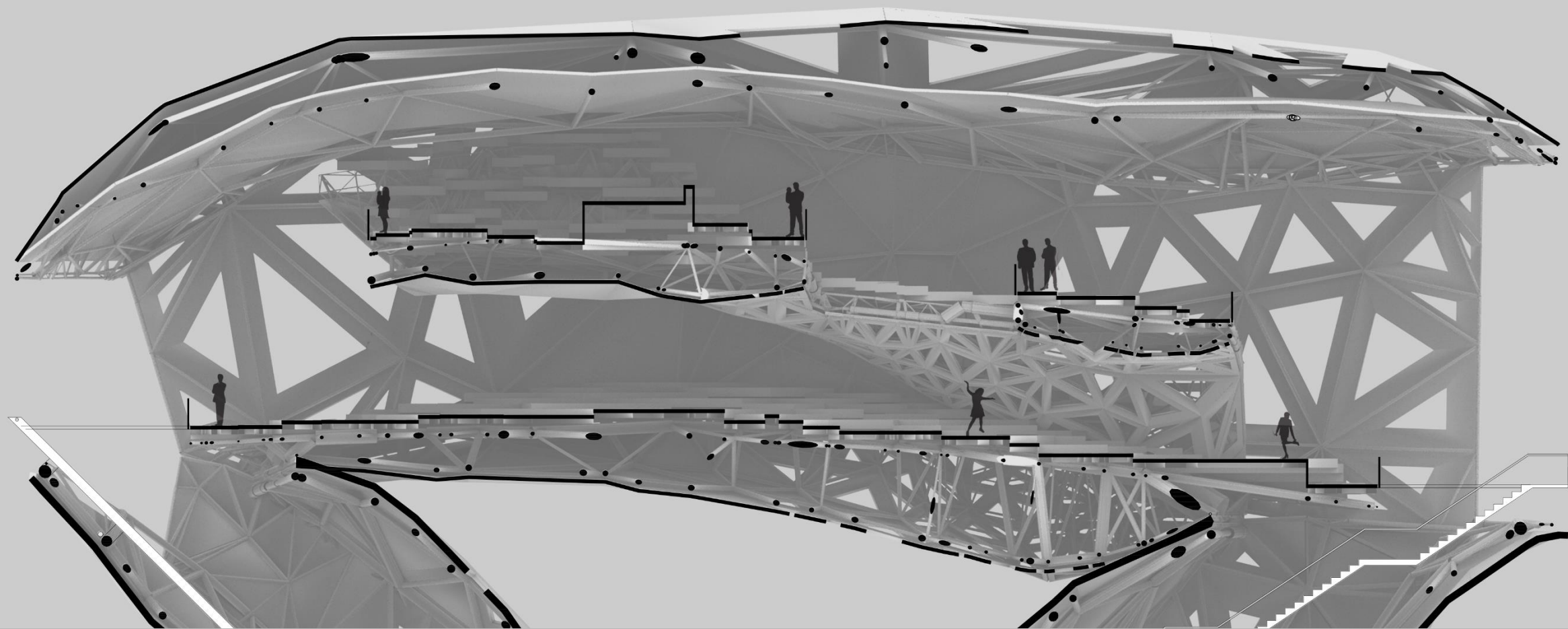
Screening Auditorium



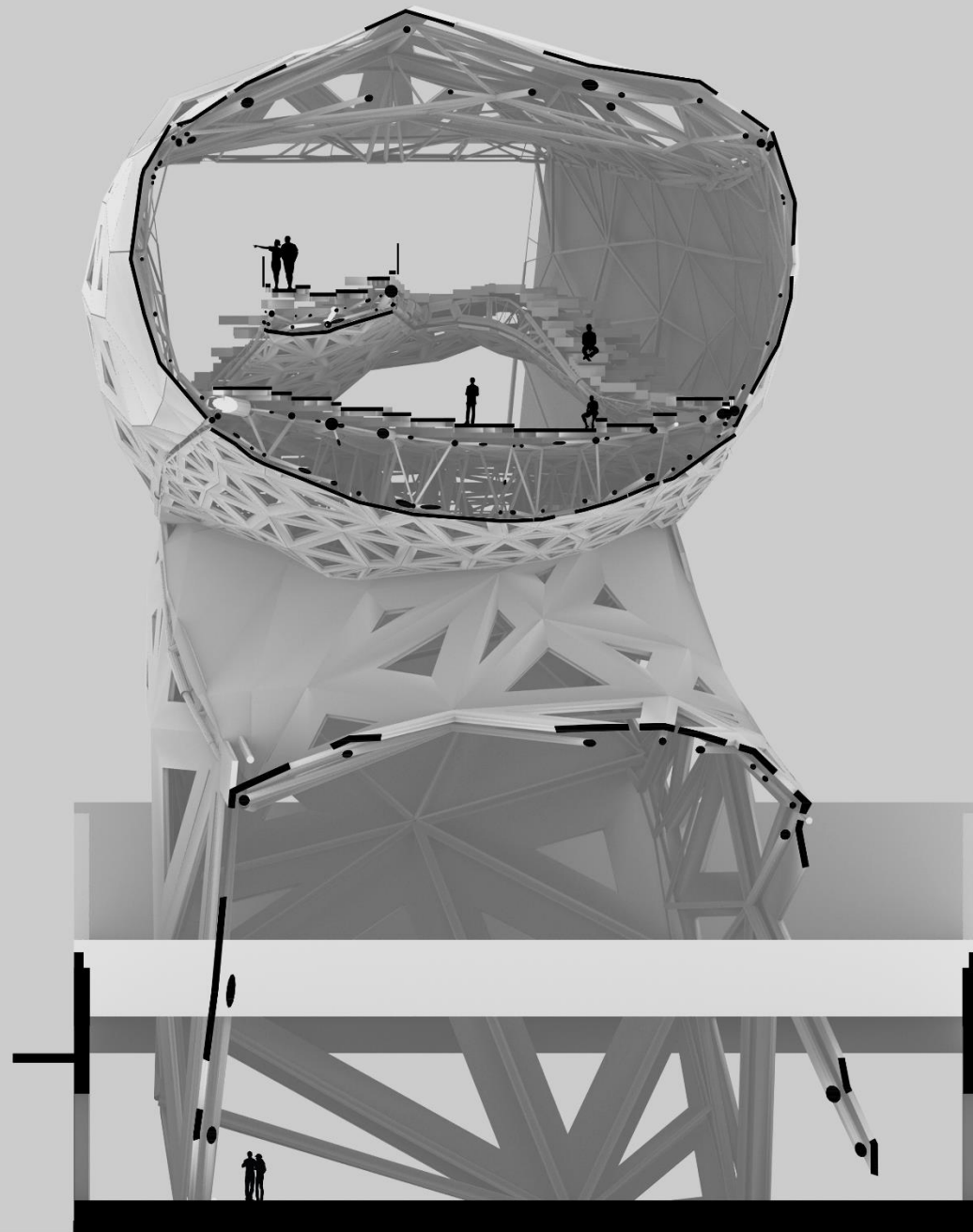




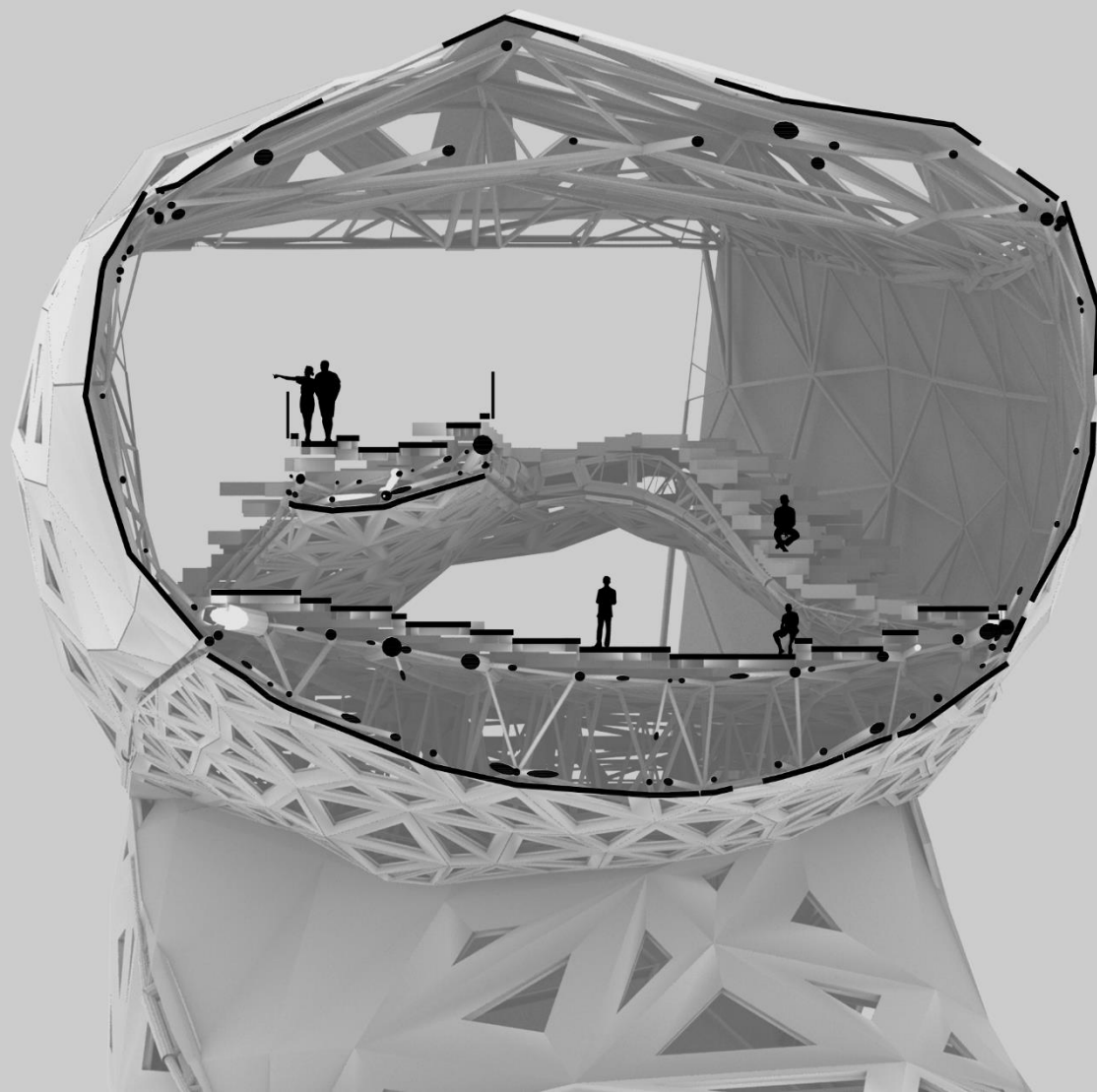
Section A-A 1:50



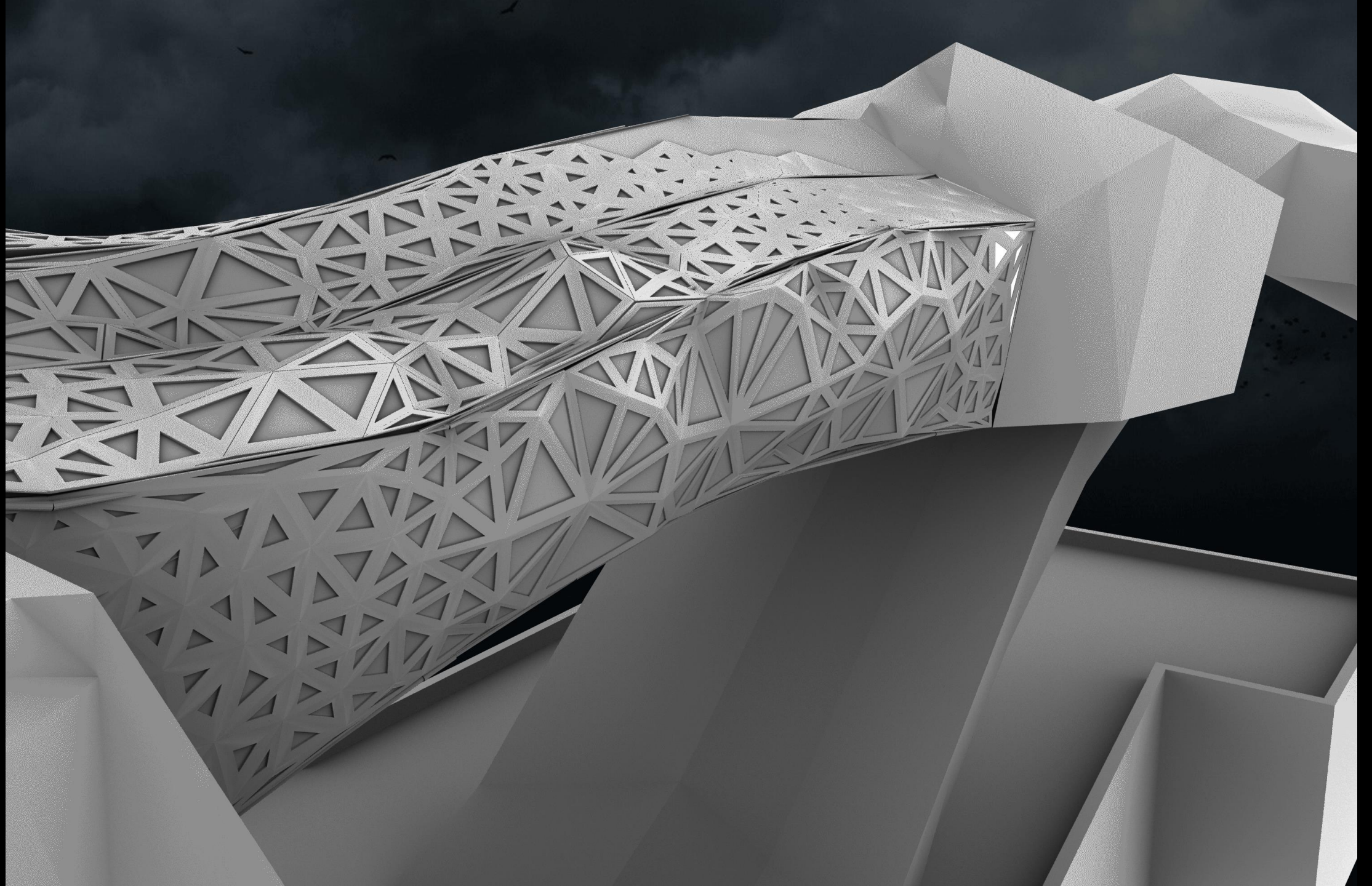
Section A-A 1:50

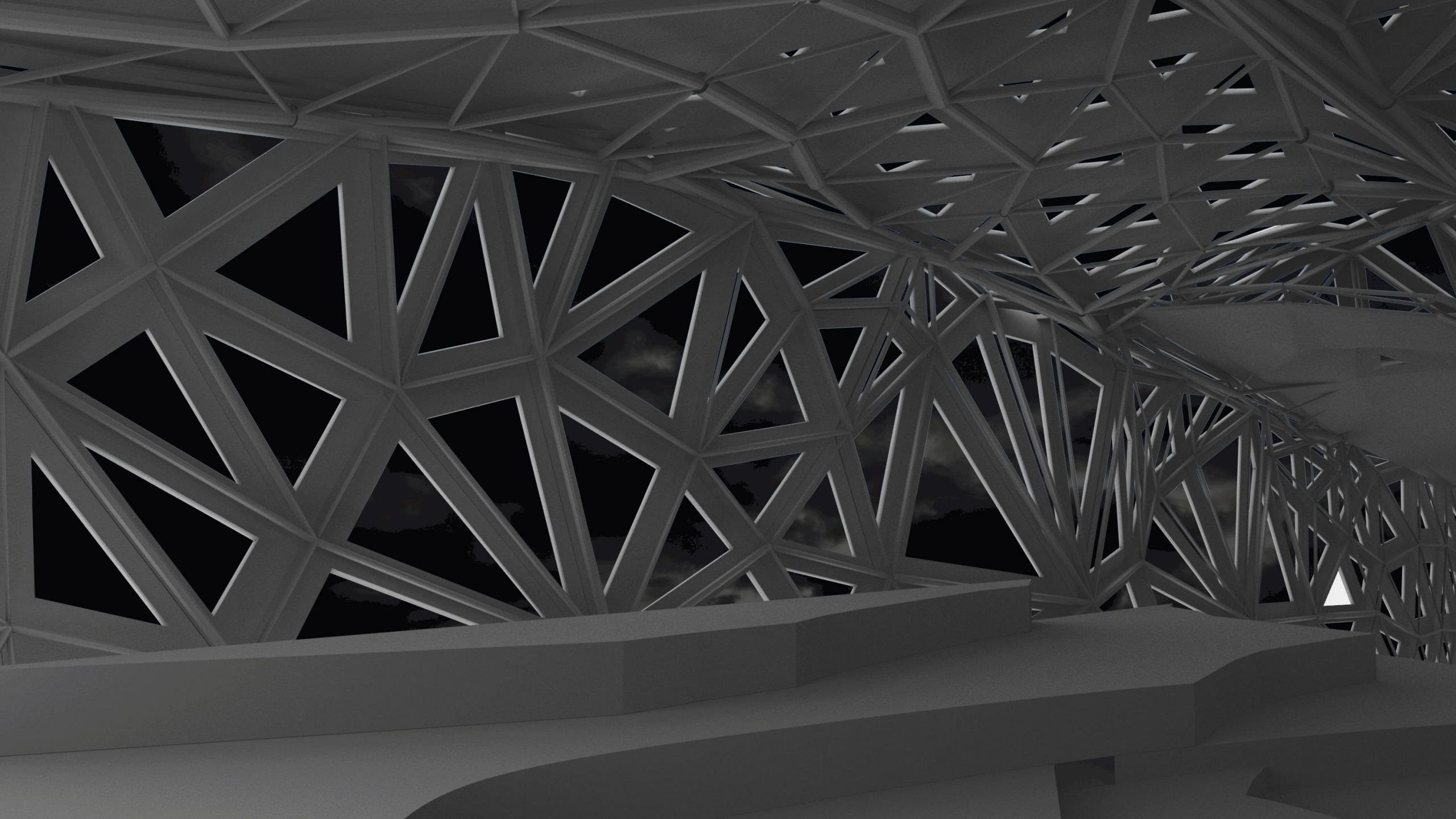


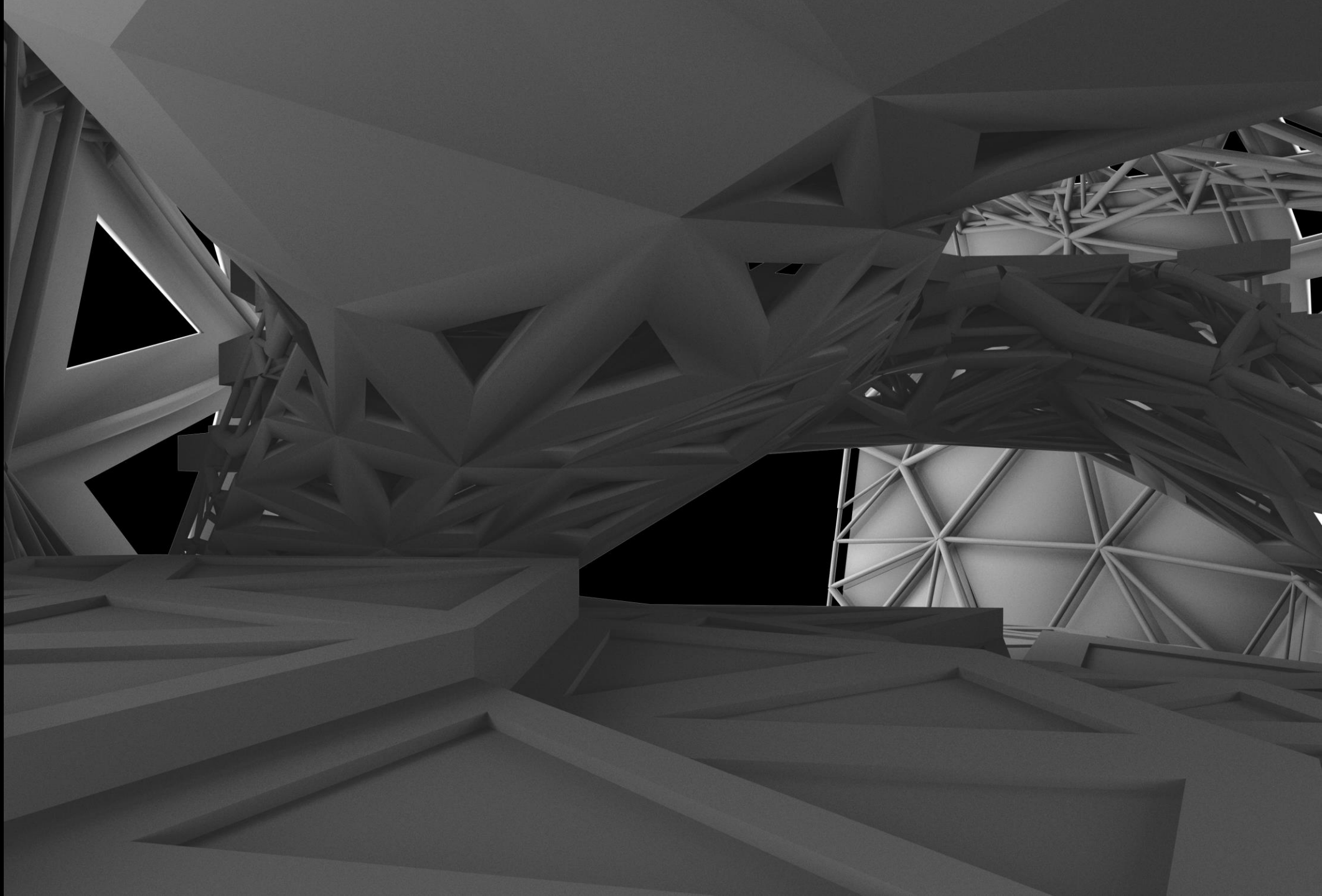
Section A-A 1:20



Section A-A 1:50







Cultural consumers



Socialites



Althletes



Sailing enthusiasts



