



"GRAFT"
THOMAS ROBERTS
University of Brighton MArch Architecture
STUDIO 2
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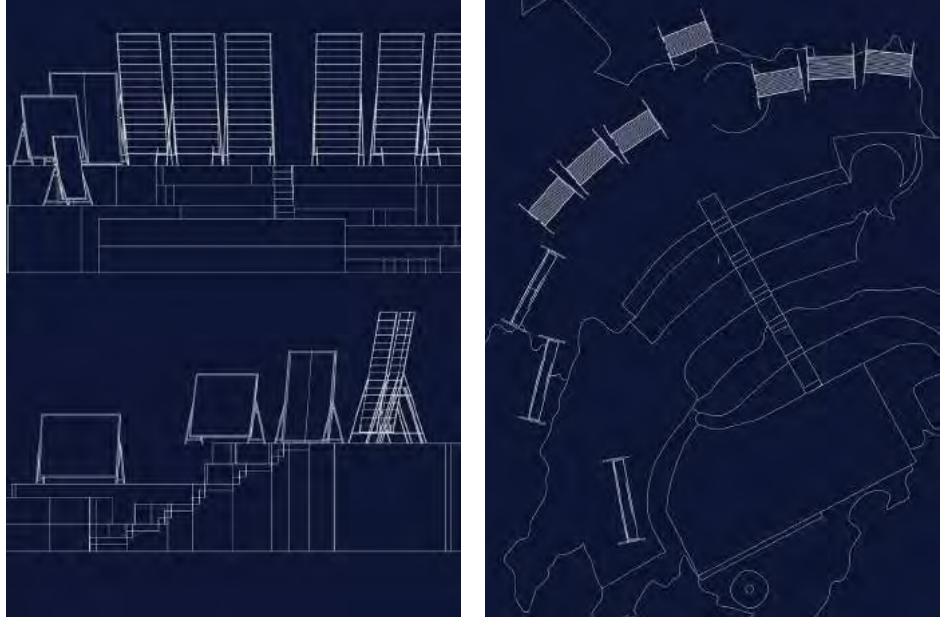
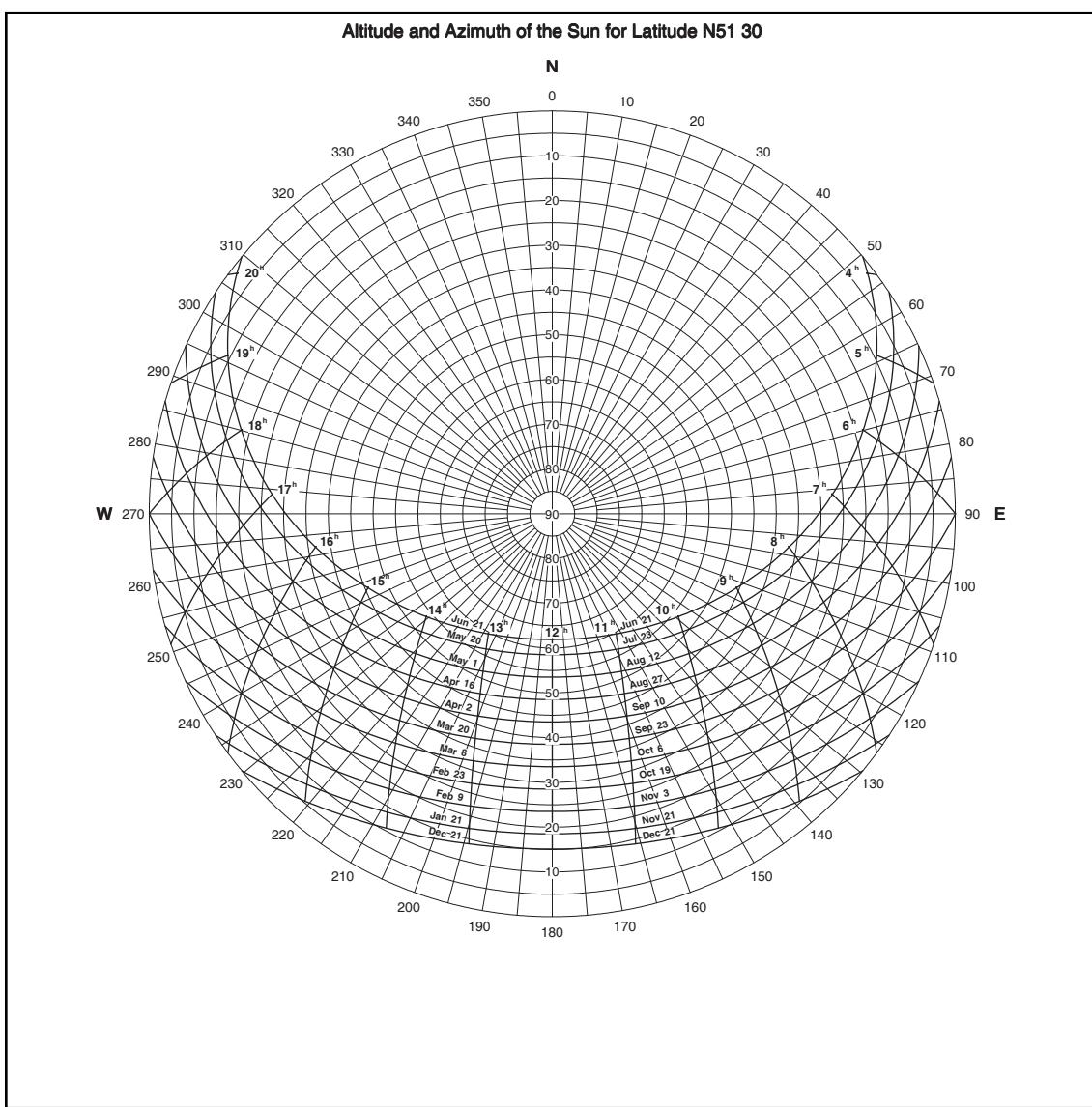
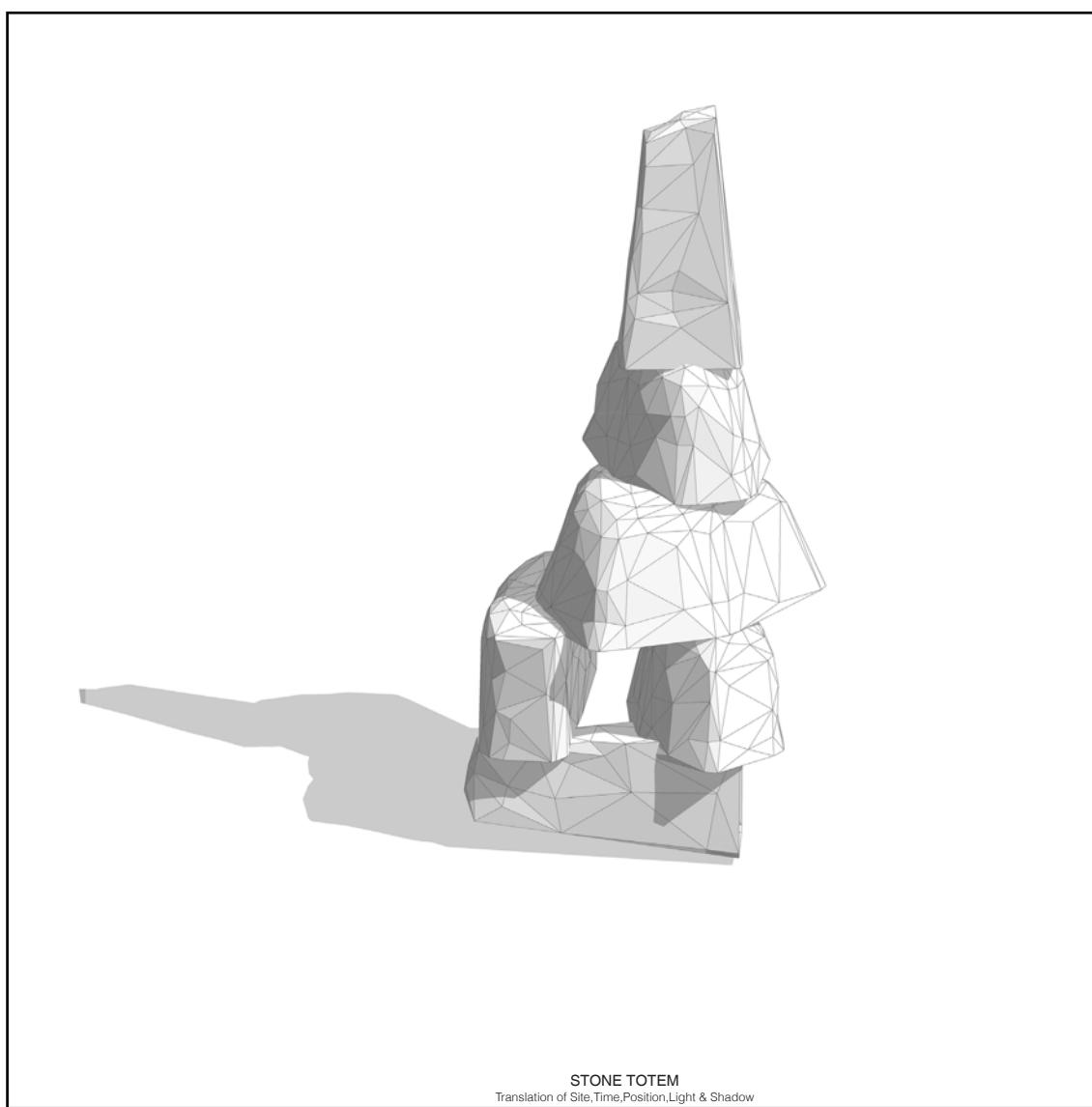
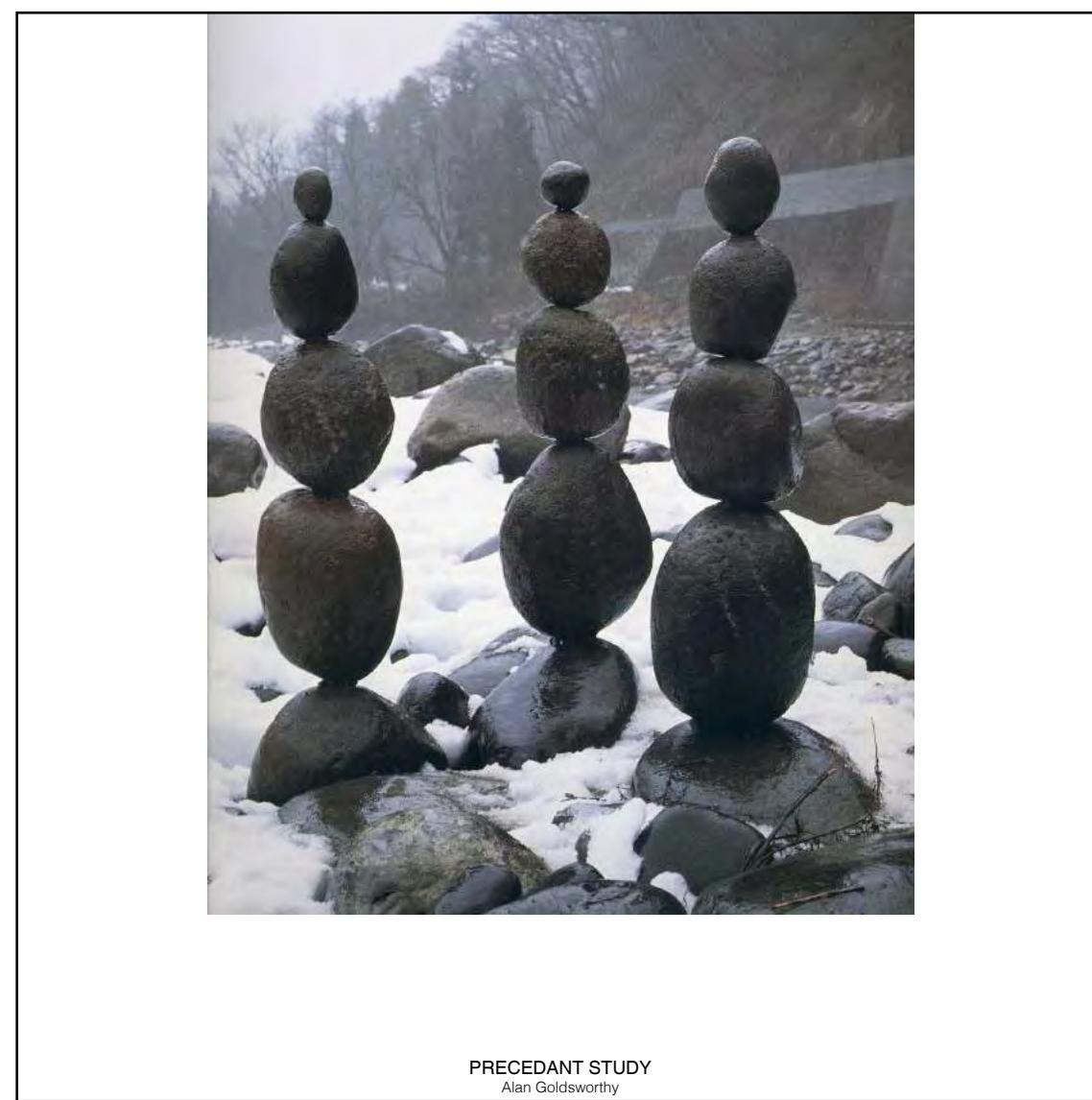
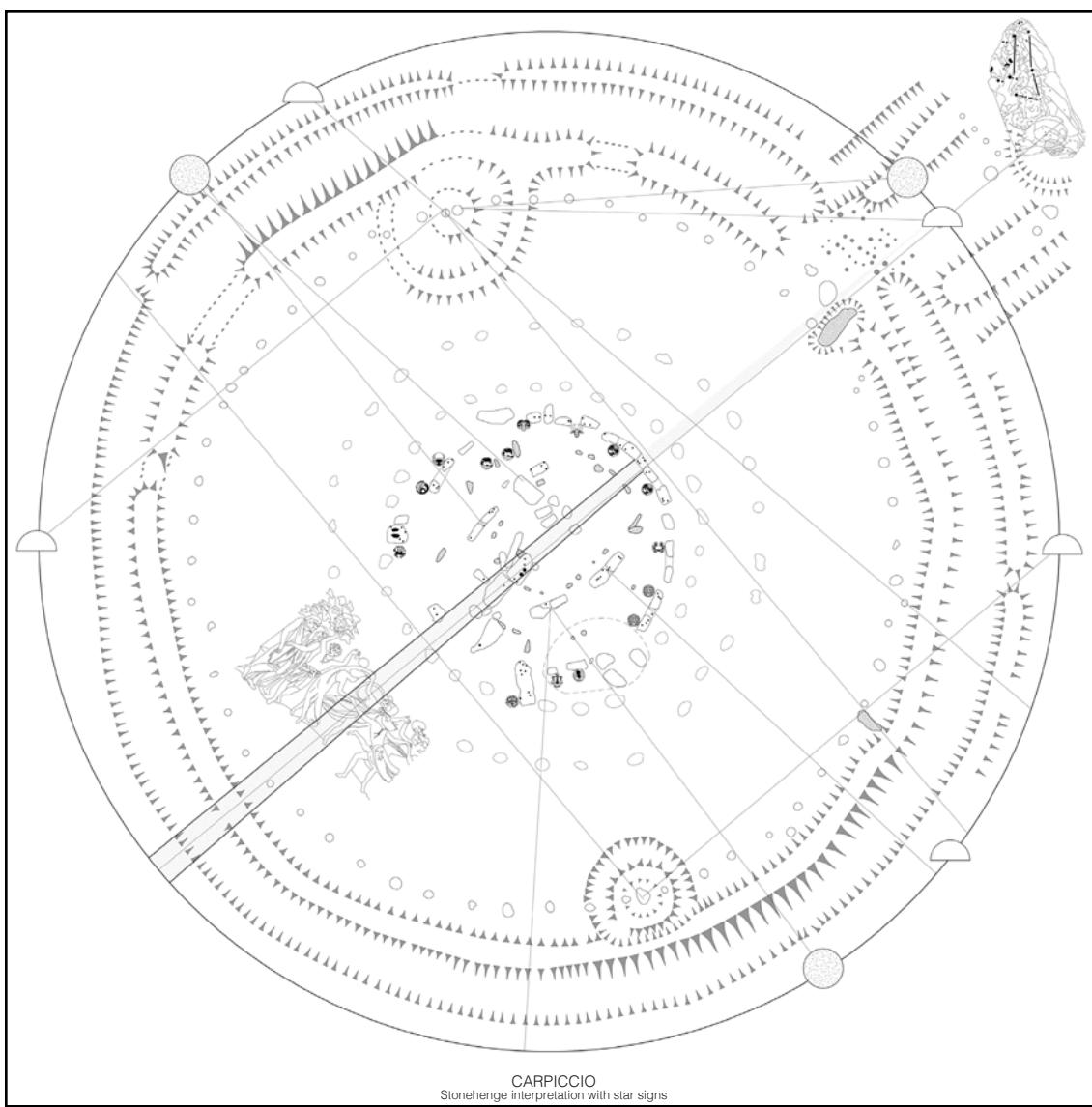
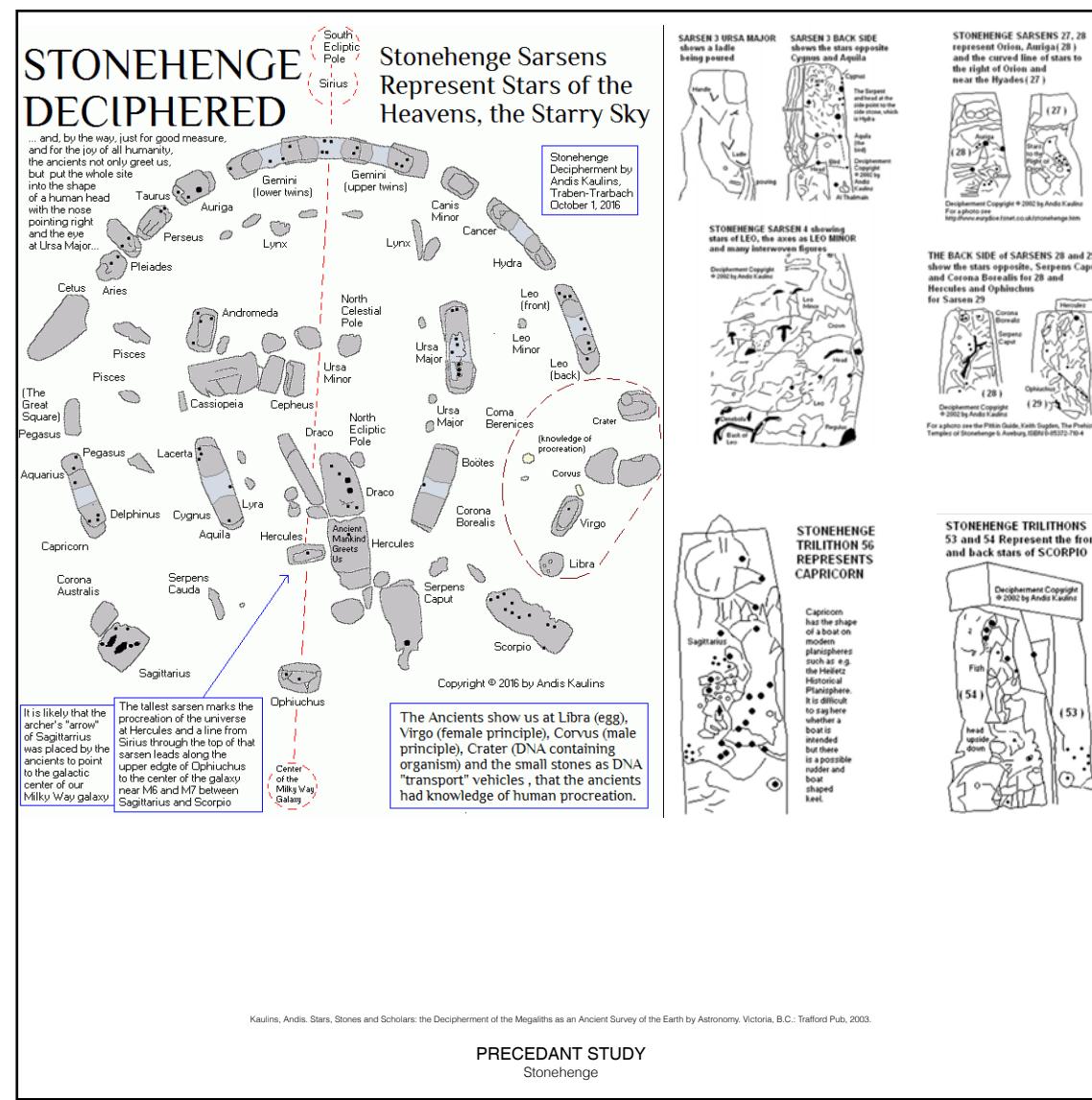