Panorama Theater

Drive-In (Boat-In)

Interactive Playground

Multiply Screens

IMax

Lighthouse signals

Alluring glow

Guiding lights

Projected image

Guiding lights

Circulating flare

Passive viewer

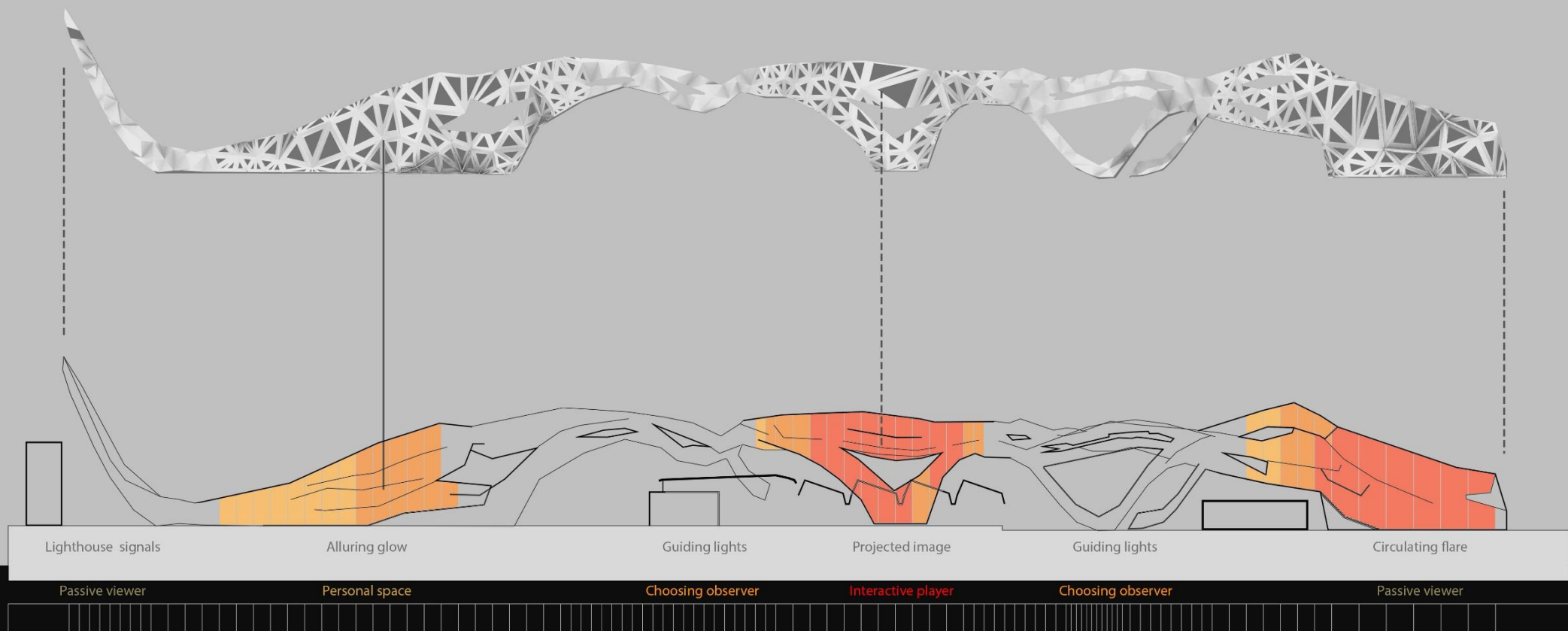
Personal space


Choosing observer

Interactive player


Choosing observer


Passive viewer

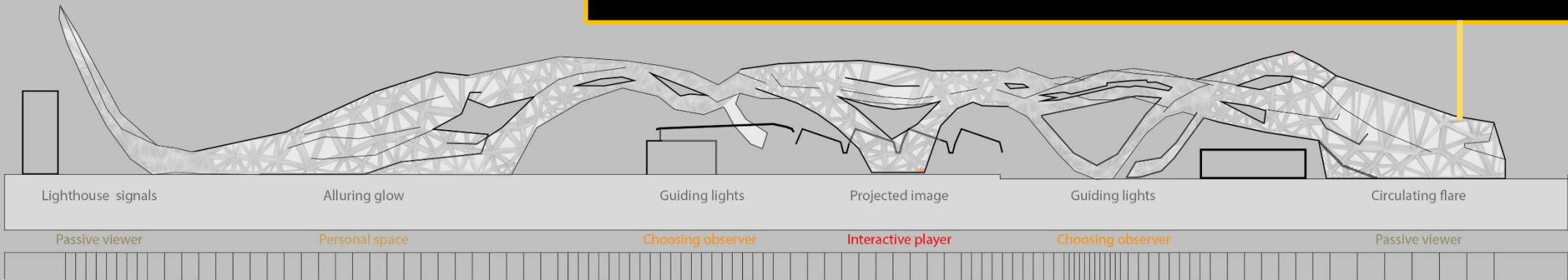
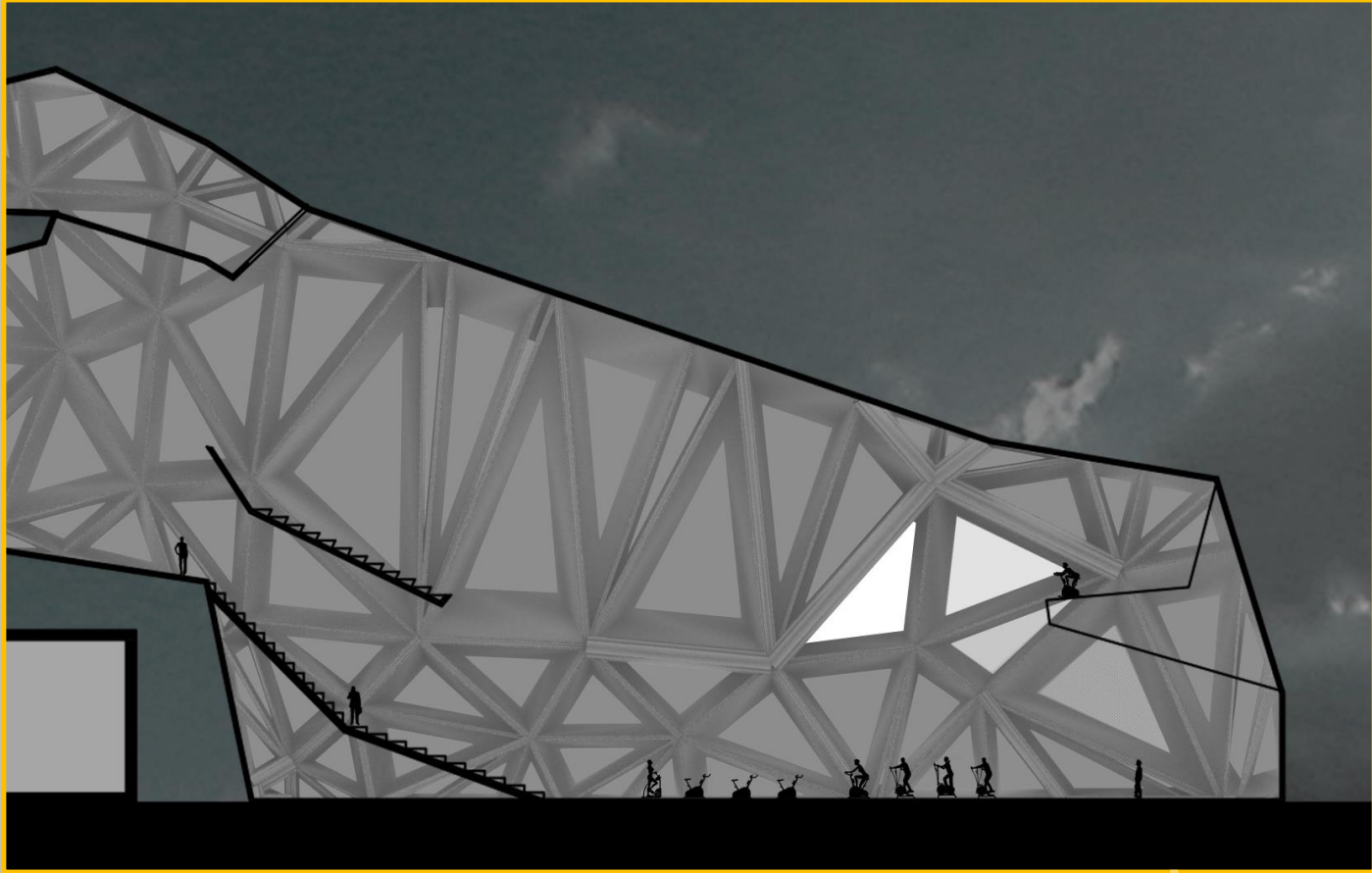