(The Summer Solstice) was reflected as early as 3500BC from the Stonehenge. The Stonehenge represents a reflection of solstices that reflect shadow and light from an array of stones. The Stonehenge reflects the constellations and the zodiacs in the sky.

Suggesting A hybrid tower develops the opportunity to explore the potential of a specific rural urbanism within the Ashdown forest. An existing precedent urban landscape defines the real constraints for a proposed tower that, with respect to the rules set by Stone Henge, must consider the shadow it casts. In this case onto the city context during extreme sun angles, the solstices. A undifferentiated tower casts an un-constrained and non contextually affected shadow upon the new site, a rural urbanscape. The intention is to explore the use of material from the new site to alter the form and therefore the performance of the new tower in direct response and potentially in synthesis with the new site.

Sandstone that makes up the substrate of the site, comes is not uniform, and offers potential as a device to re imagine the tower. With this construction system and a more closely observed context, there is potential to explore shadow and light as mediated by the tower in an attempt to have a positive impact on the landscape with the possibility of creating new spaces . Uneven and non uniform void spaces will generate performance for specific program. And this programme will generate a way of exploring the benefits or not, of inhabiting the landscape more intensively. The central exploration is whether there can be a reciprocal benefit for community and landscape based on the exploitation of a local material and for construction, while respecting the context, through understanding the Analemma and its relationship to a tall building.

The Ashdown forest is made up with The lowland Heath , an ancient substrate that contributes to the health of vegetation and rare species of plants. Currently 20% of the substrate is located in the UK (80% destroyed since the 1800s) and since has been put on the biodiversity action plan to increase the substrate although it's threat of overgrowing and afforestation requires a new solution. The Ashdown forest bitch tree poses a threat to this. The hybrid tower can help grow this through the placement of areas among the tower . The site dips in elevation from 120m above sea level at the bottom Of Blackhill to 220m at Blackhill peak which presents a opportunity for a hybrid tower to blend within the substrate.

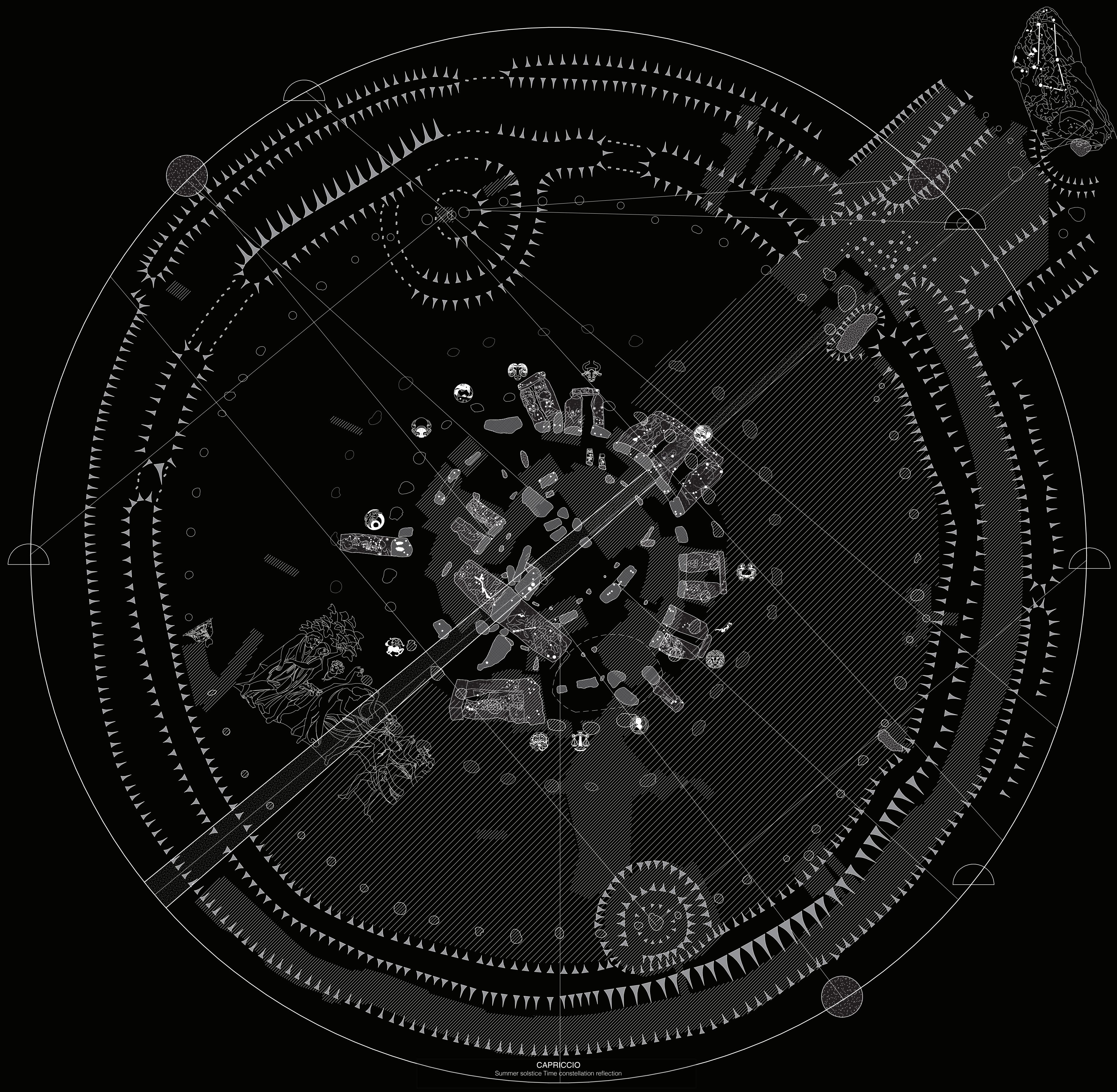


Hardy, J. ed. "MOON THEATRE BOURGIGNON" PIECE by PIECE LEARNING FROM PETER RICE, n.d.

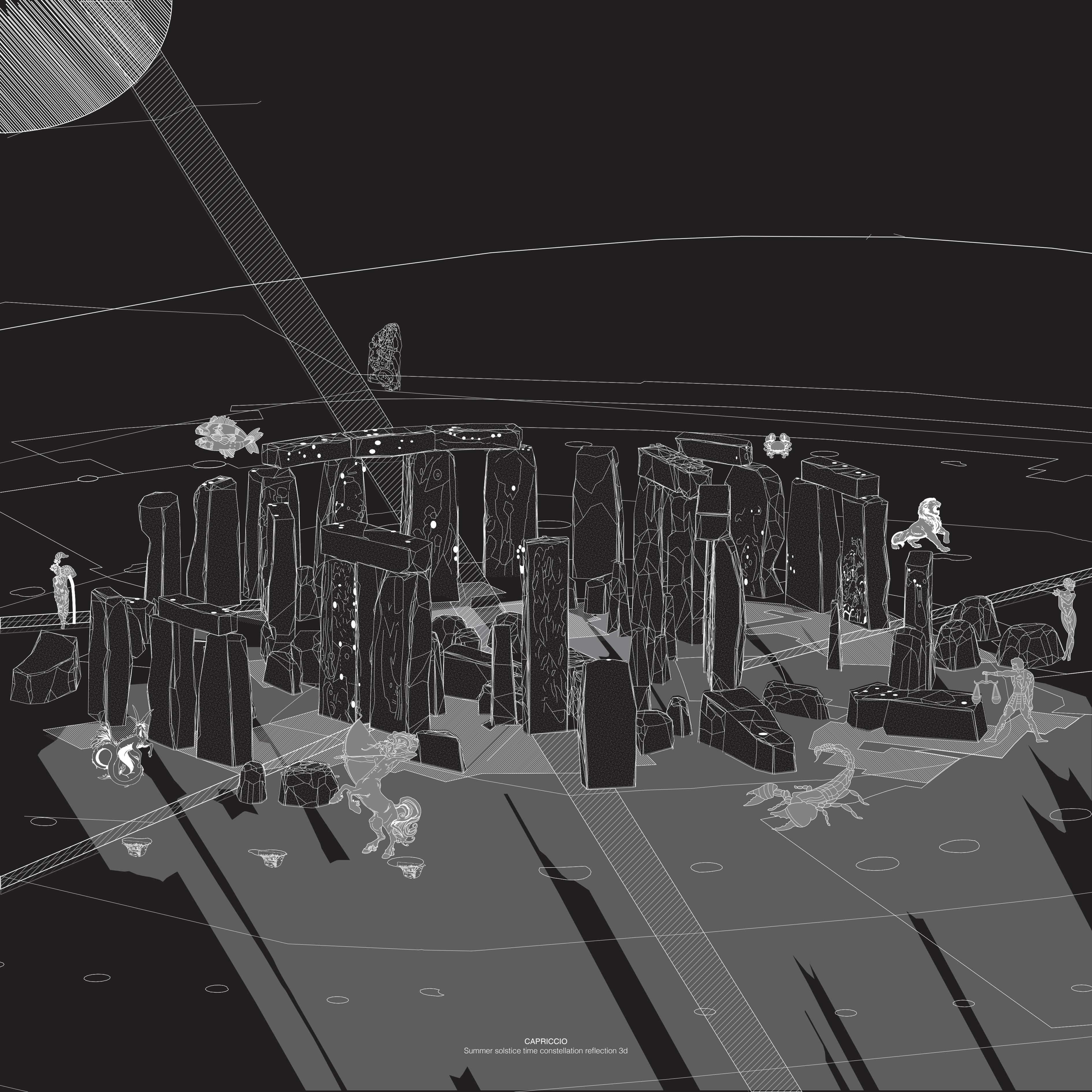
PRECEDANT STUDY

INTANGIBLE HERITAGE
Visual Index - See process book

CAPRICCIO
Summer solstice time



CAPRICCIO
Summer solstice Time constellation reflection



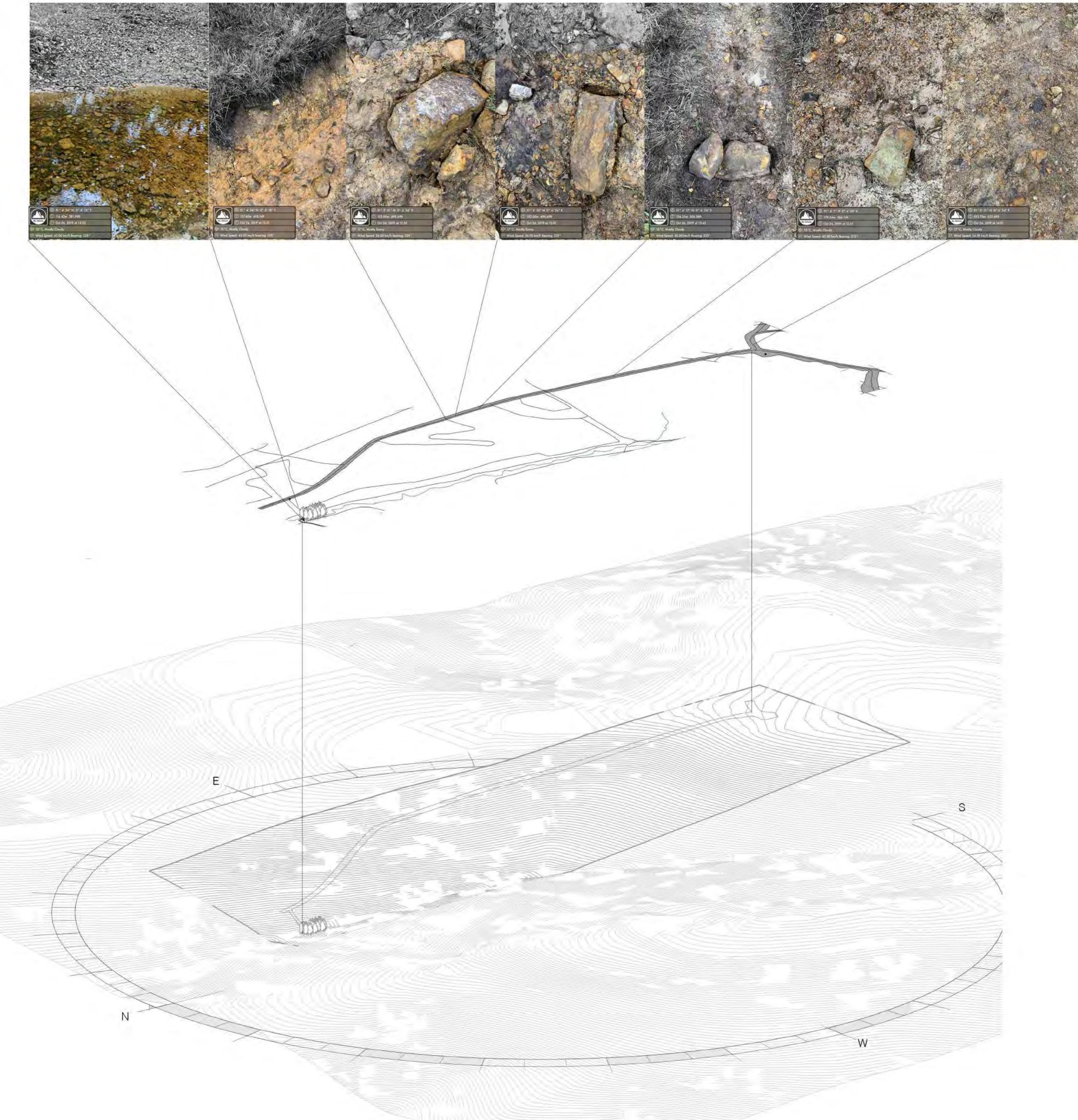
CAPRICCIO
Summer solstice time constellation reflection 3d



TOTEM CAPRICCIO
Interpretation

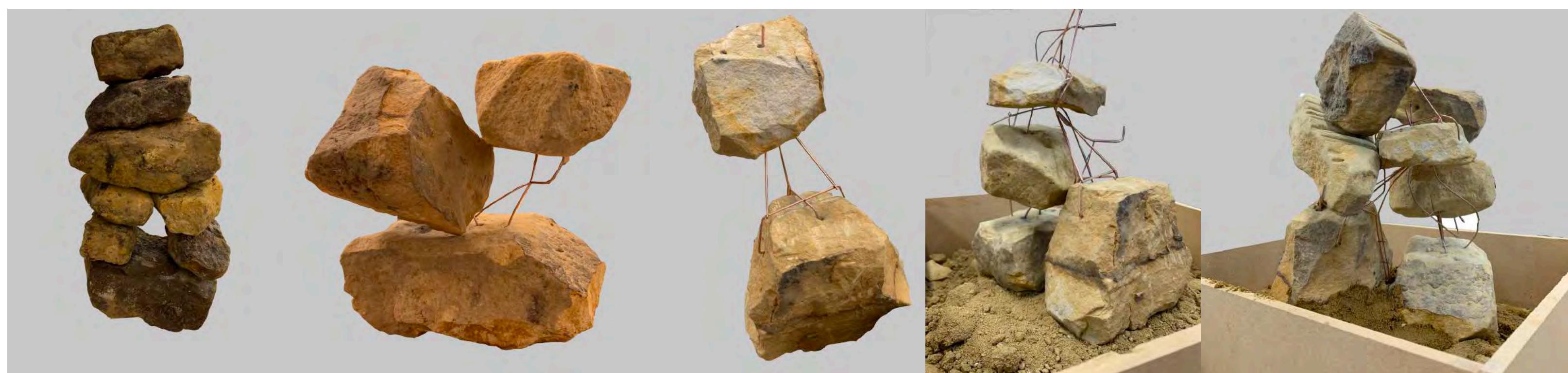


ASHDOWN FOREST
Site photos



Ashdown Forest a 13th century Deer pale translates to a place of natural elements. The Ashdown forest birch tree line overshadows the ground leading to loss of sunlight. Sandstone supports heathland and mixes with other stone. Real change is understood by staying in one place which stone generally falls into this category. A piece affects the area in terms of footprint. The stones flaws and fissures are the qualities of the way a stone has been laid in the earth and offers openings through change. Looking into the centre of stone restores back time. The Sandstone remains irregular and organic. The stone Totem translates time through the contours and shape. The position being the position of 3 totems between BlackHill and Chuckhatch to translate direction, shadow and light reflected strategically towards the ground when the sun is at its lowest point.

STONE POSITION
Stone Relocation



STONE TOTEM
Translation of Site,Time,Position,Light & Shadow



a



b

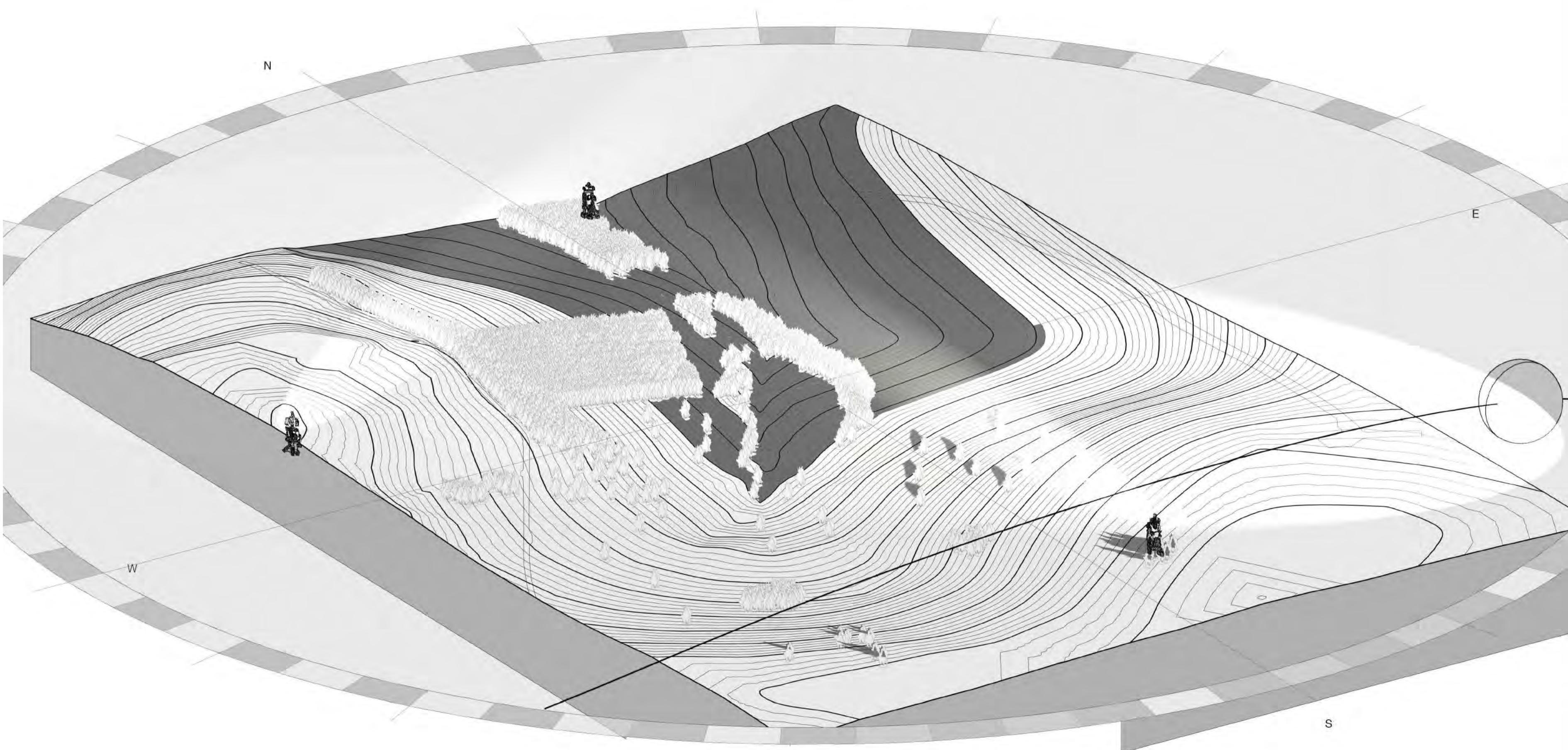
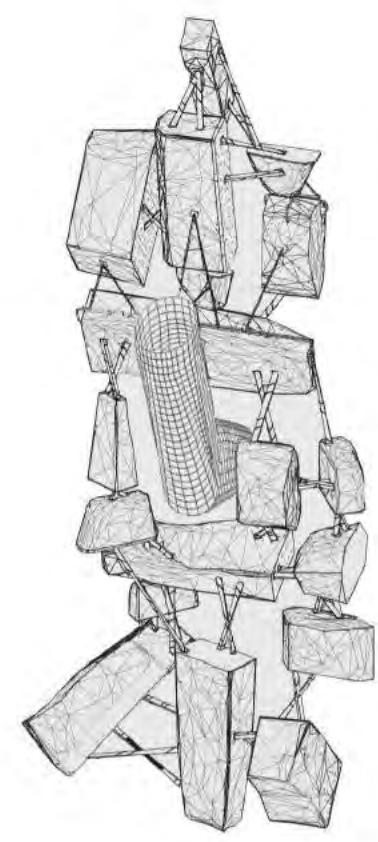