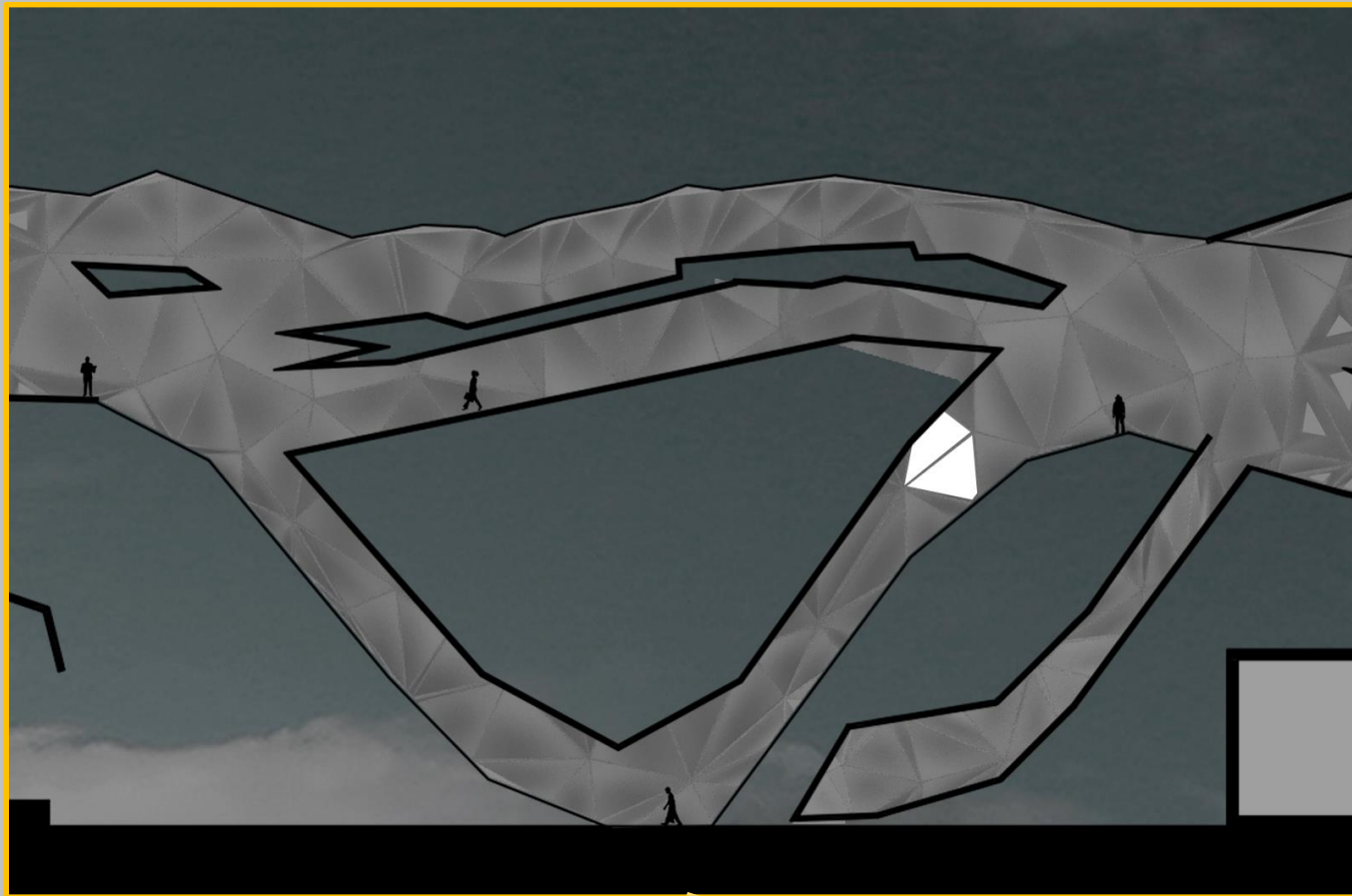


Passive viewer
Indirect interaction
(More activity – faster
light movement)

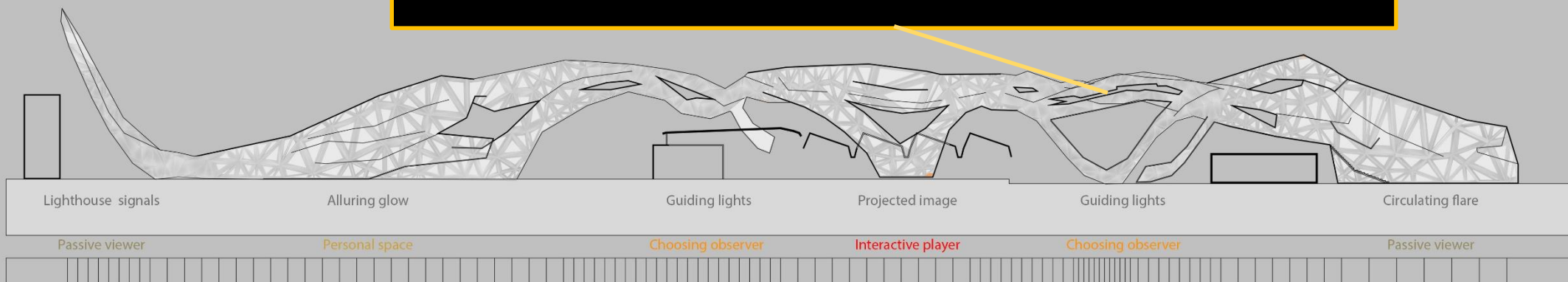


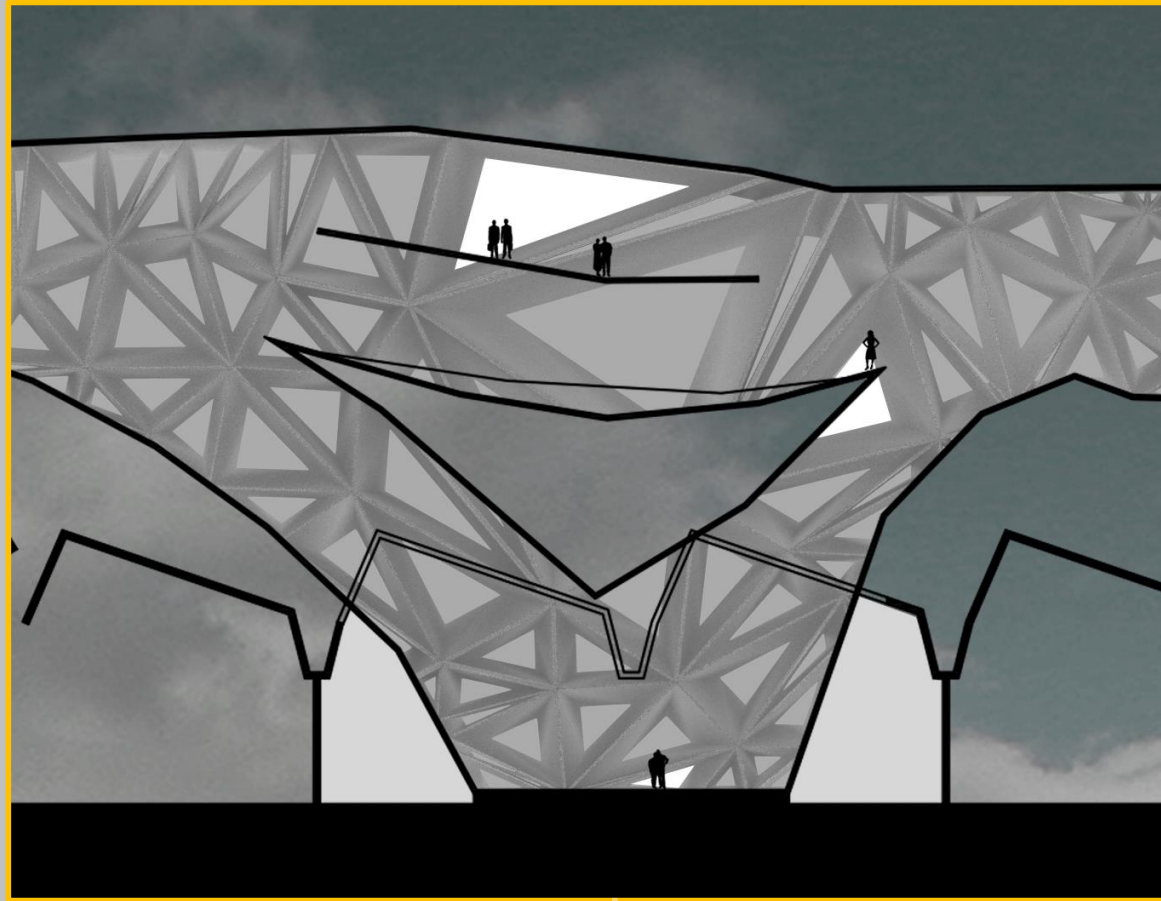




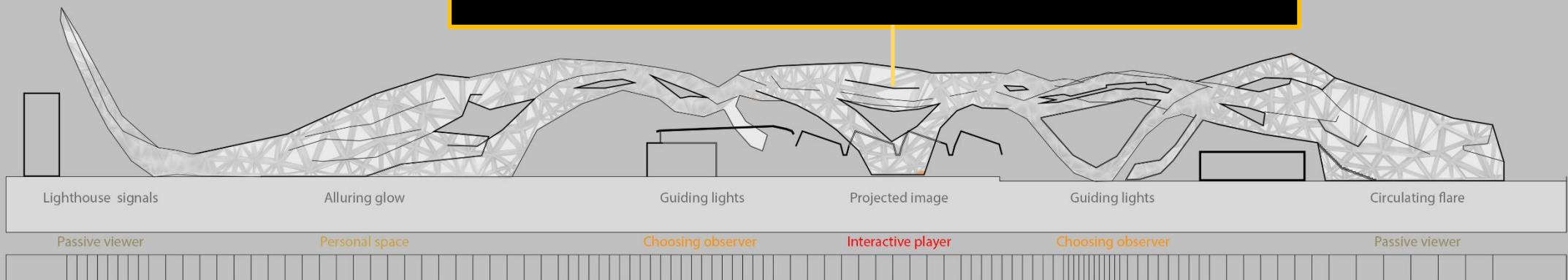


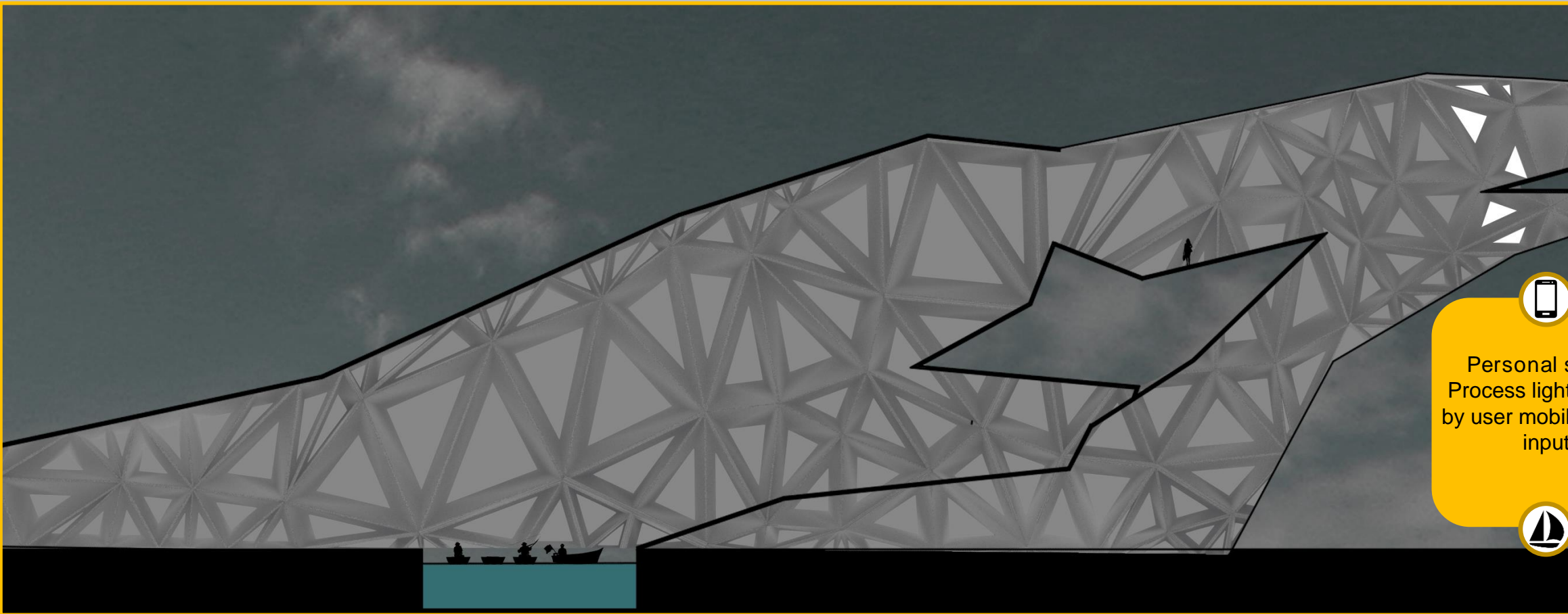
Choosing observer
Direct interaction –
illuminate path
according to user
choice



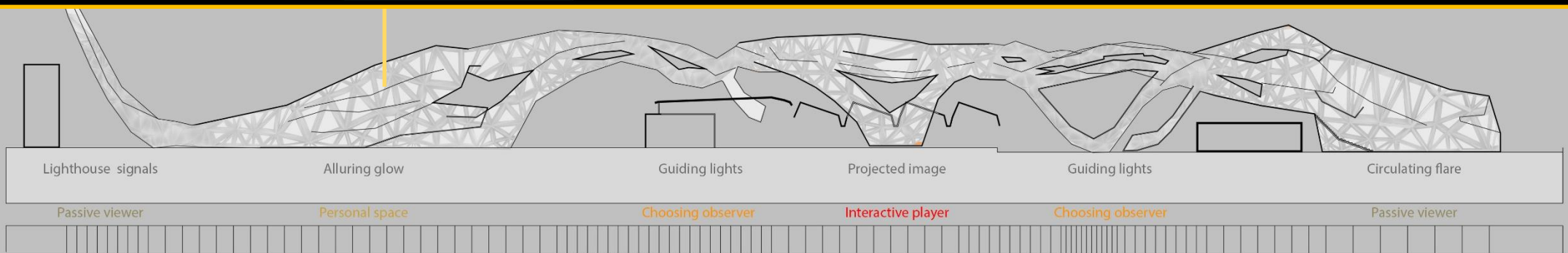


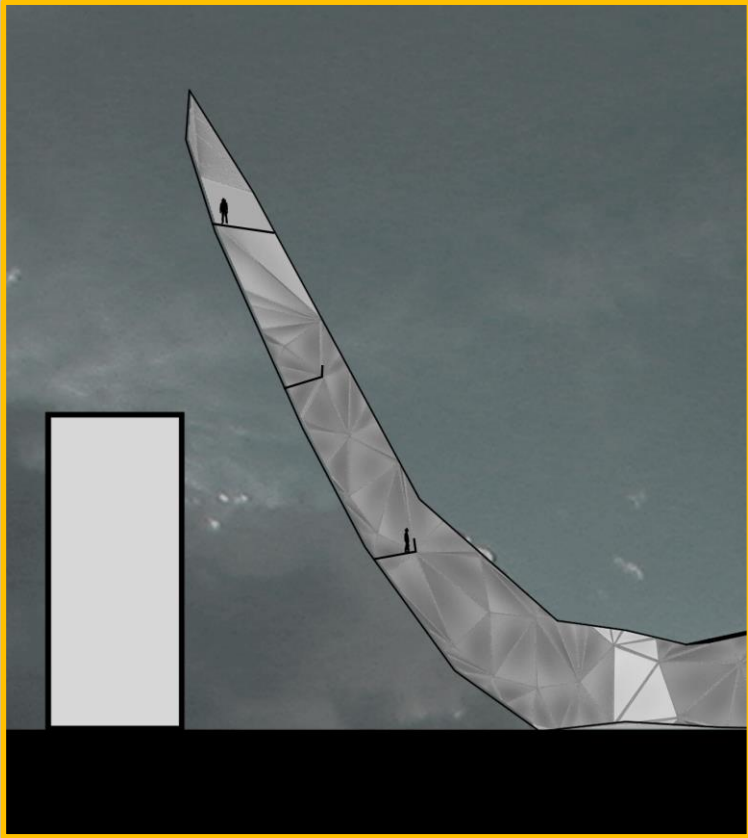
Interactive player
Light pattern
projection between
users



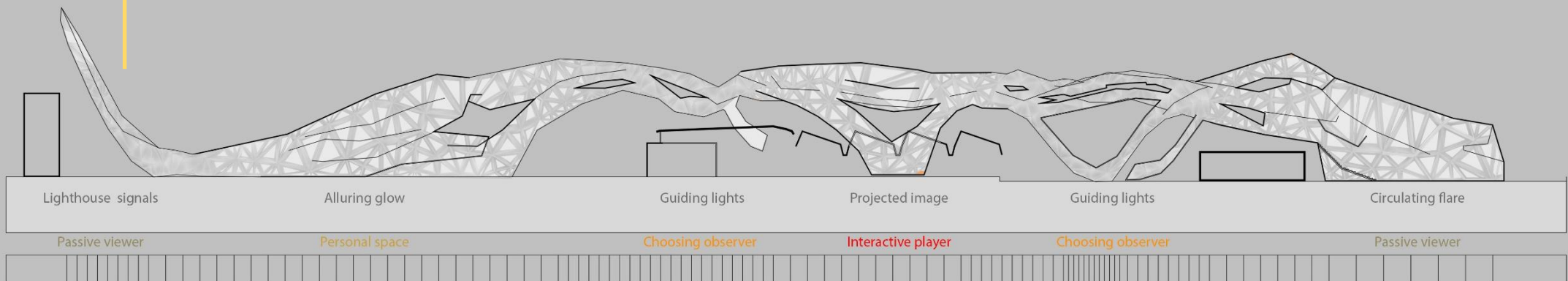


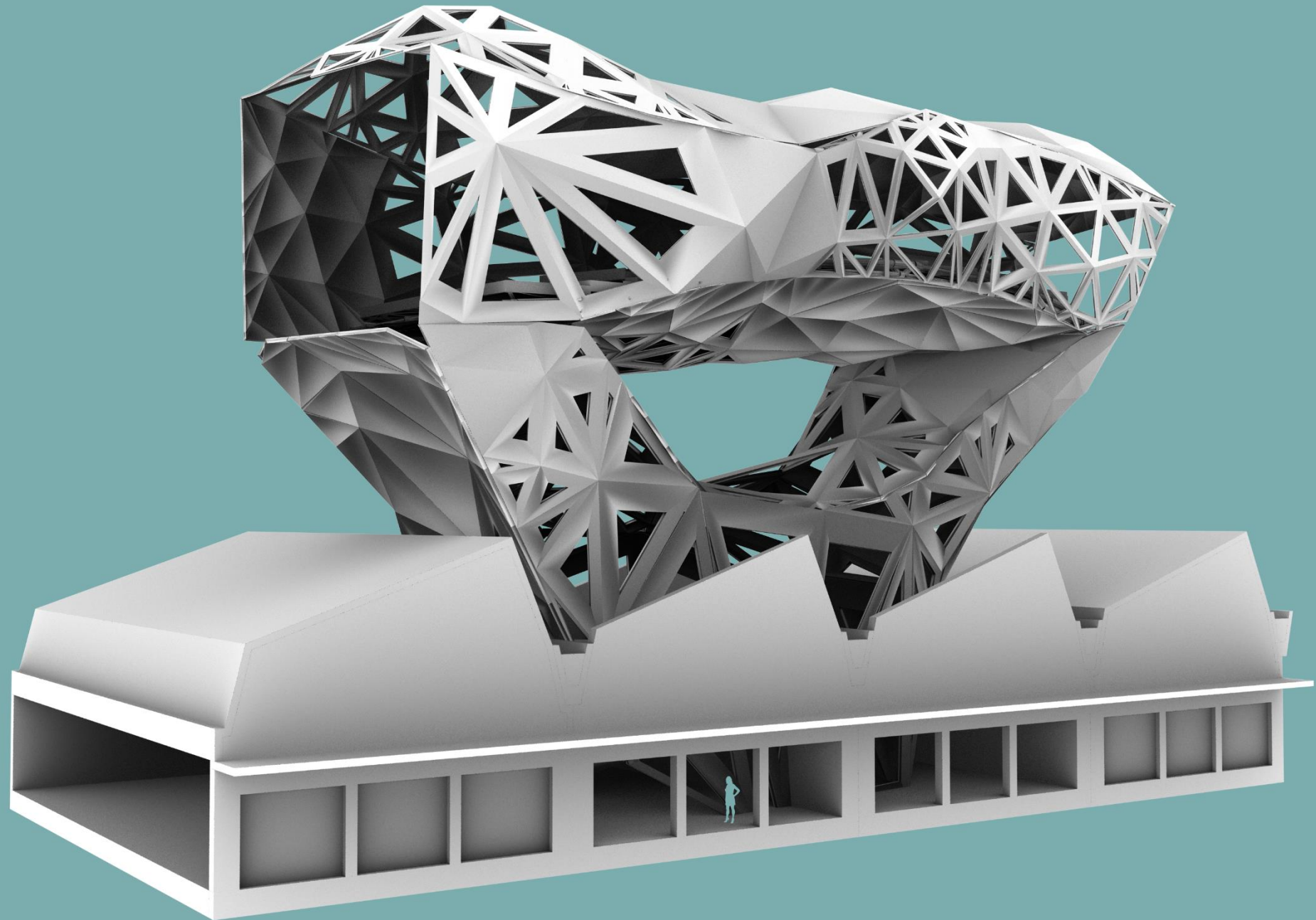
Personal space
Process light pattern
by user mobile device
input