c

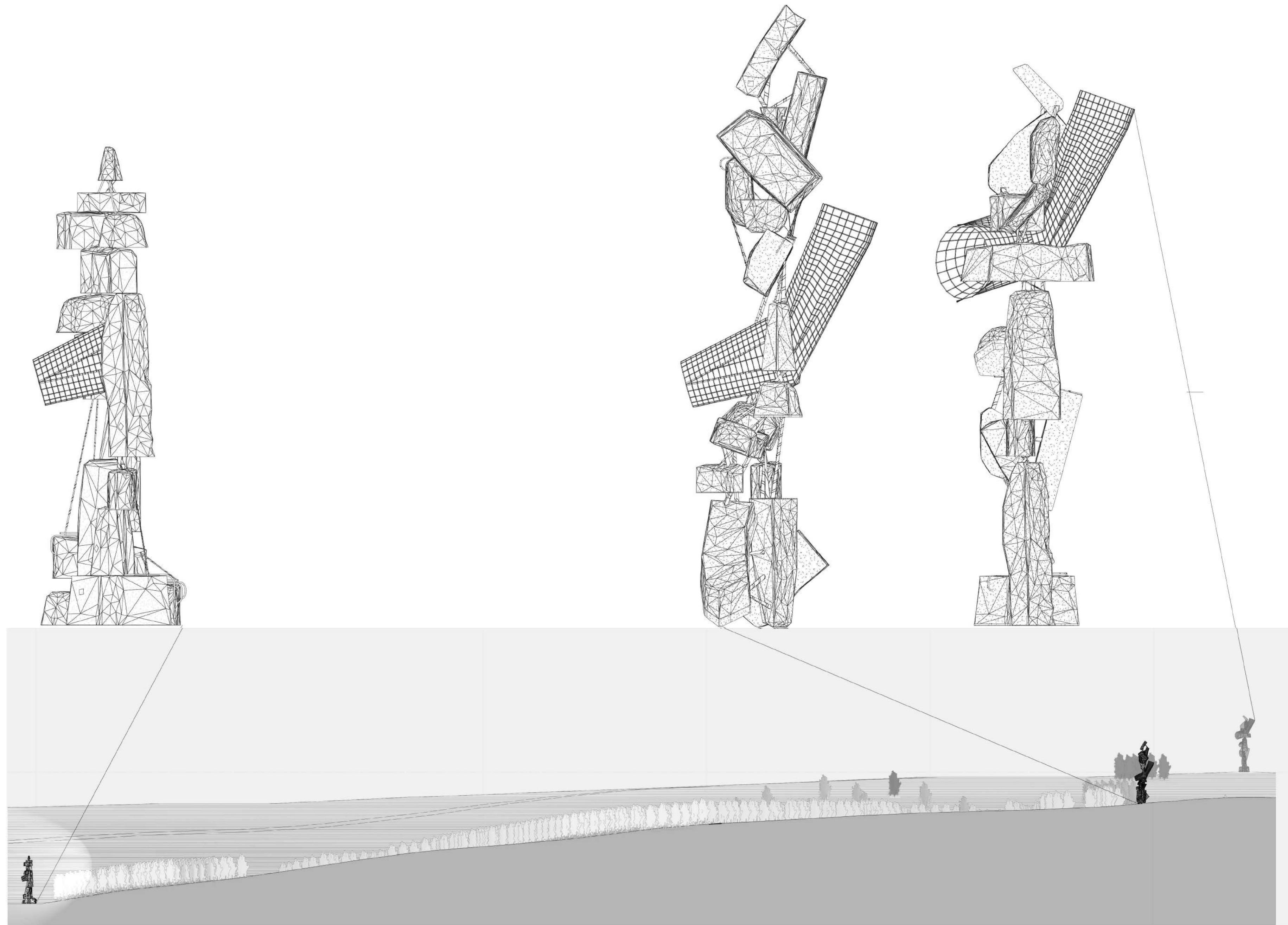


d

a: Heather
b: Gorse
c: Acid Grassland
d: Bracken



SOLAR LIGHT POSITIONING
21/12 Solar Reflection on Topography Change



SOLAR LIGHT POSITIONING
21/12 Solar Reflection section



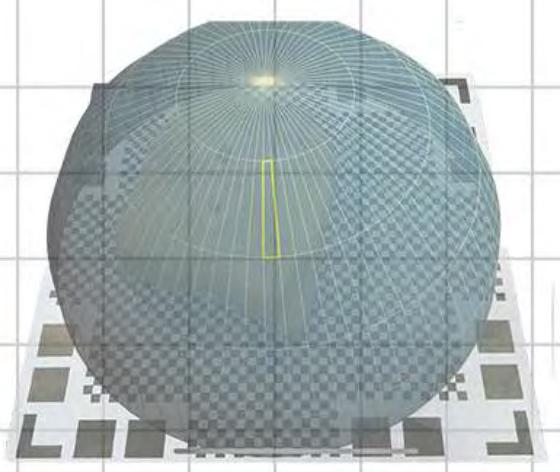
BLACK HILL PHOTO MONTAGE
21/12 Solar Reflection on Gills Hill



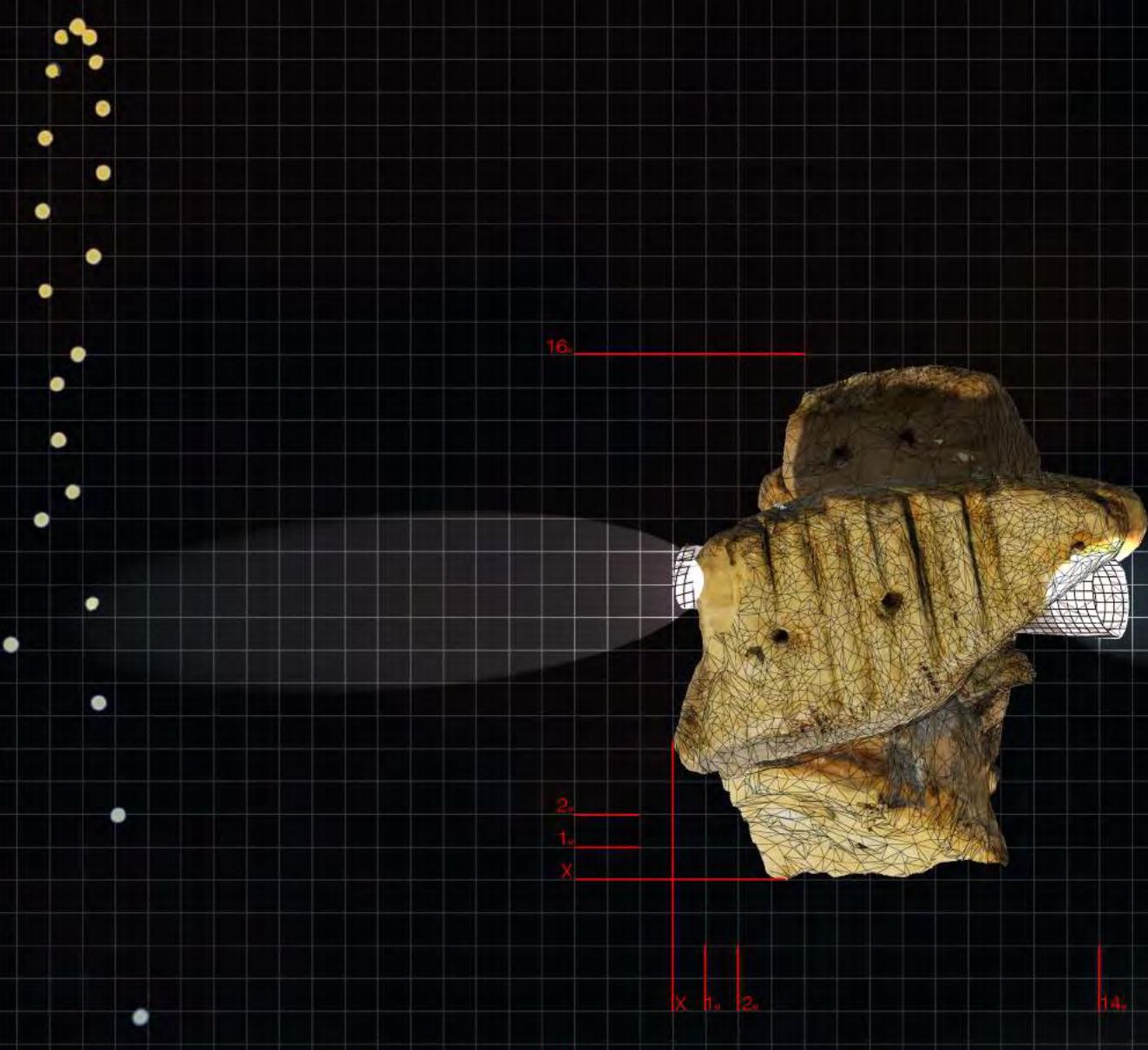
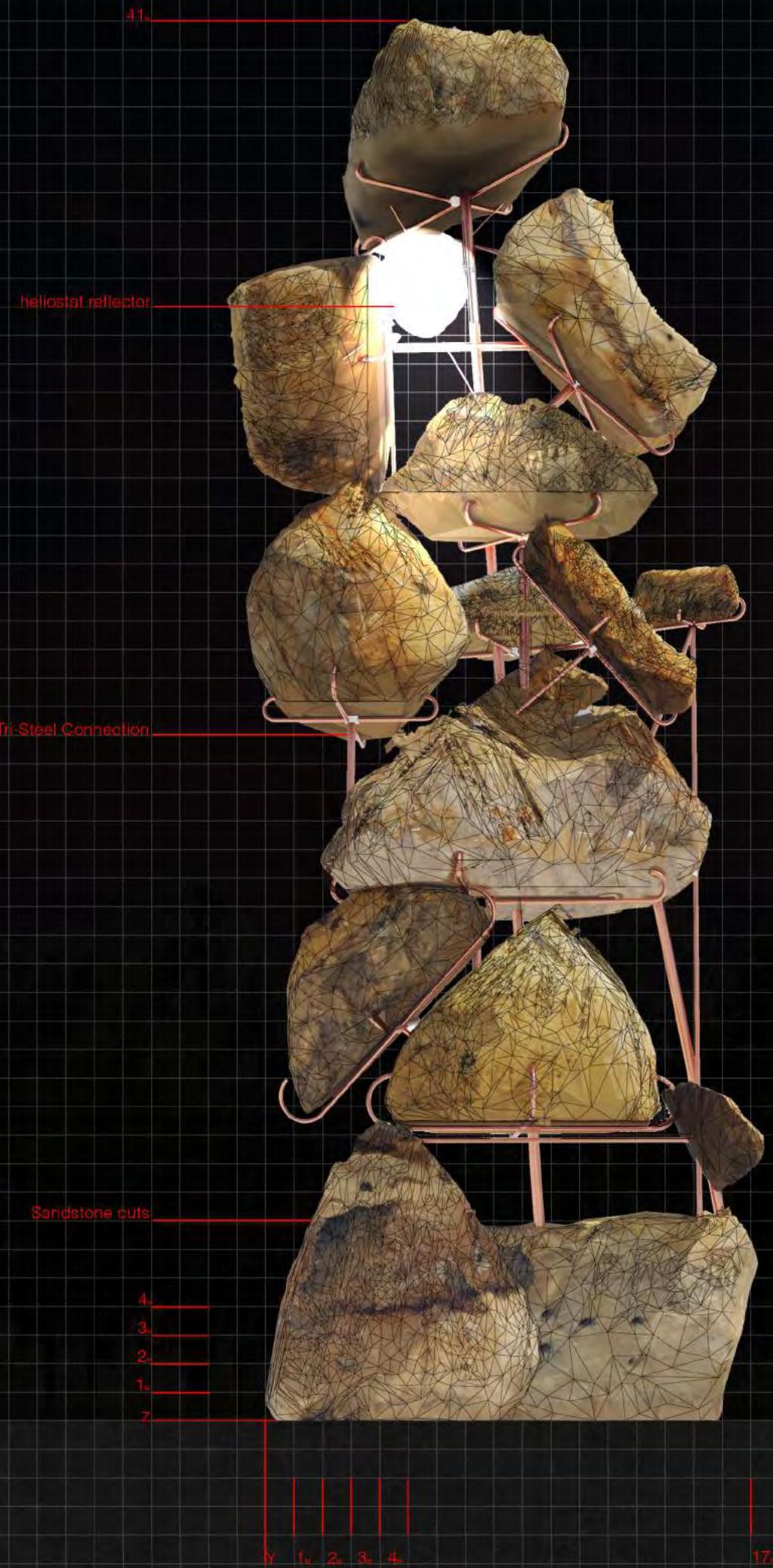
BLACK HILL PHOTO MONTAGE
21/12 Solar Reflection