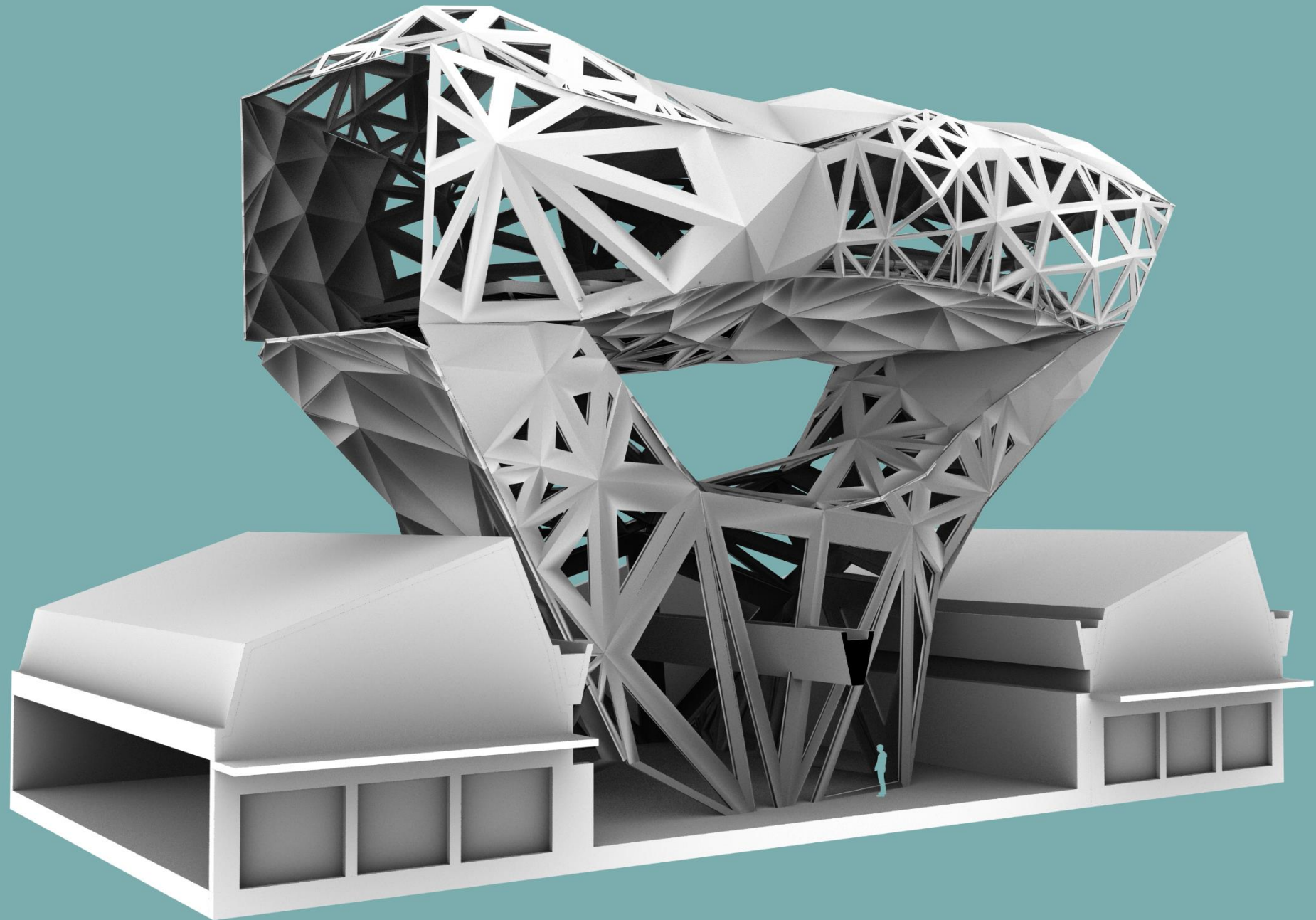


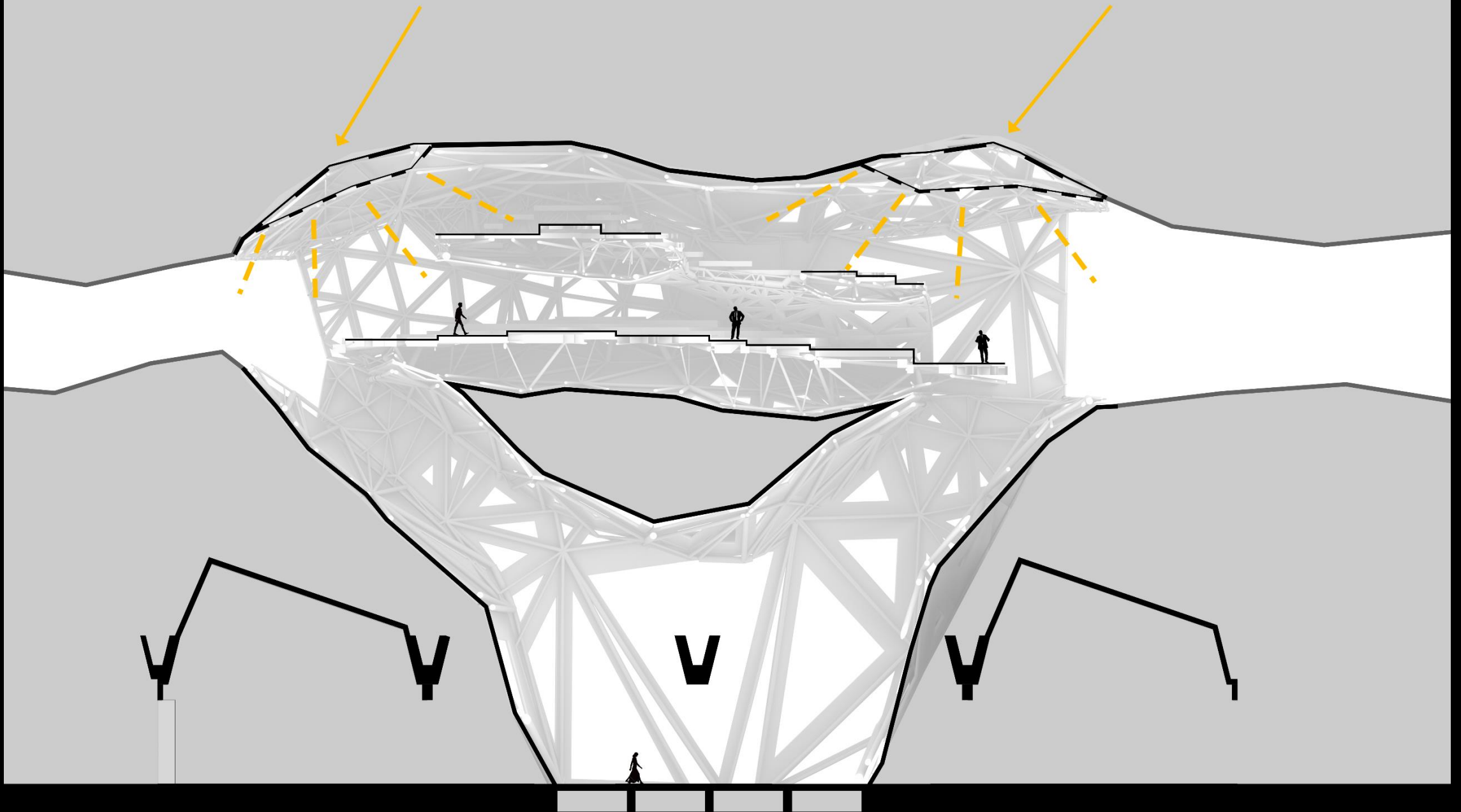


Passive viewer
Augmented reality of
the city surroundings

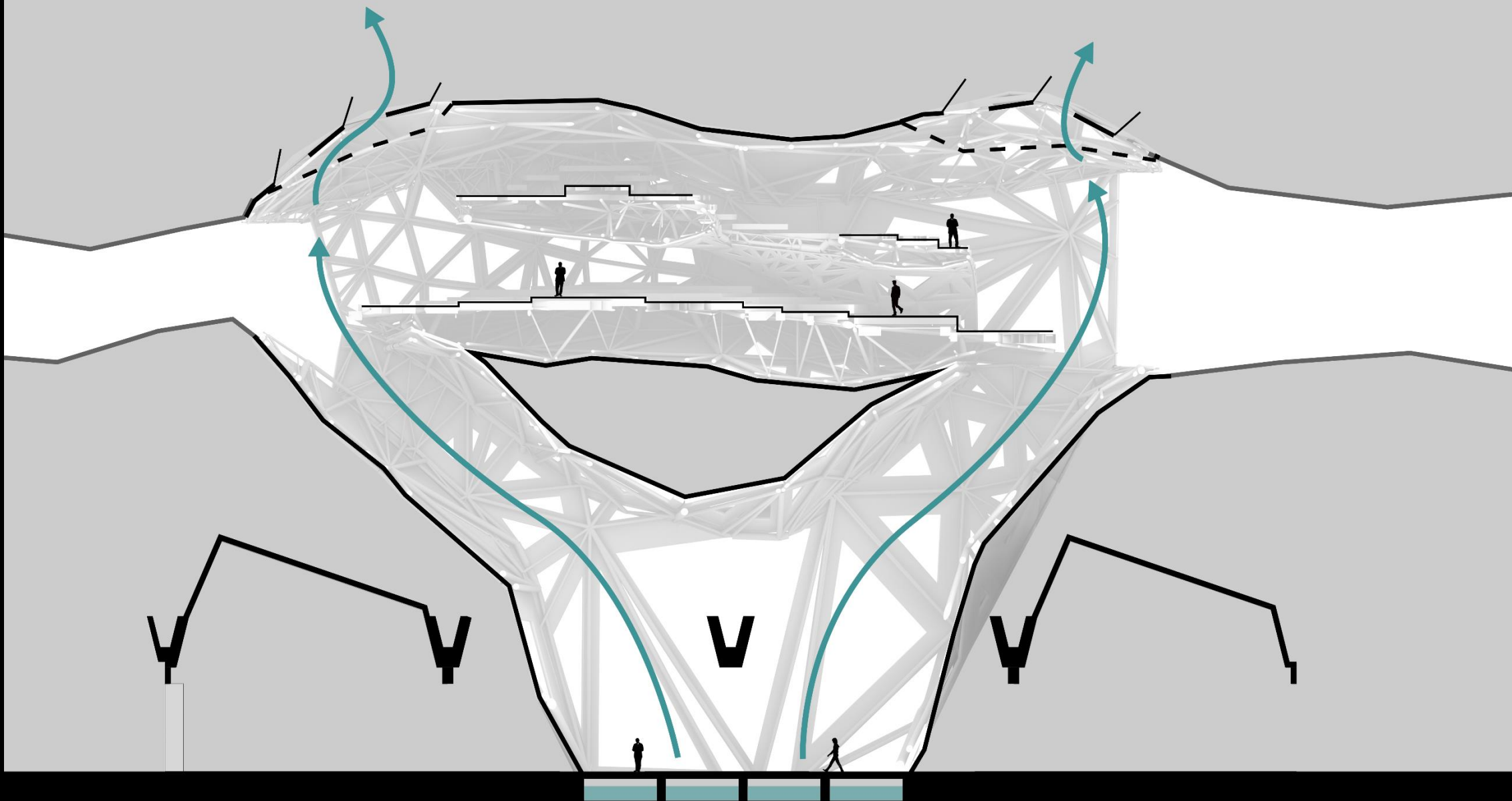






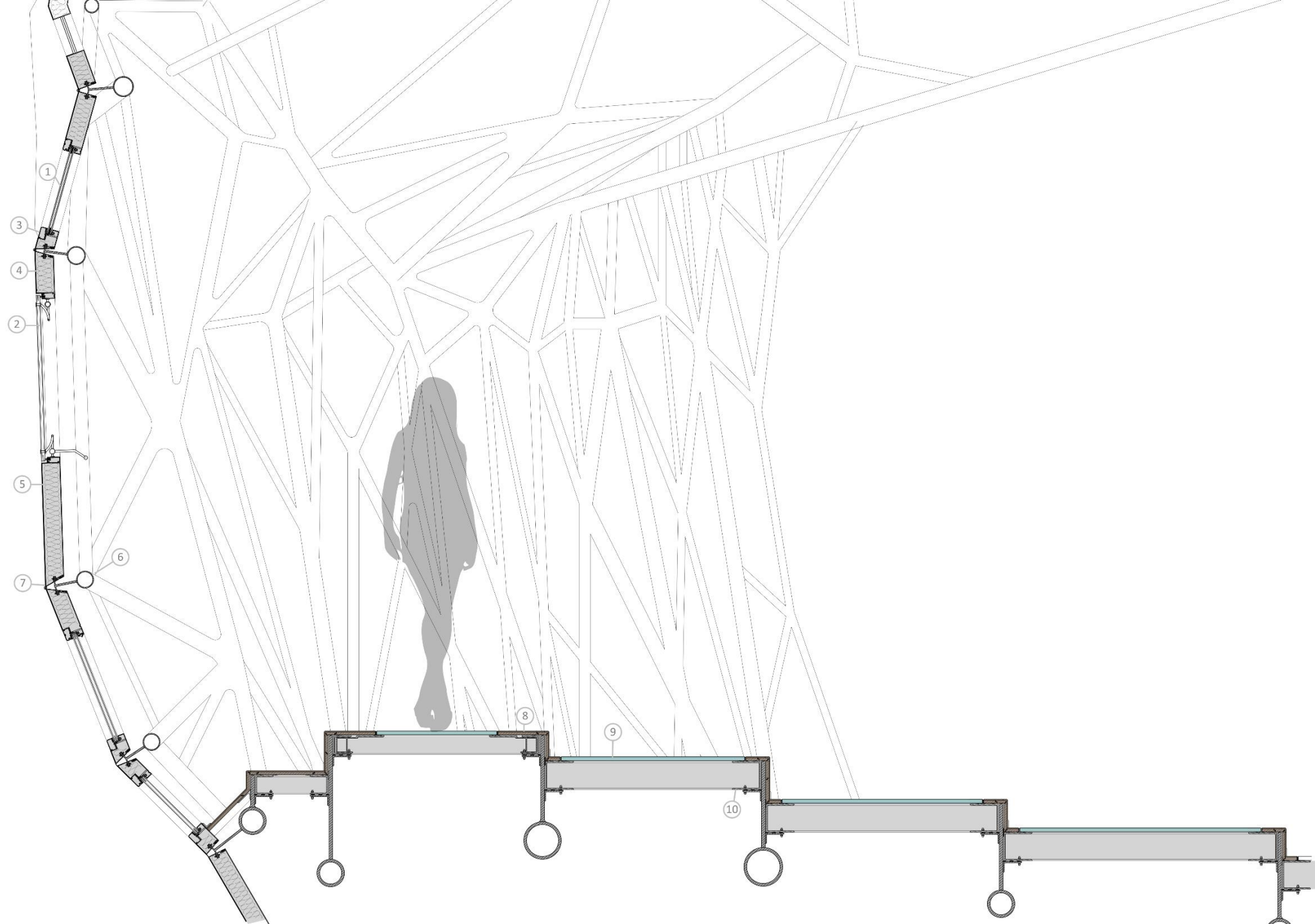


Climate Diagram - Winter

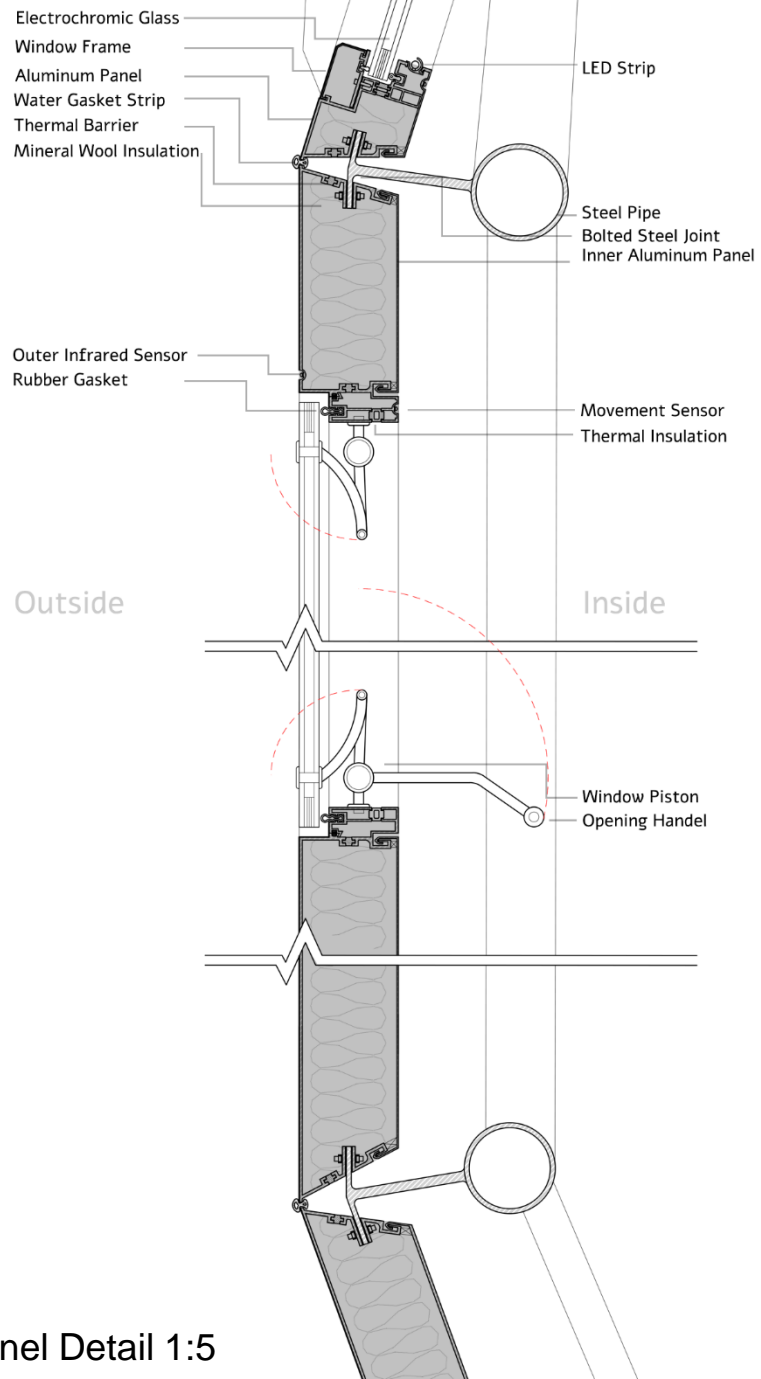