PHOTO MONTAGE
21/12 Solar Reflection



STONES 3D SCANNED
Augmented reality



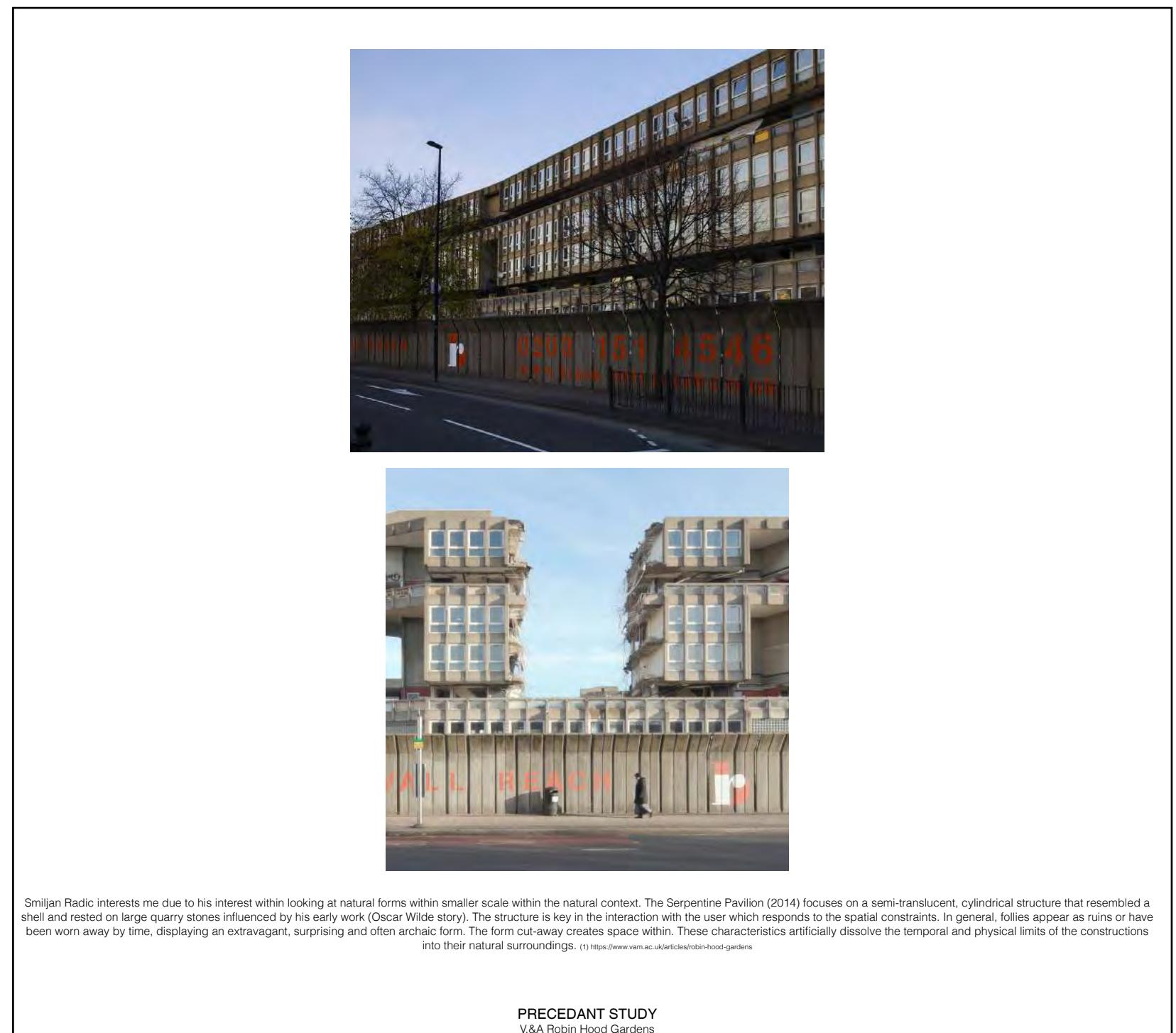
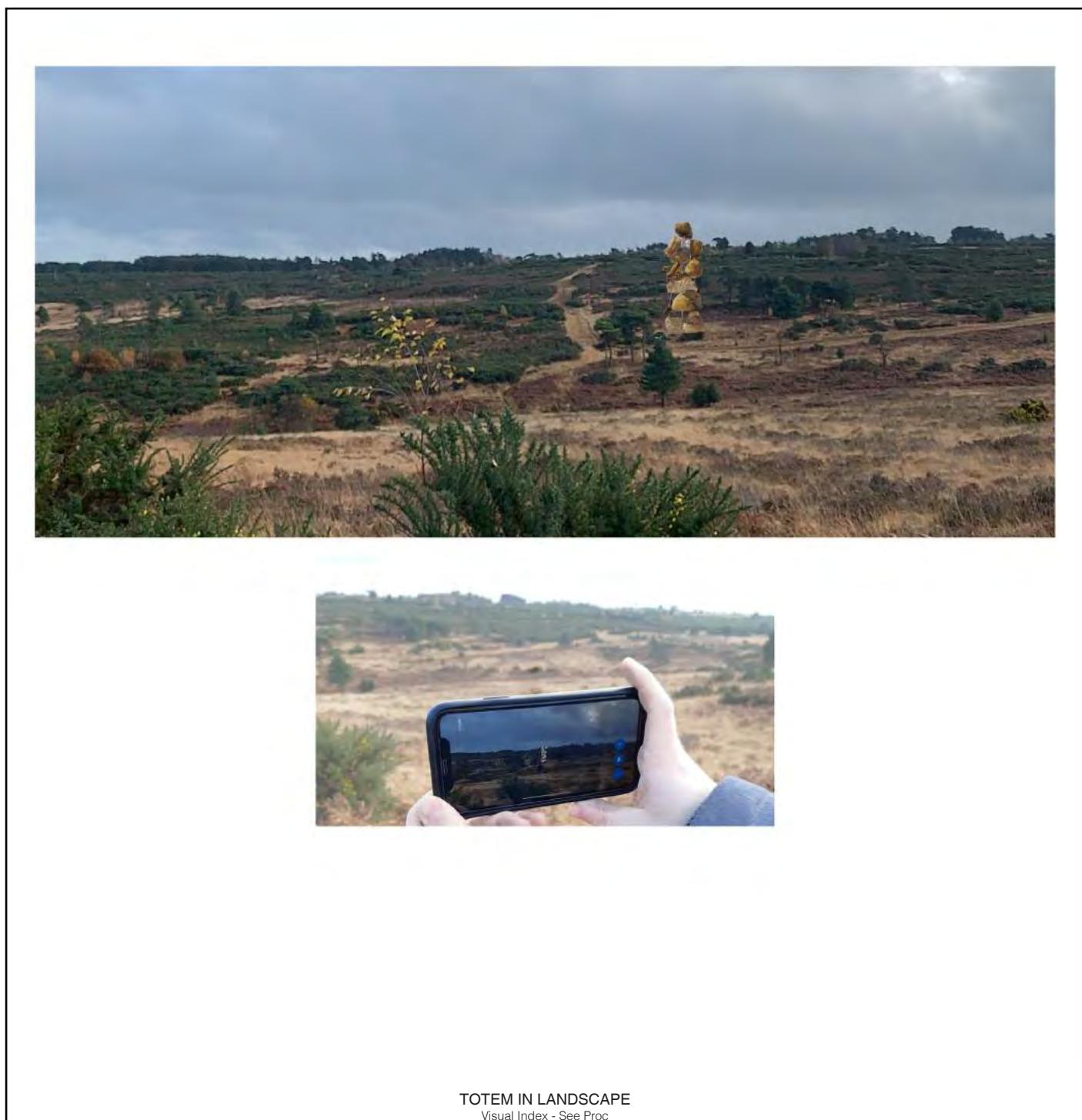
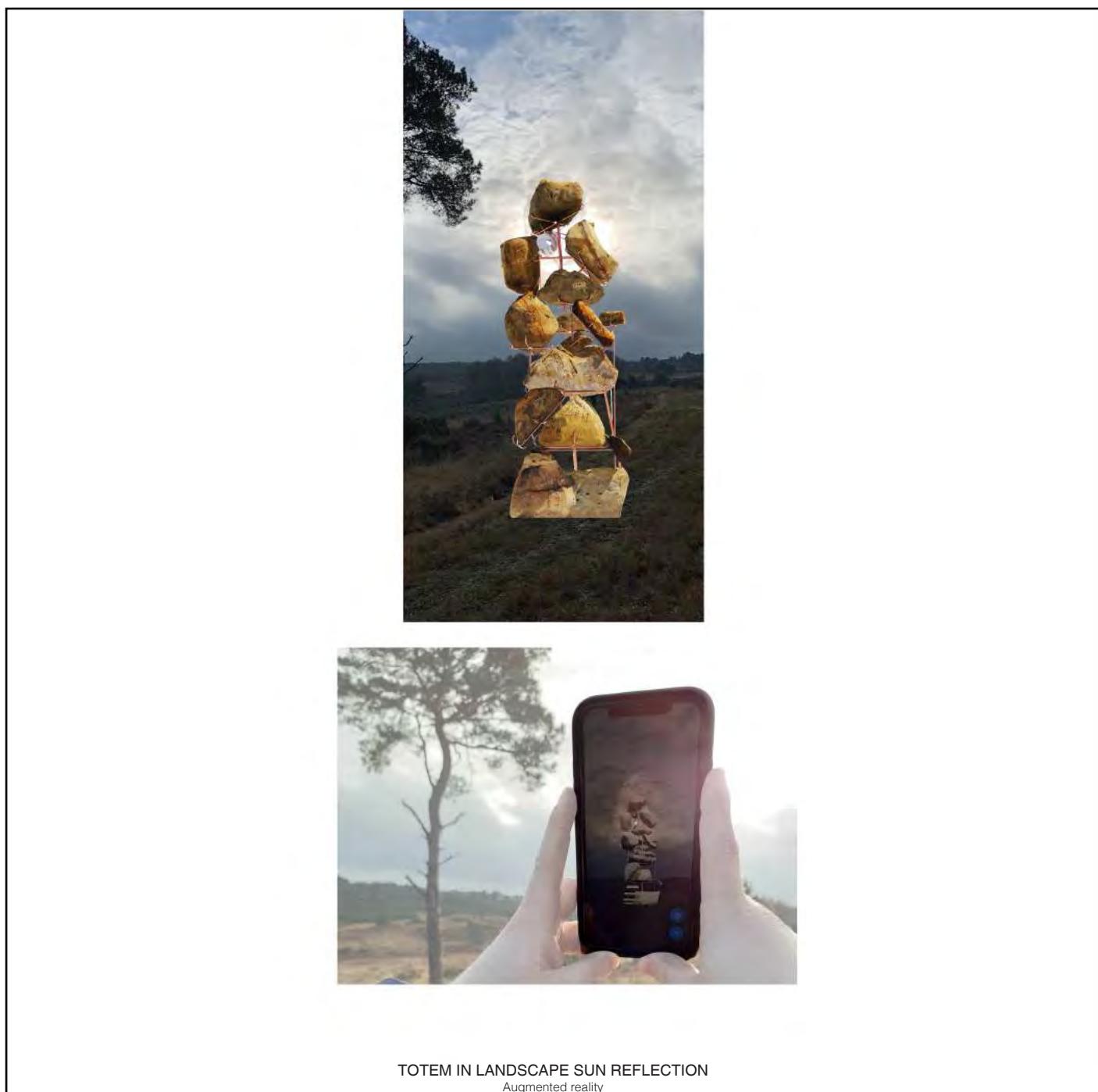
TOTEM PIECE
Lighting the site



TOTEM PIECE
Site position Augment reality - Augment App

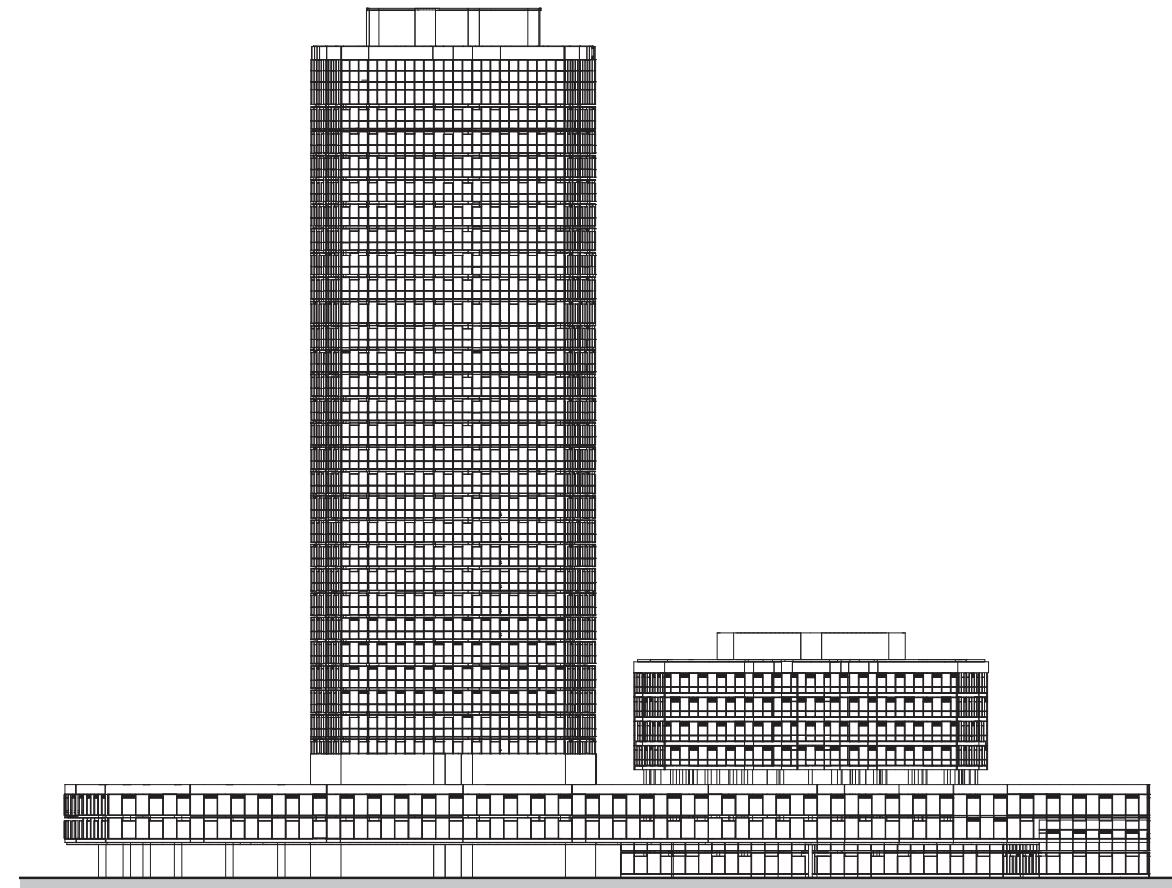


AUGMENT

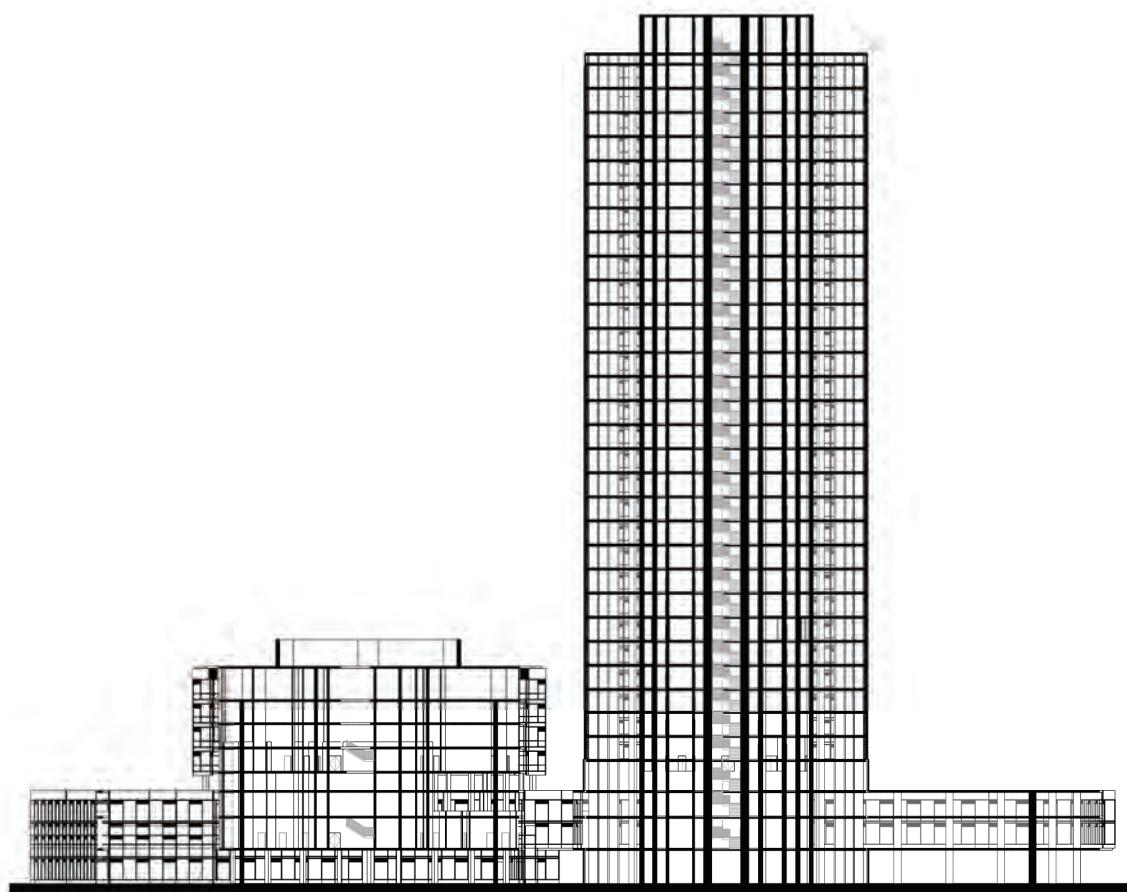


TOTEM IN LANDSCAPE
Visual Index - See process book

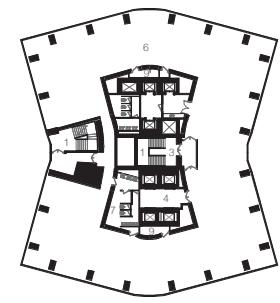
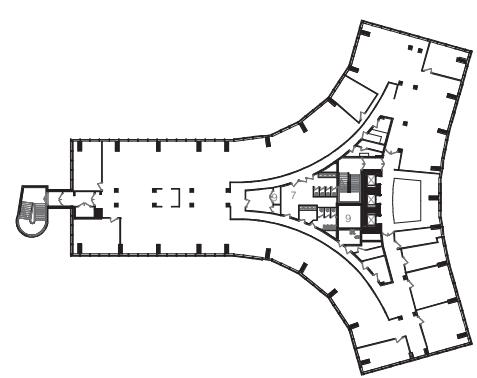
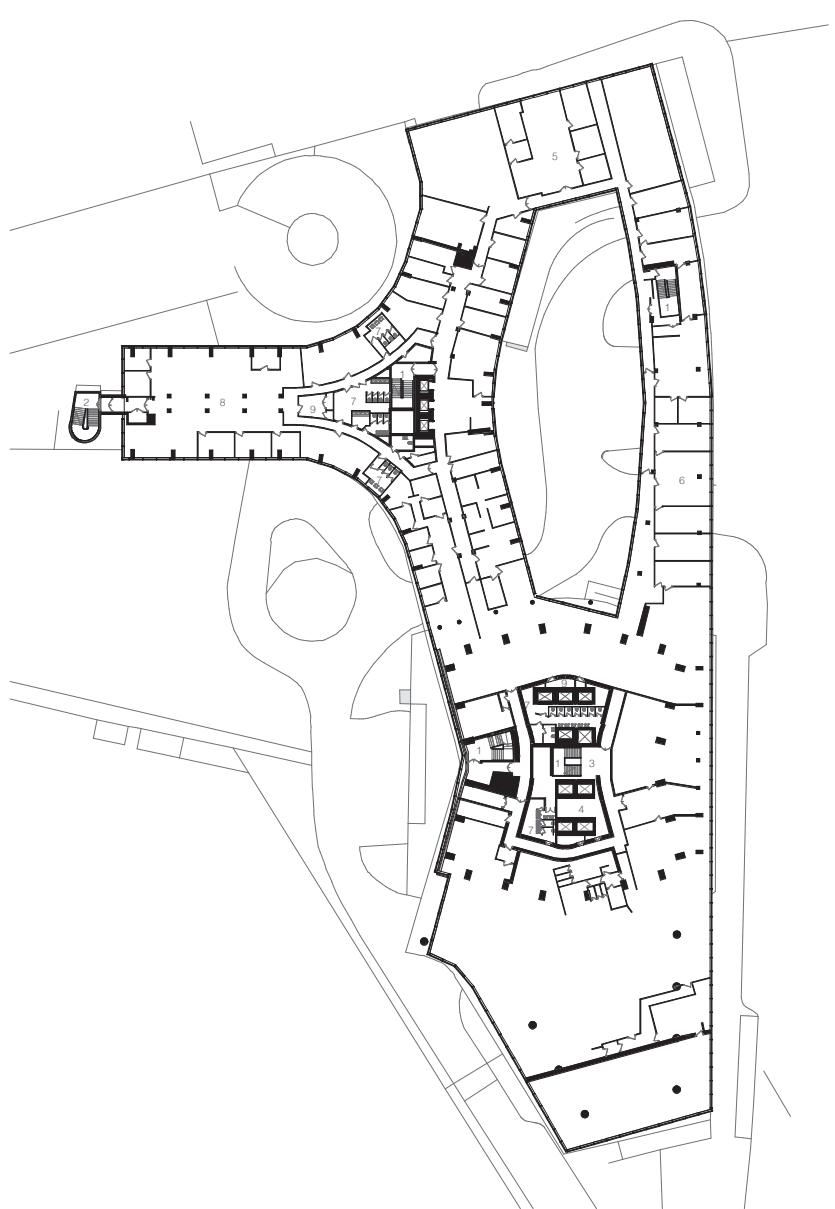
MILLBANK TOWER
RONALD WARD & PARTNERS



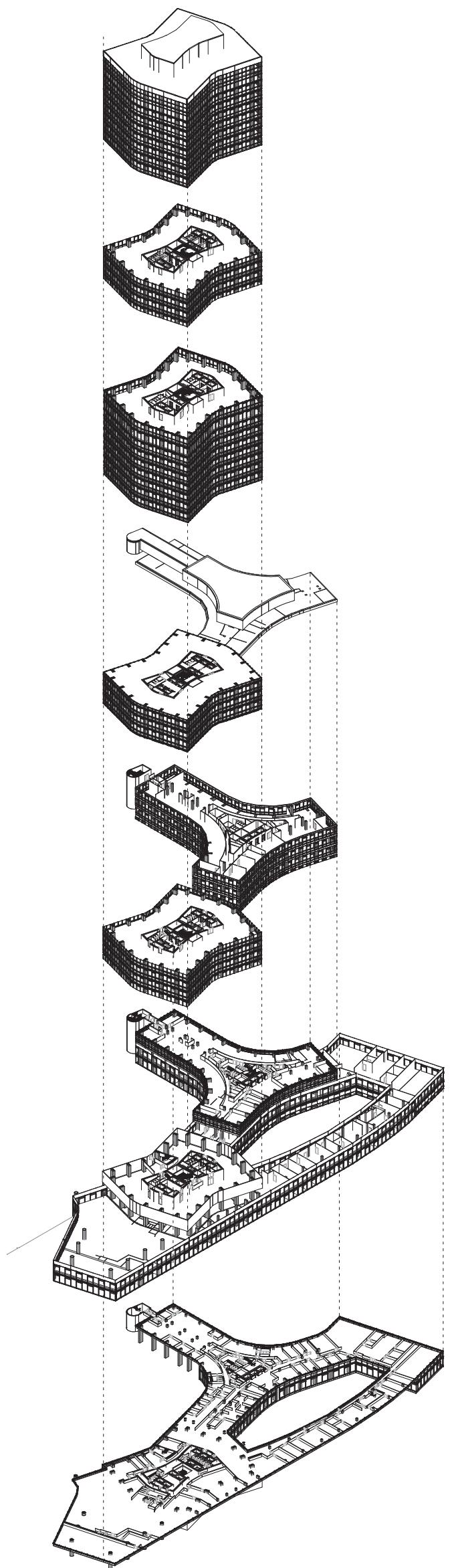
Front elevation of The Millbank Tower



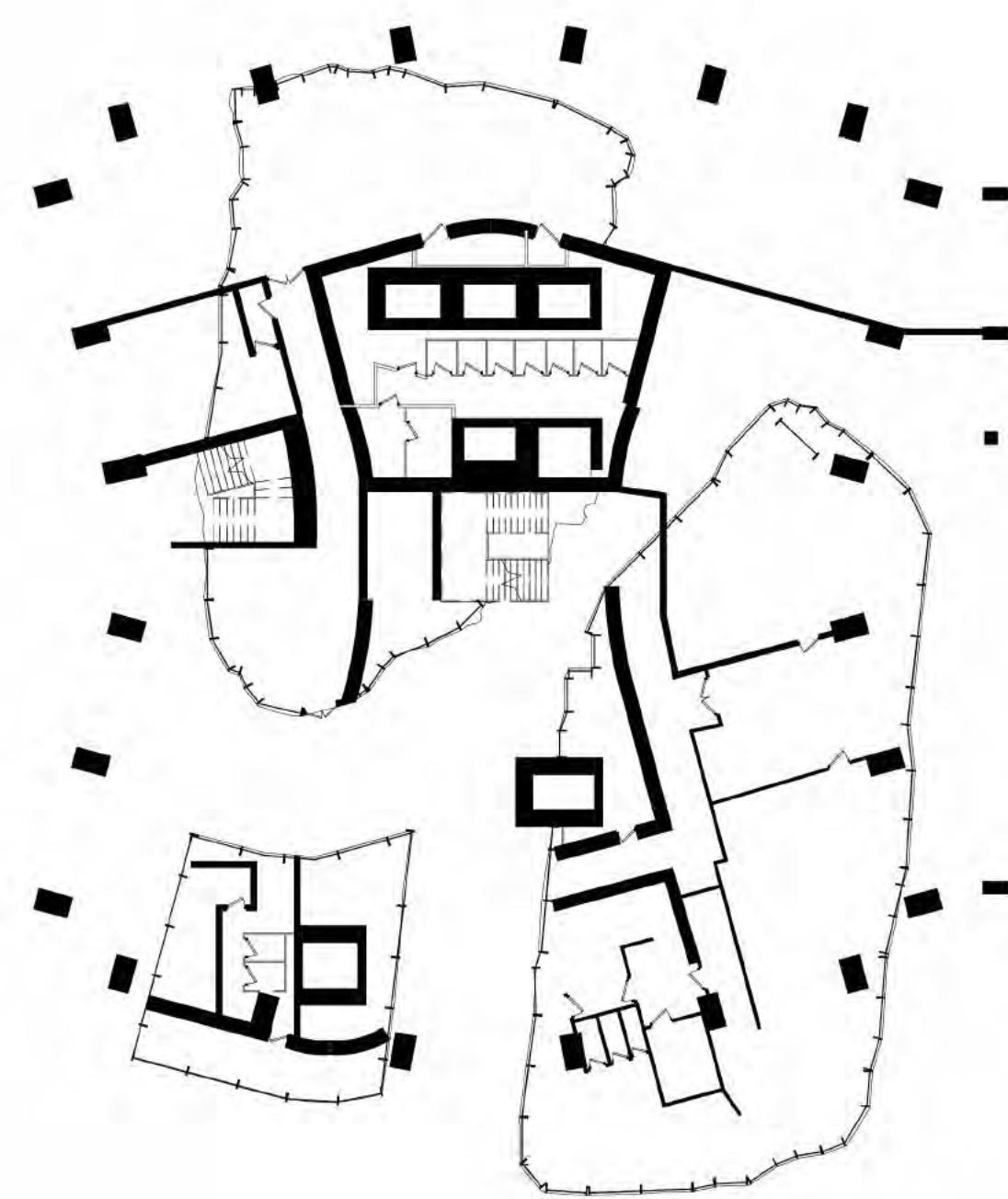
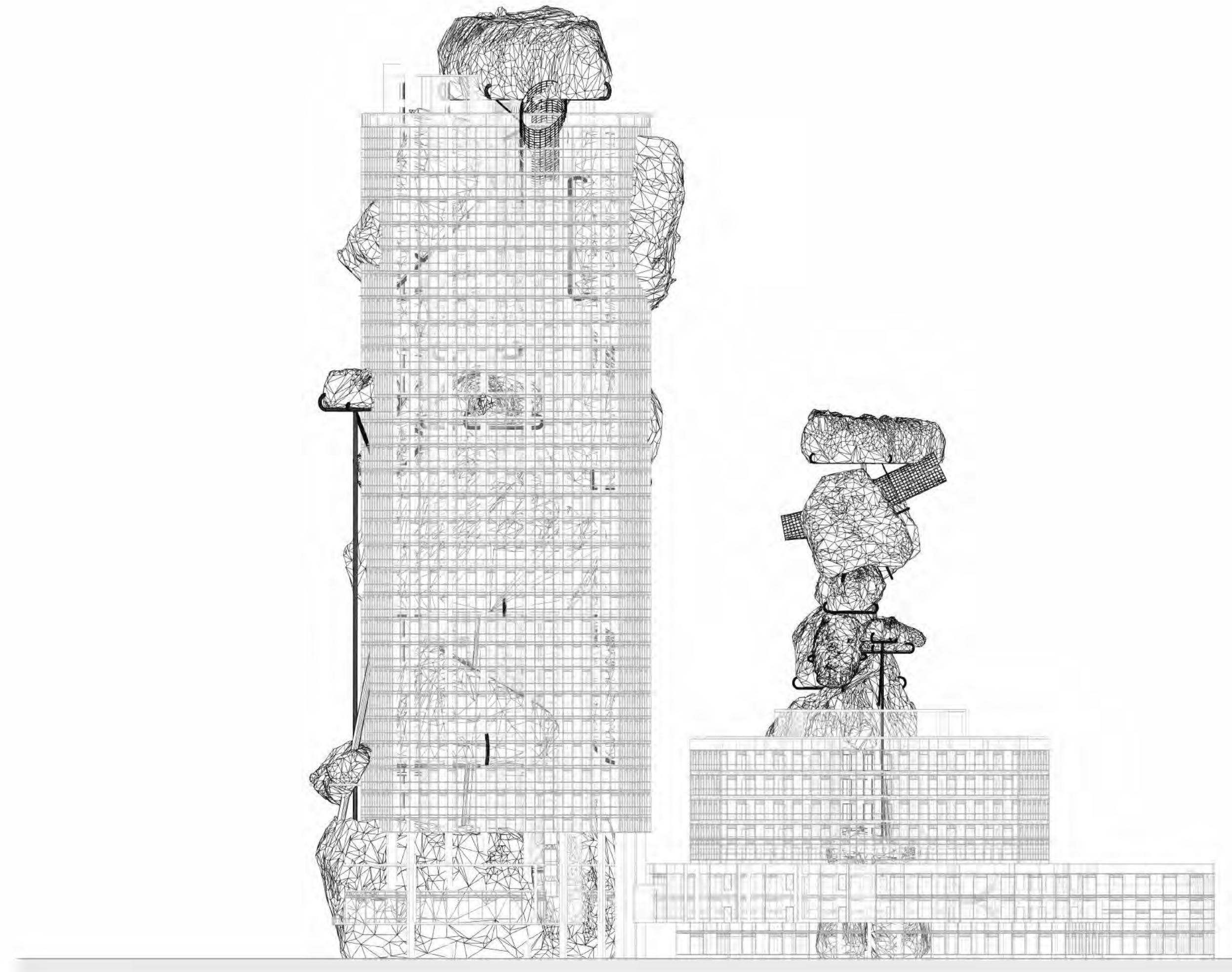
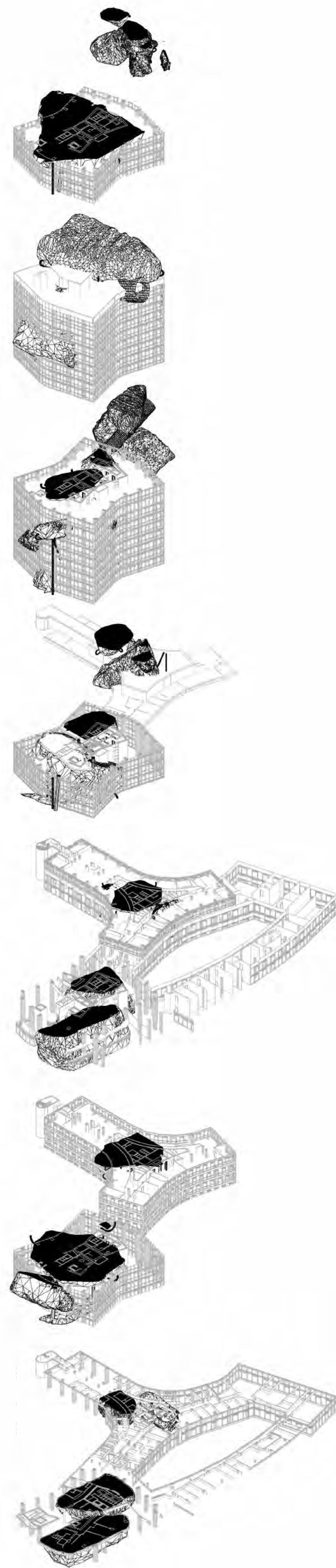
Section of The Millbank Tower