Climate Diagram - Summer

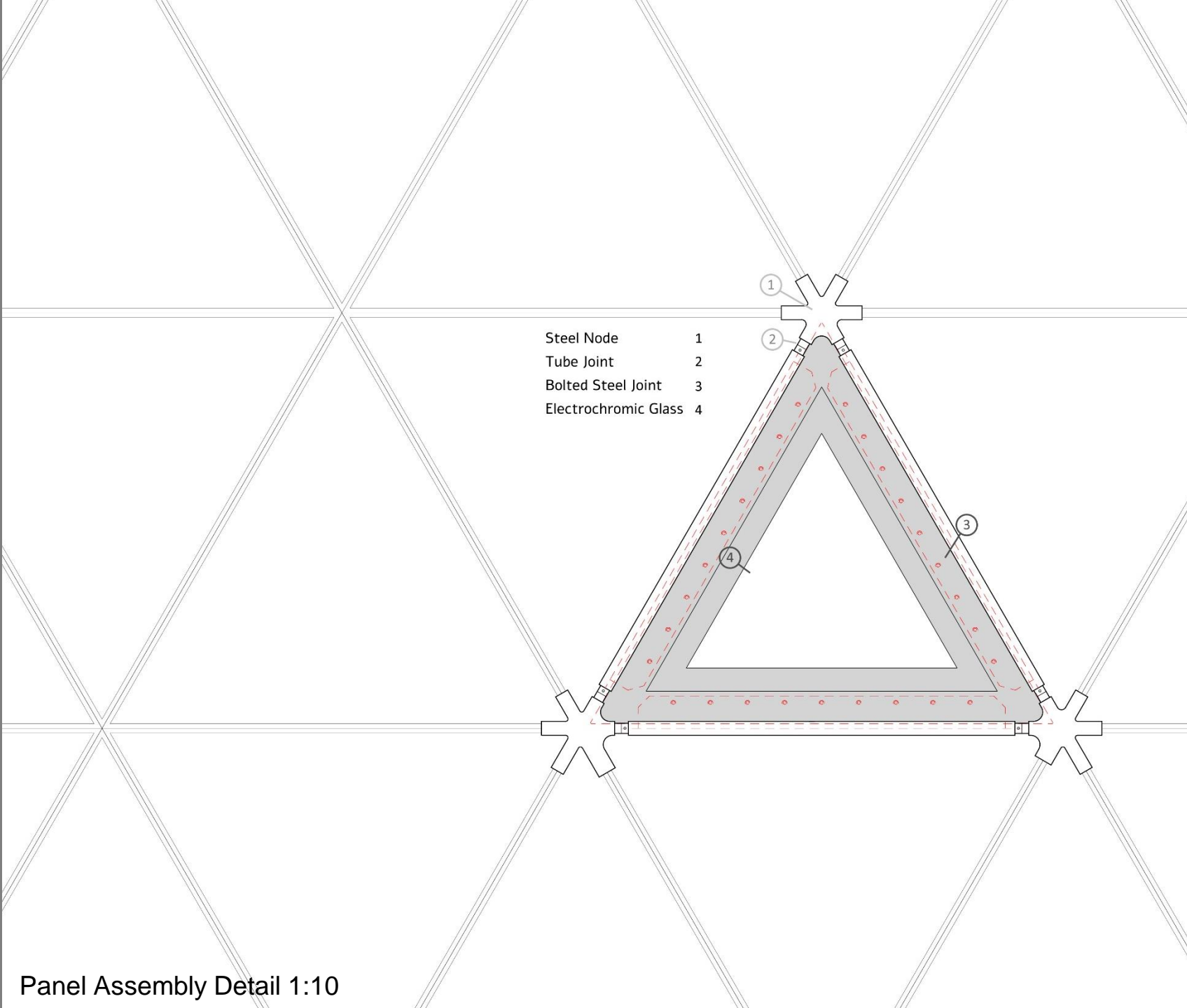
- Electrochromic Glass 1
- Openable Window 2
- Window Panel 3
- Aluminum Panel 4
- Mineral wool insulation 5
- Steel rod construction 6
- Control Joint 7
- Plywood 8
- Tempered Glass (20mm) 9
- Steel Profile 10