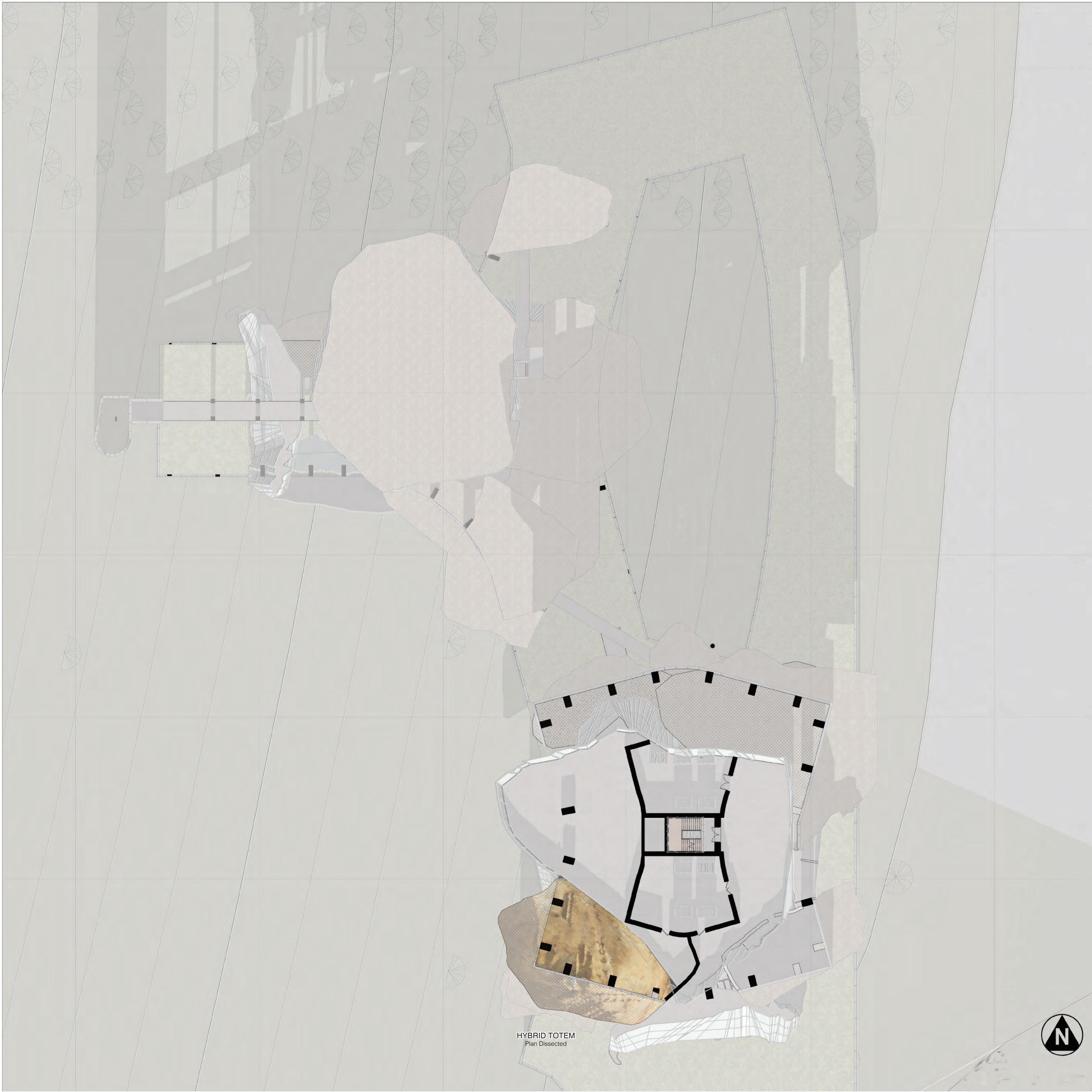
MILLBANK TOWER
Precedent Study



MILLBANK TOWER
Precedent Study

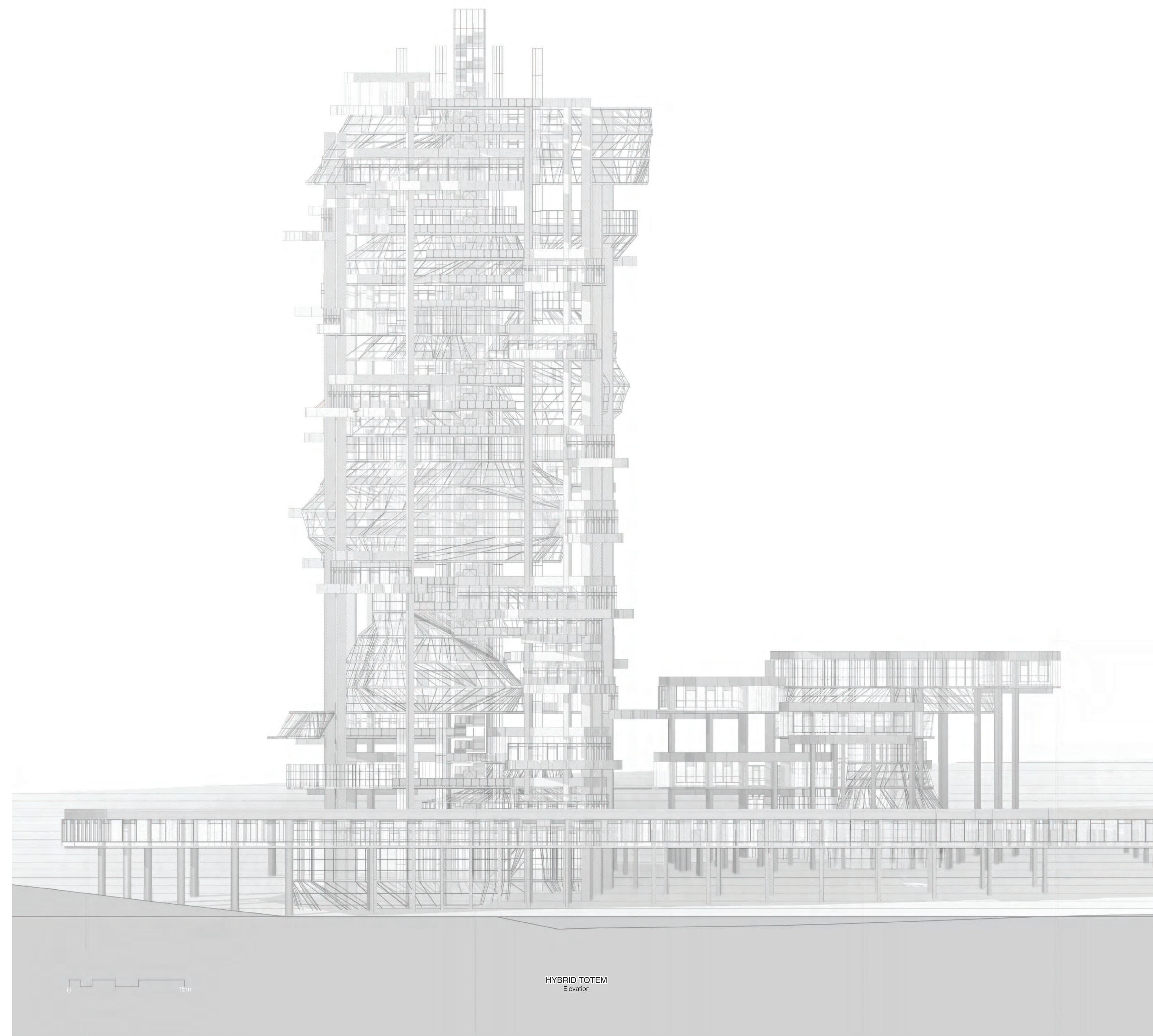


TYPОLOGY INVESTIGATION
Totem pieced into precedent



HYBRID TOTEM
Plan Dissected



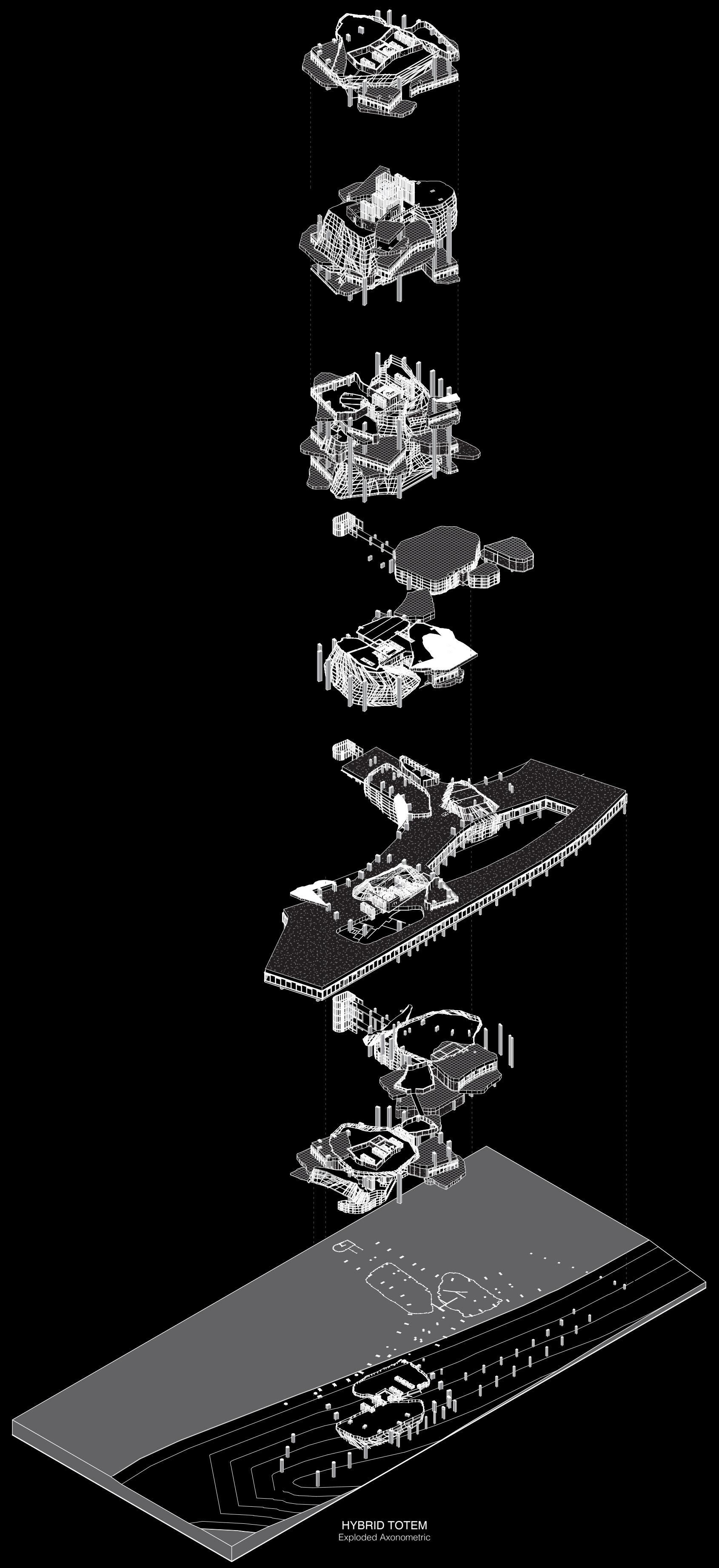


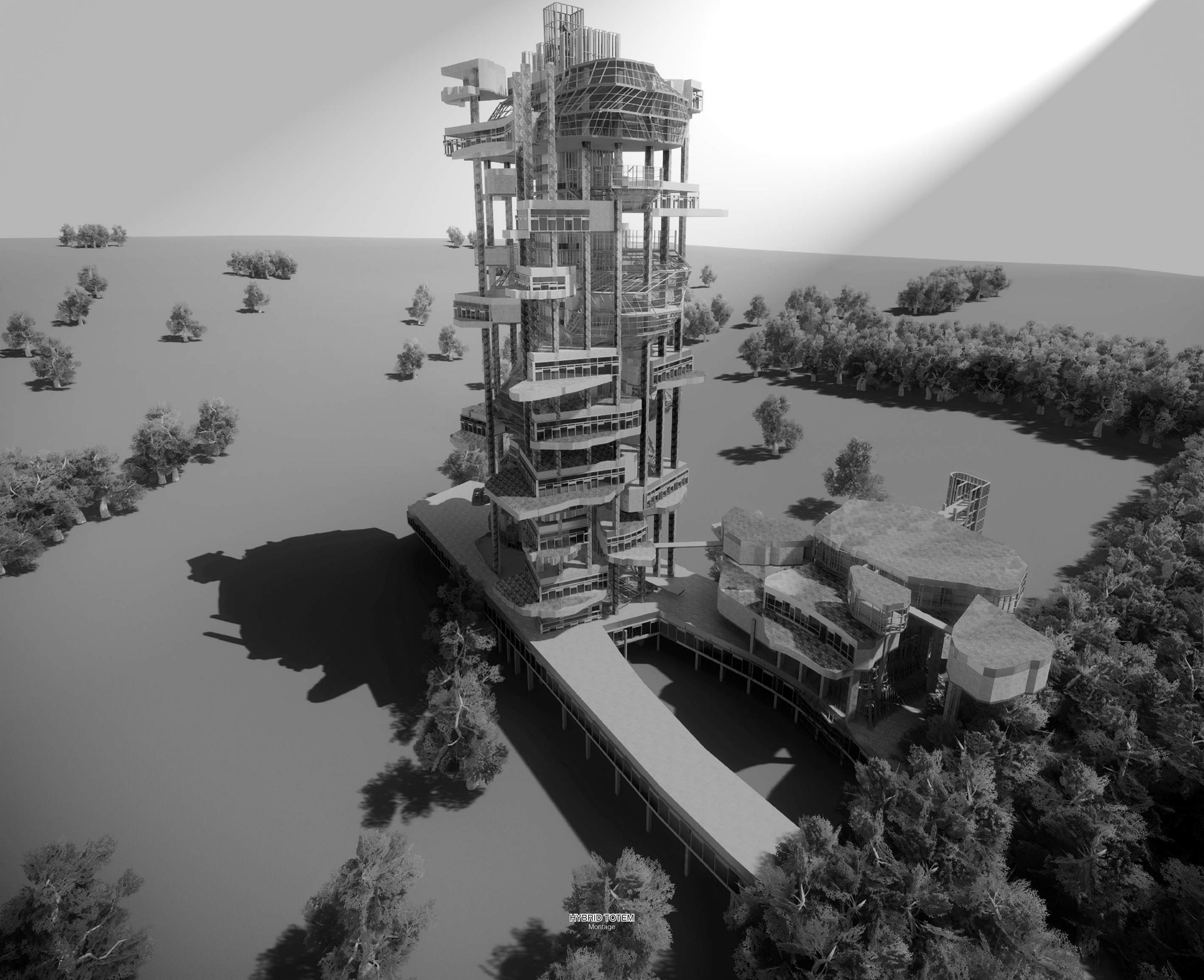
0 15m