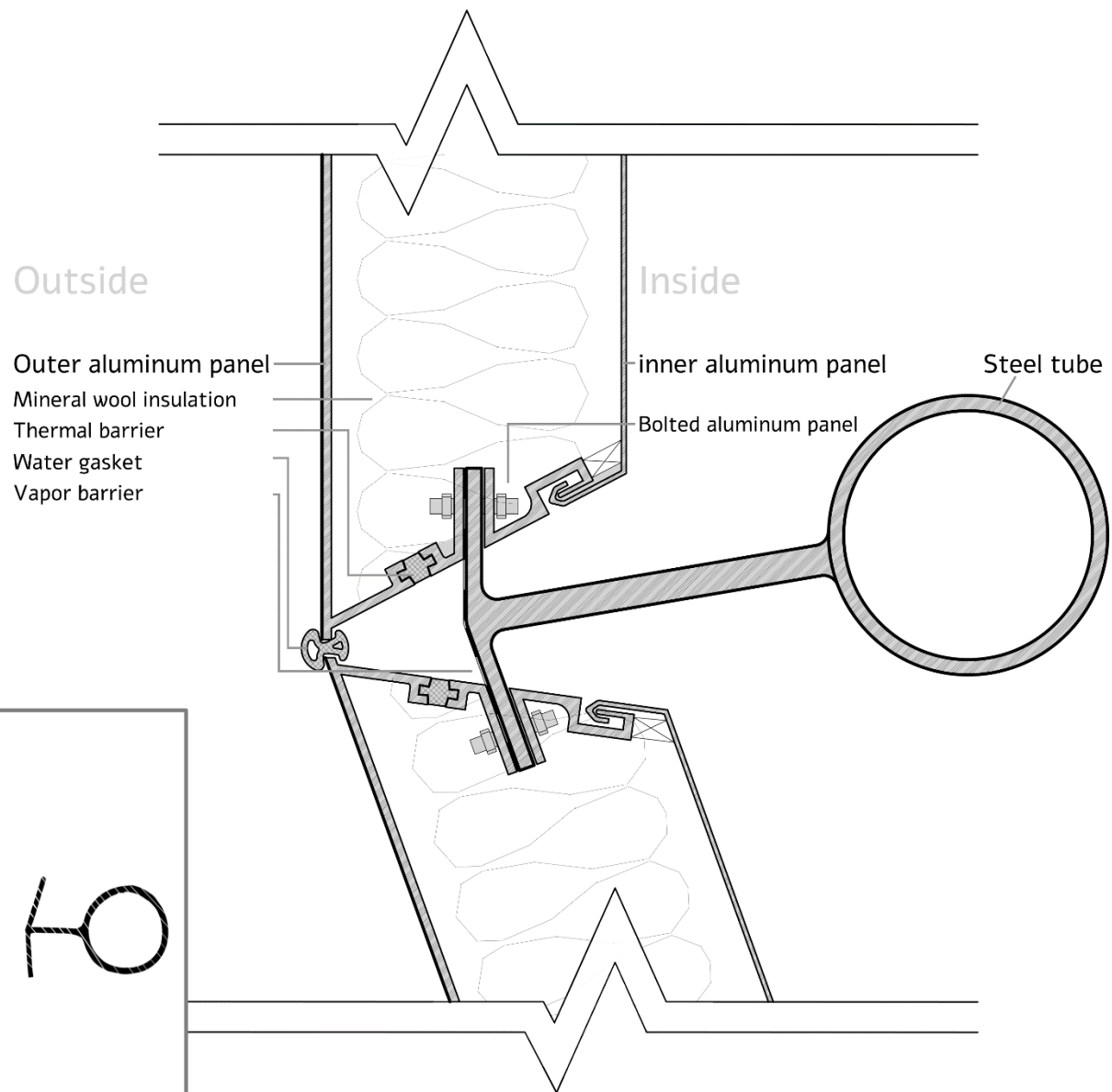
Façade Detail 1:10



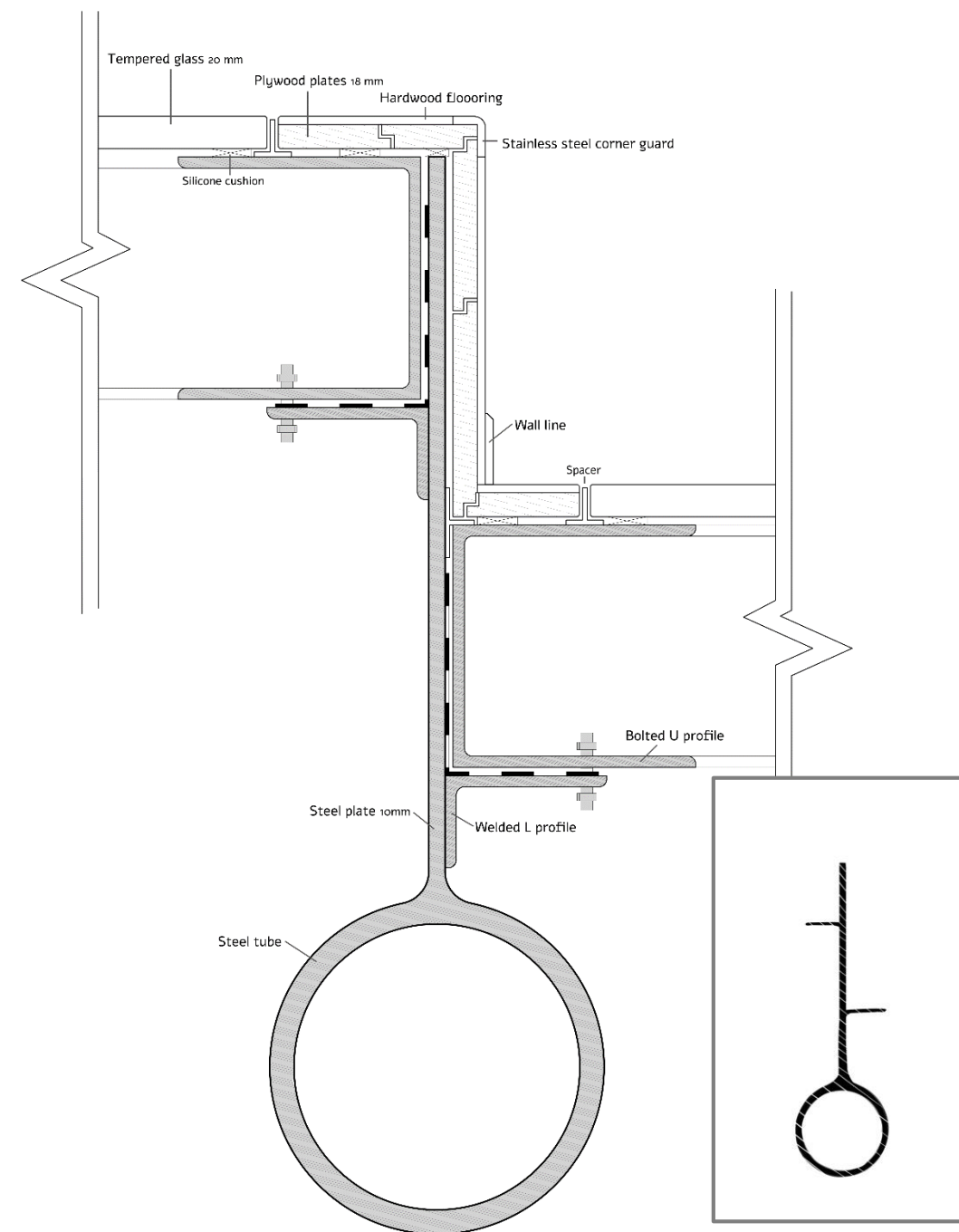
Panel Detail 1:5



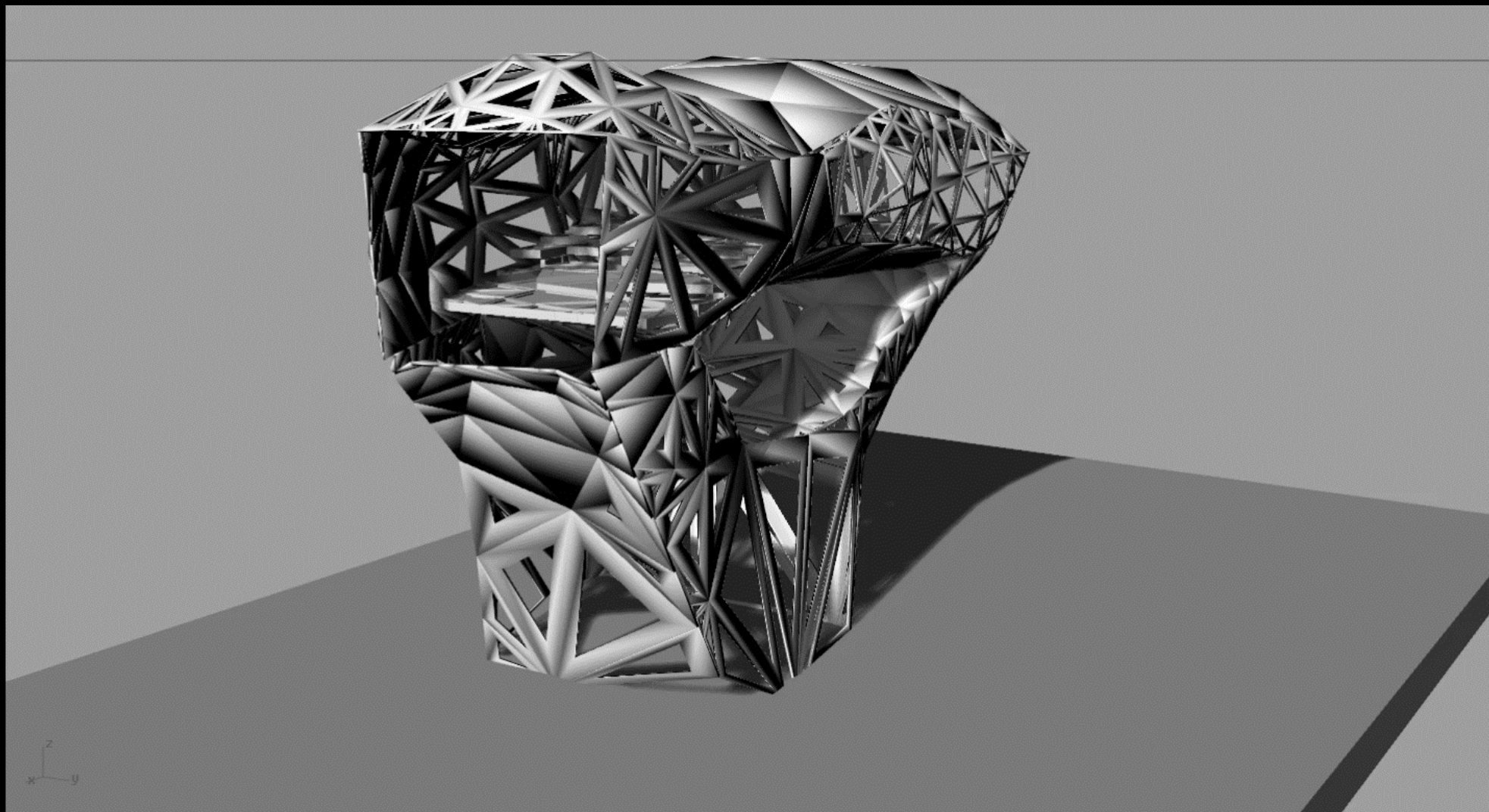
Panel Assembly Detail 1:10



Control Joint Detail 1:1



Floor panel detail 1:2



Here – 3D model of construction

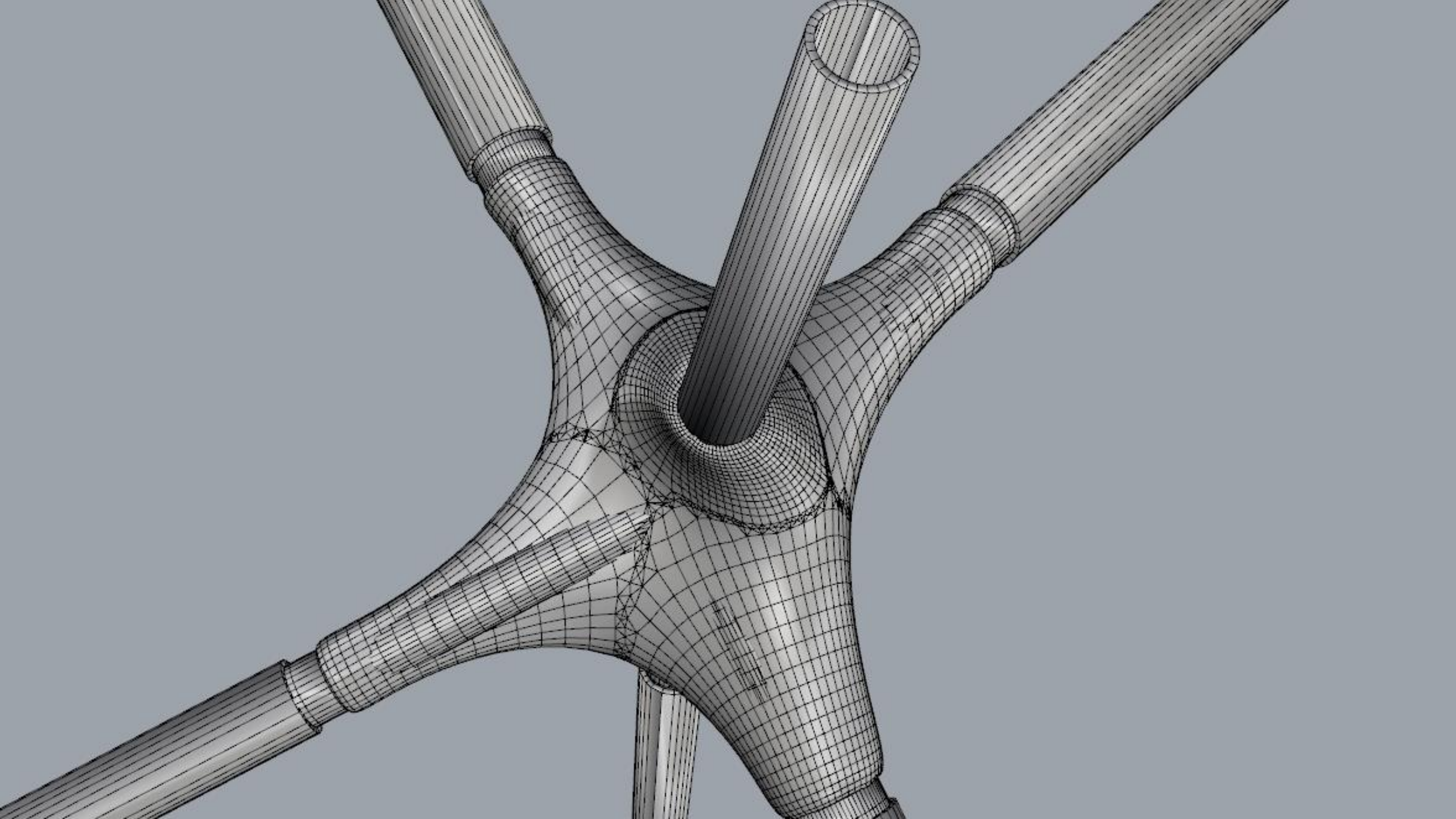


FIG. 1

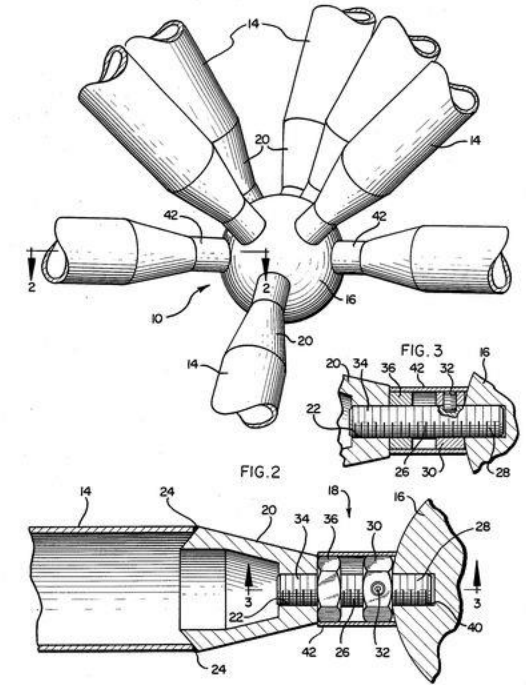


FIG. 2

FIG. 3

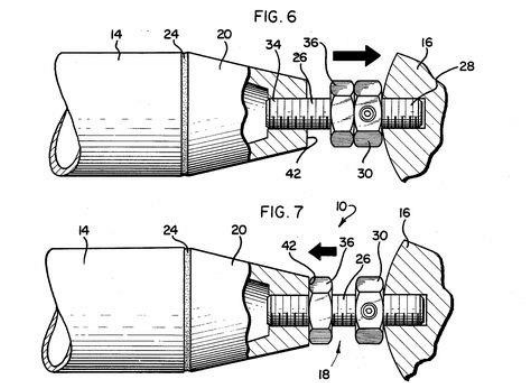


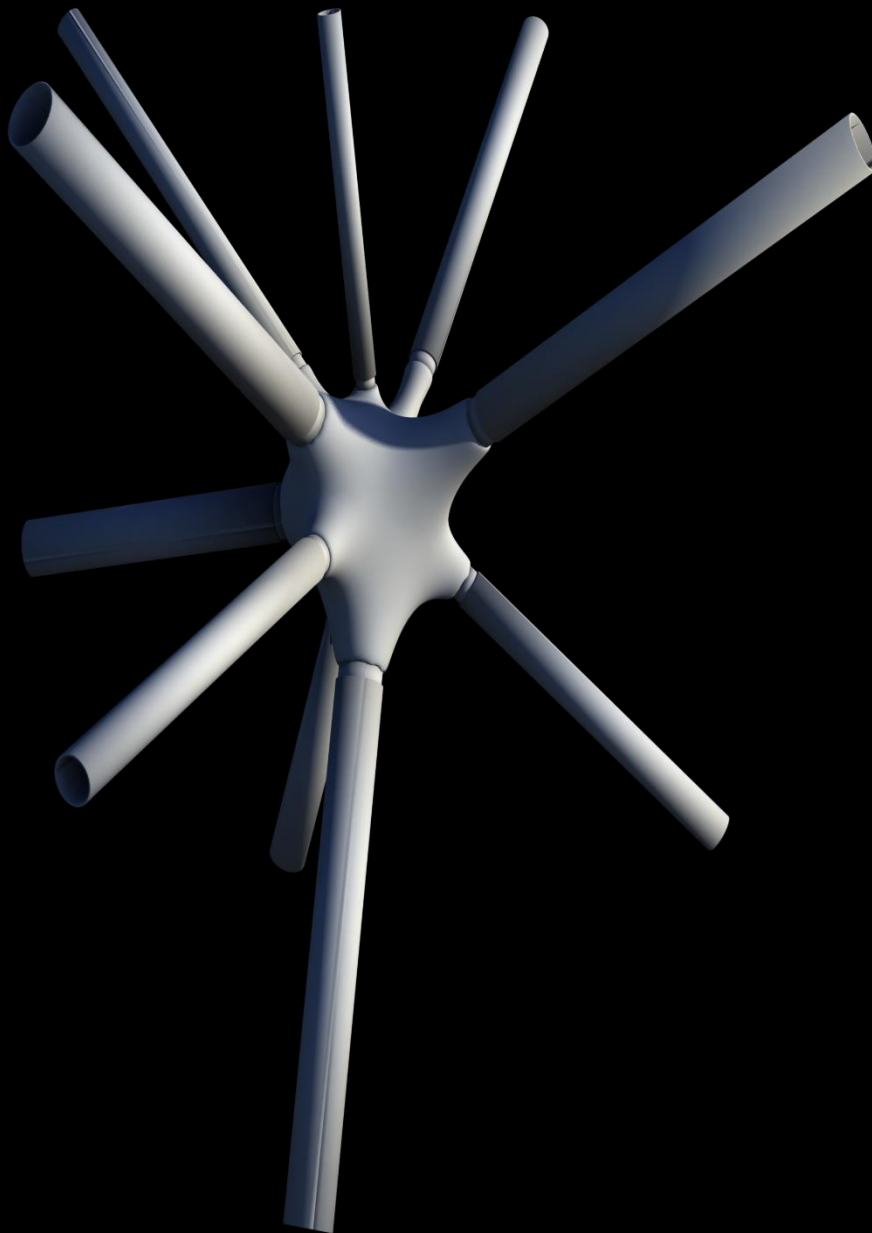
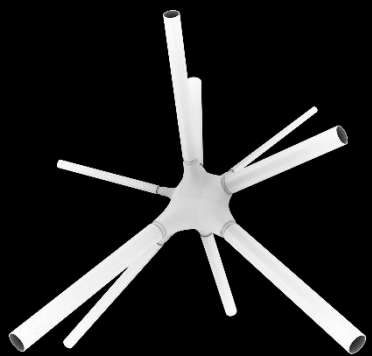
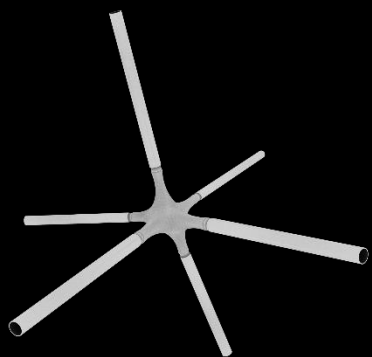
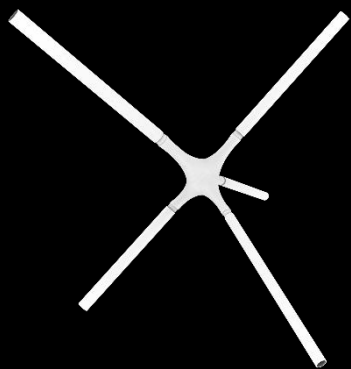
FIG. 6

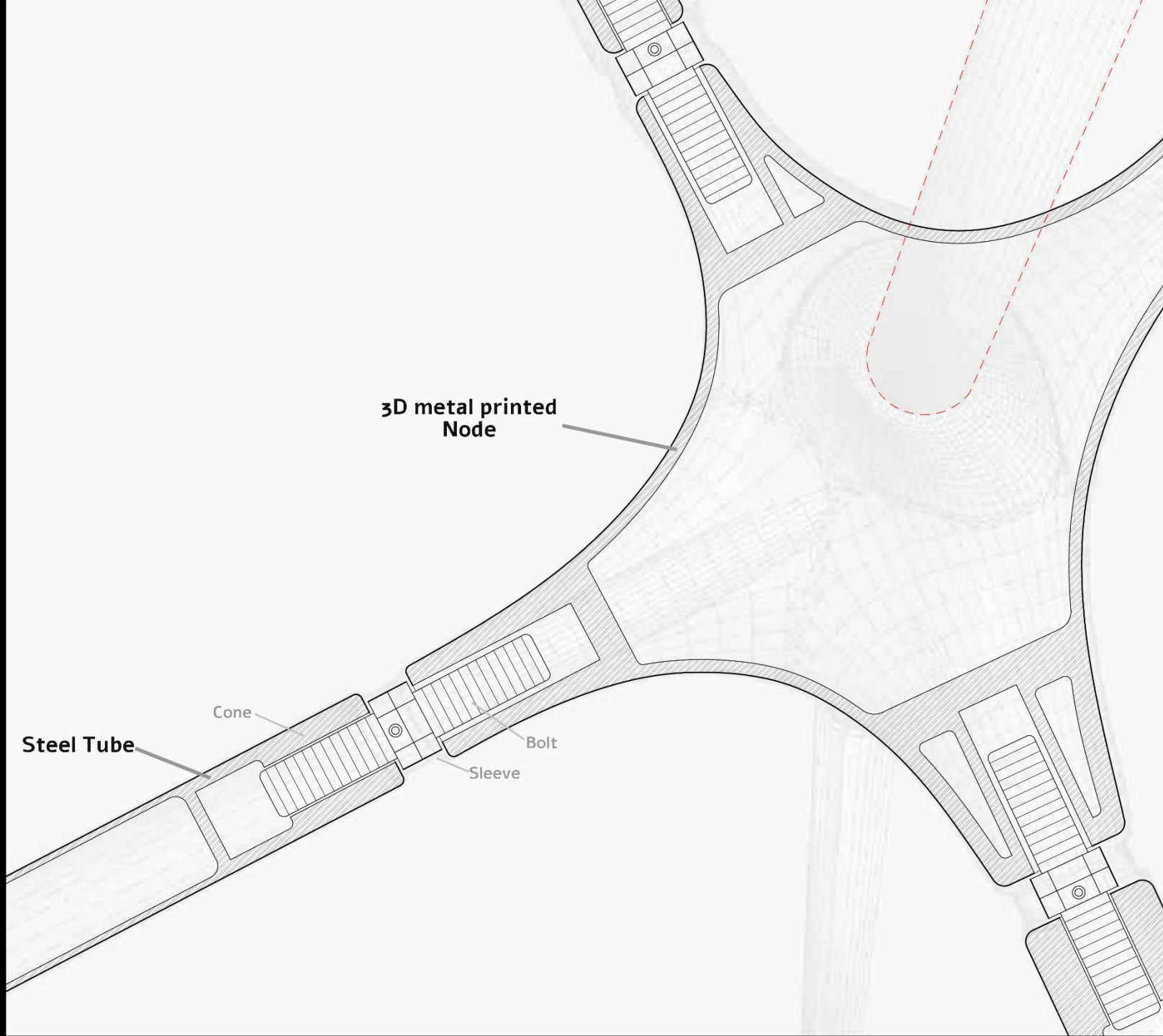
FIG. 7



Space Frame System

3D metal printing technology





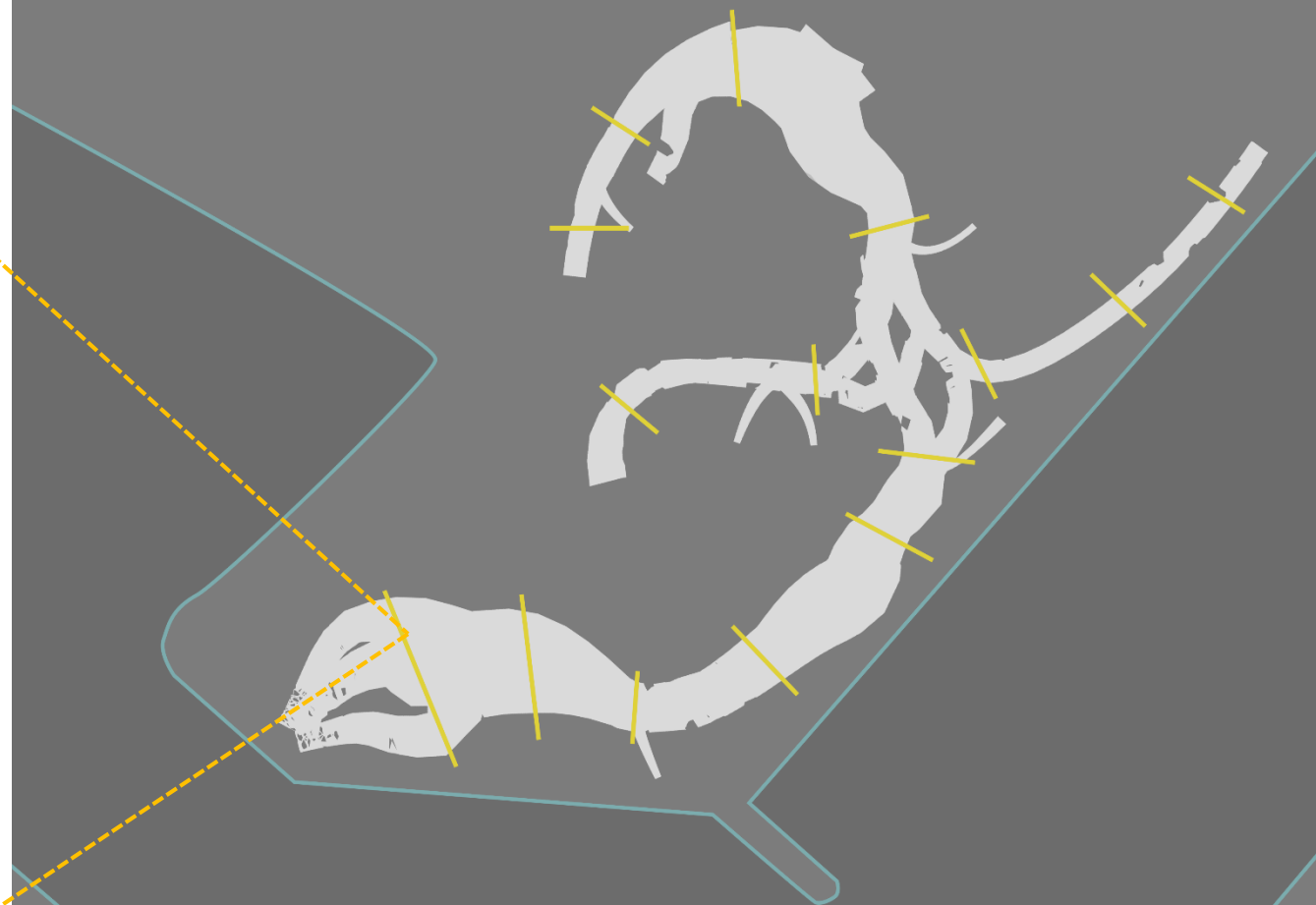
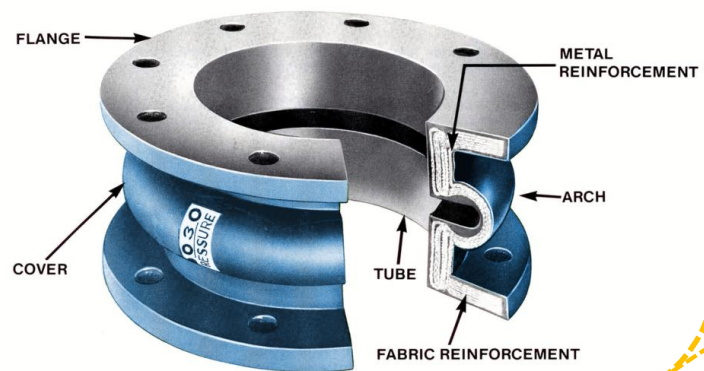
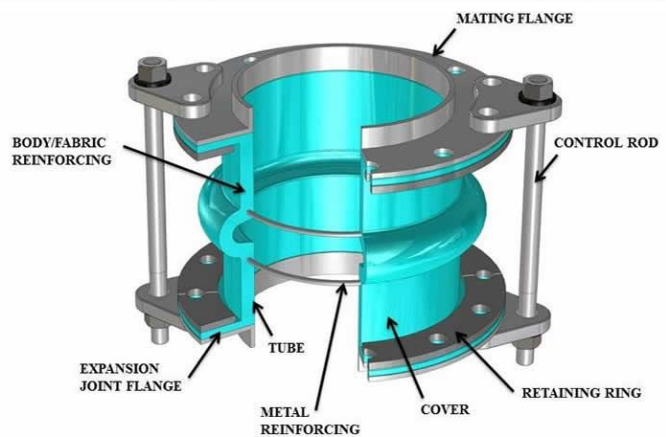
3D metal printed
Node

Steel Tube

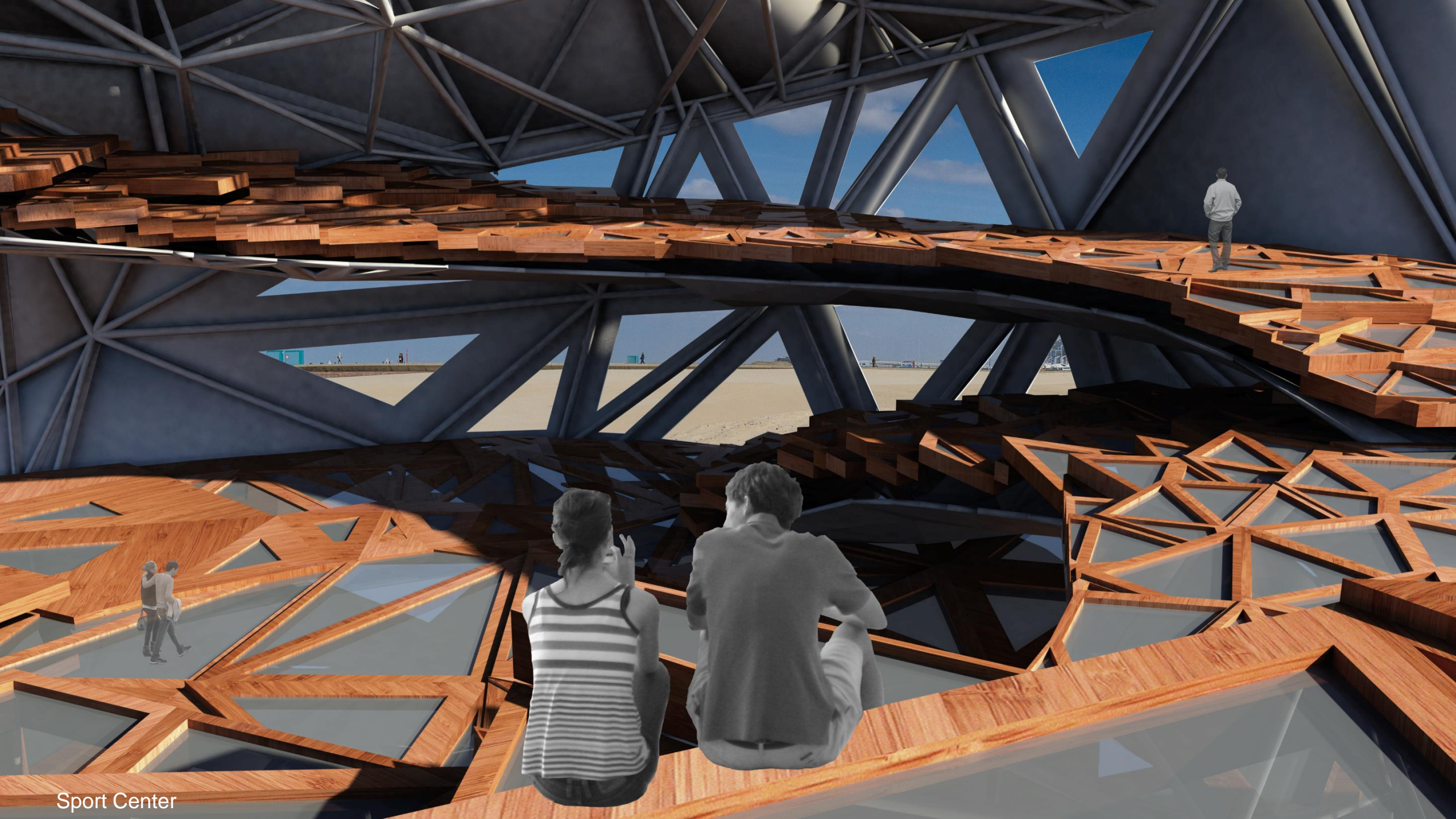
Cone

Bolt

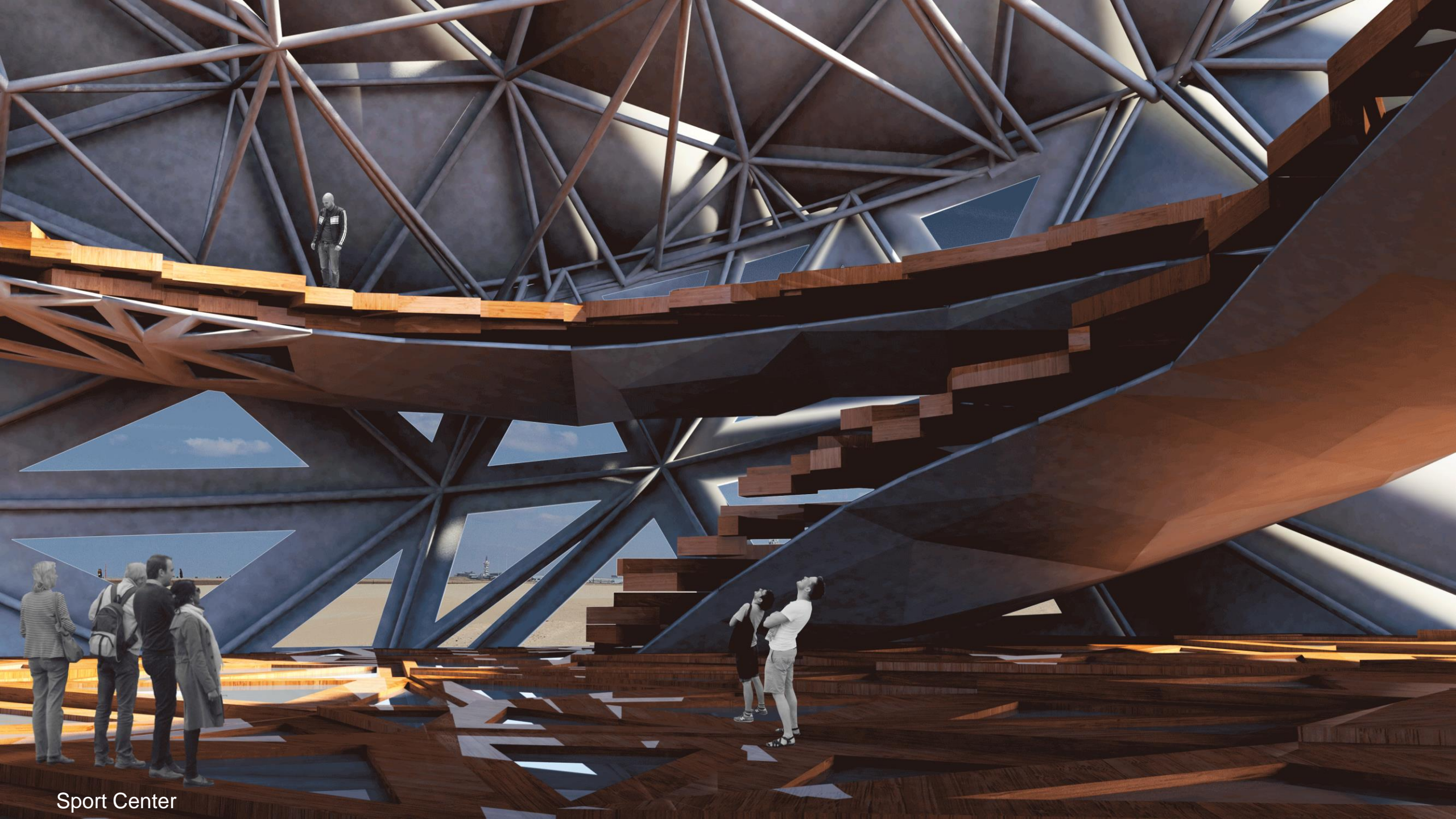
Sleeve



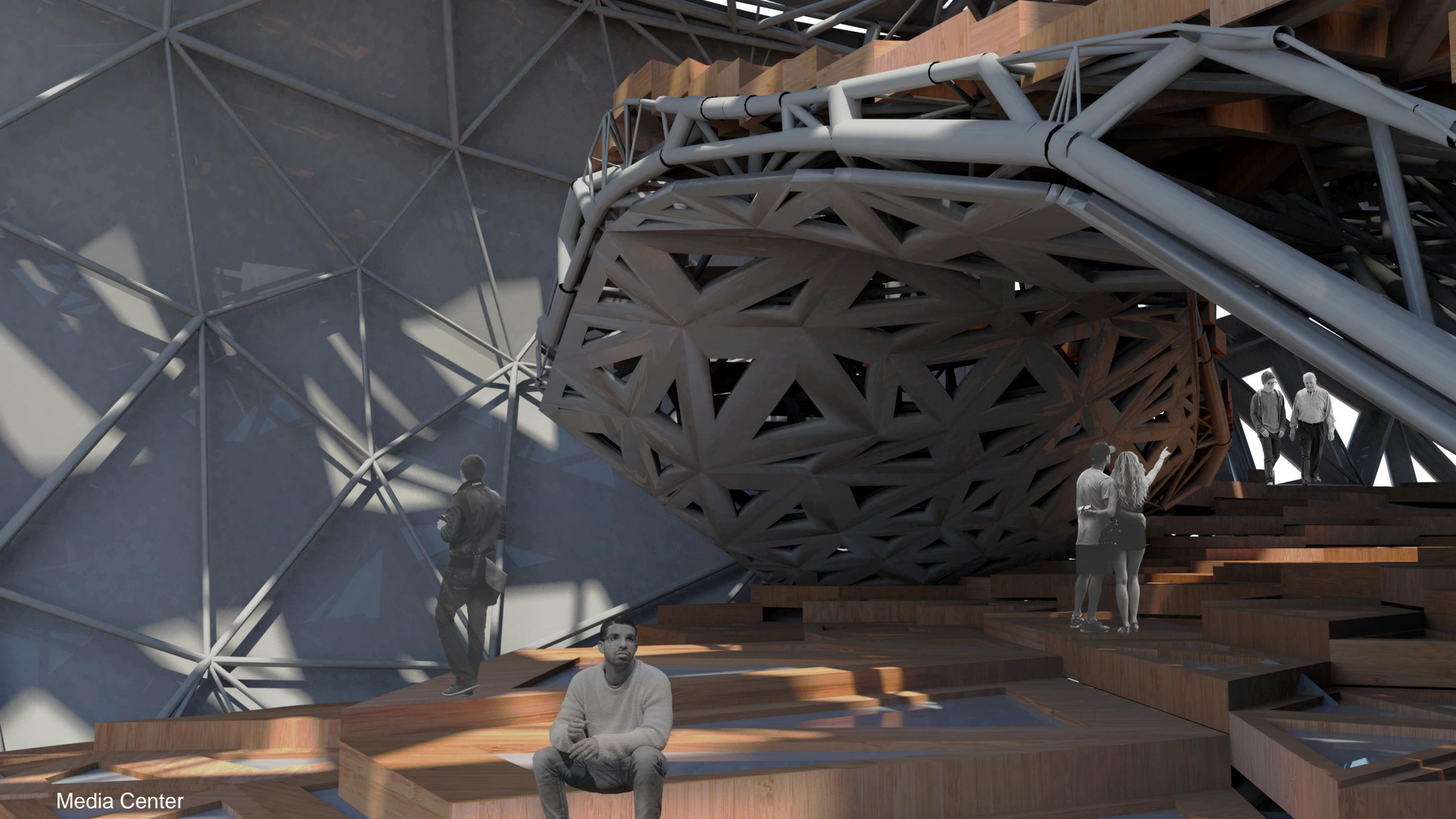
Thermal Expansion



Sport Center



Sport Center



Media Center



Media Center