HYBRID TOTEM
Elevation

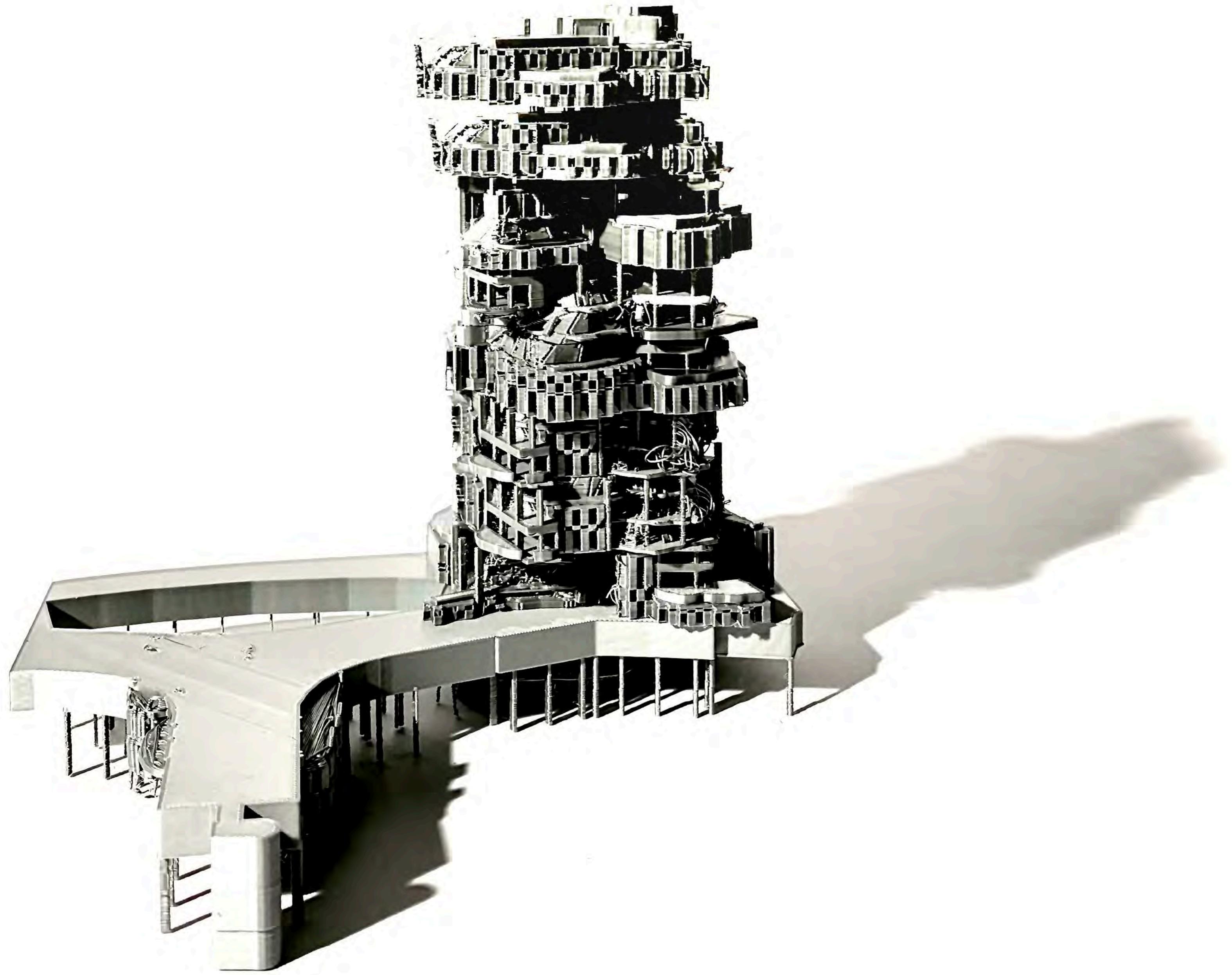


HYBRID TOTEM
Section

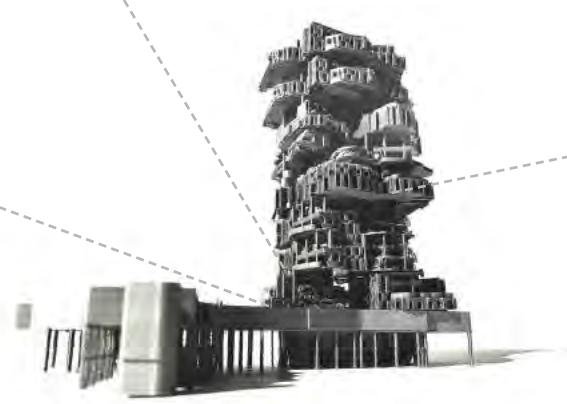
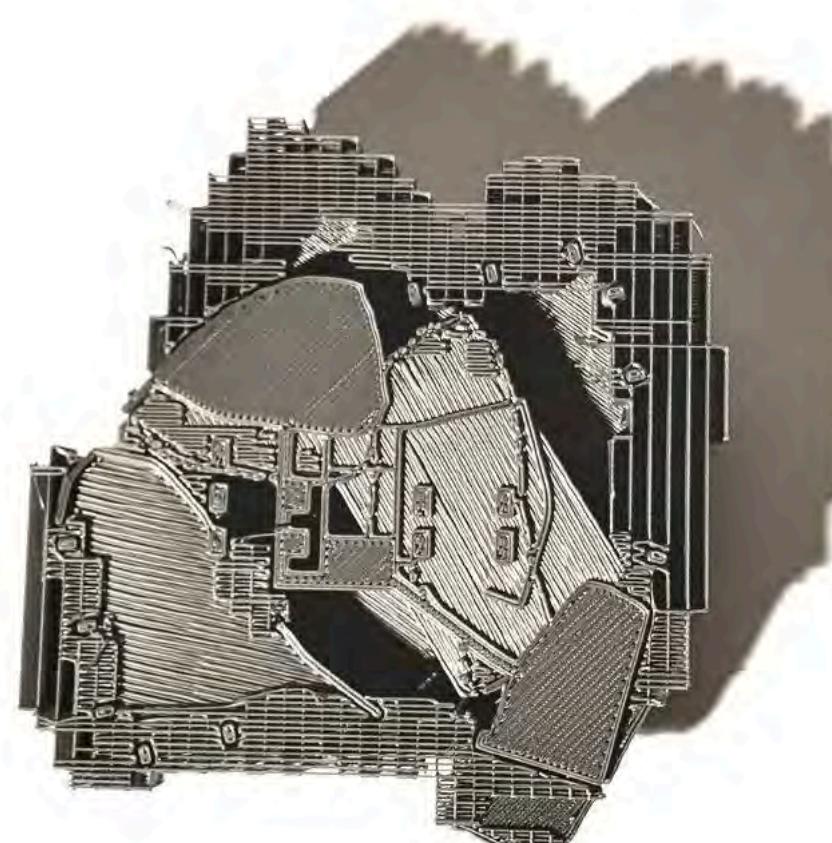
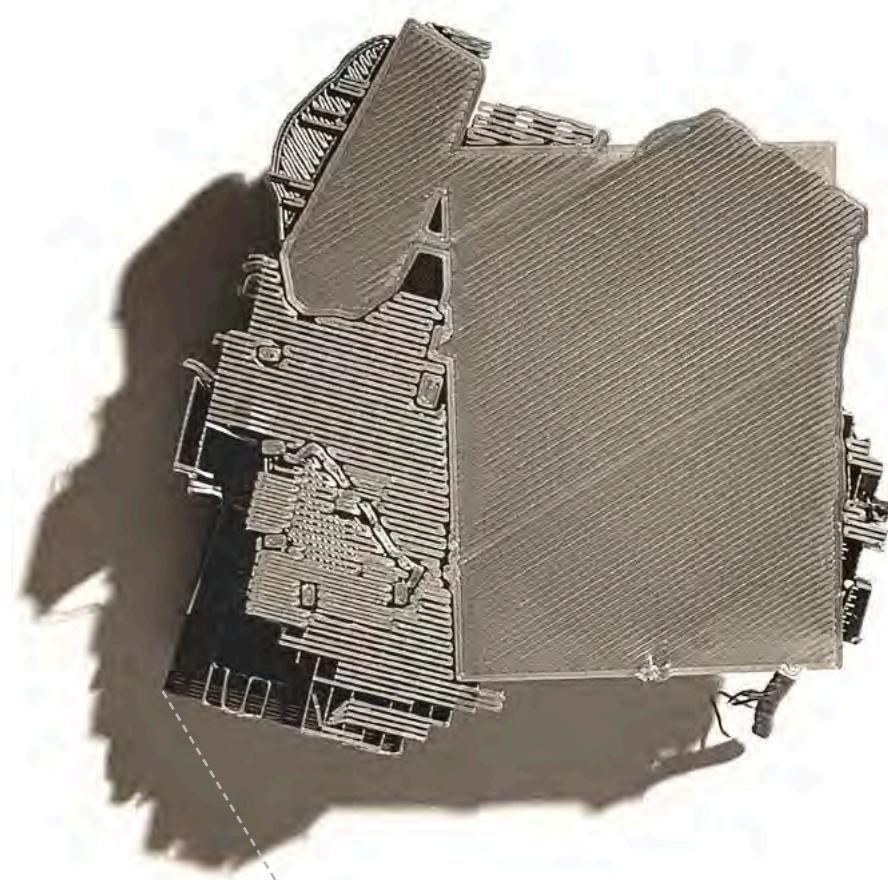
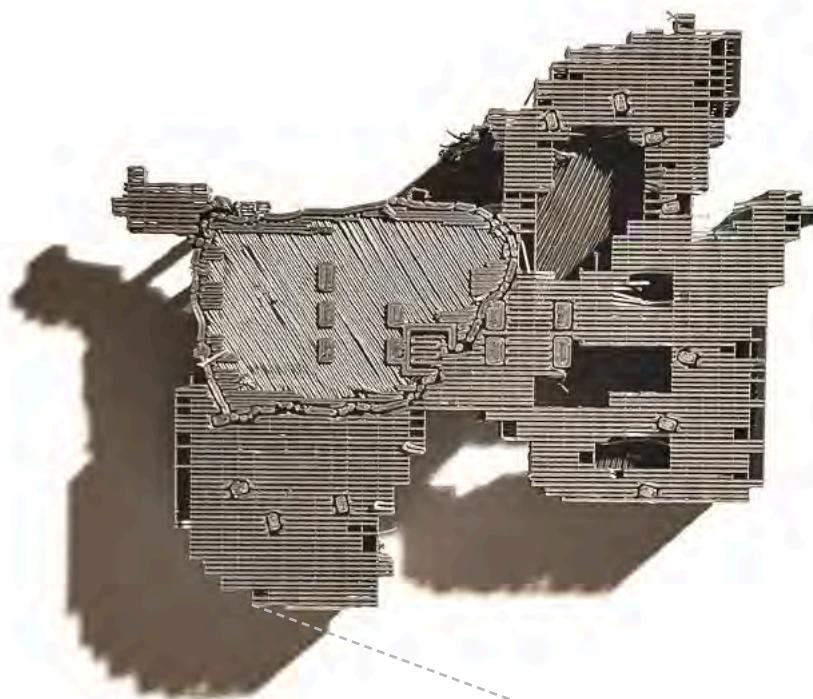
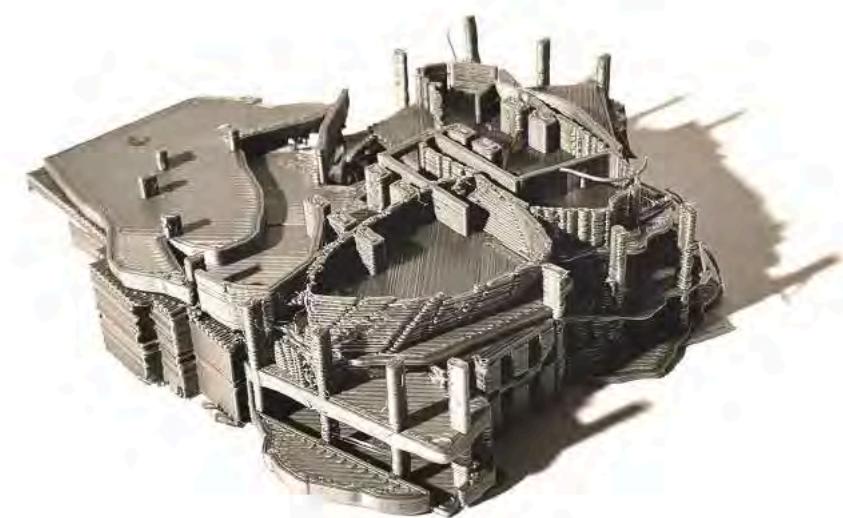
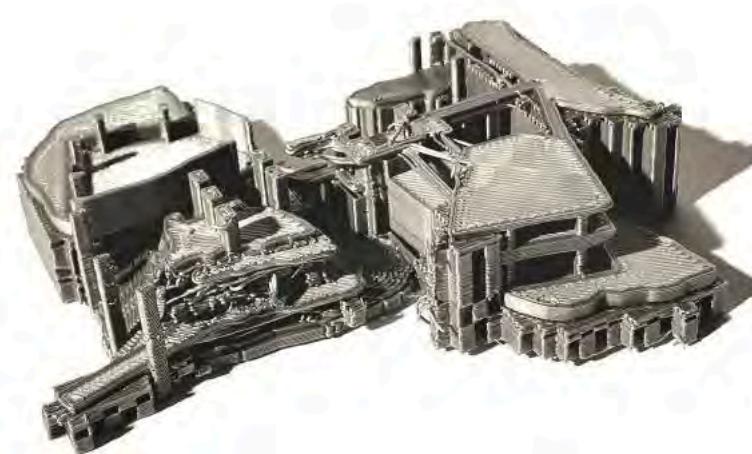
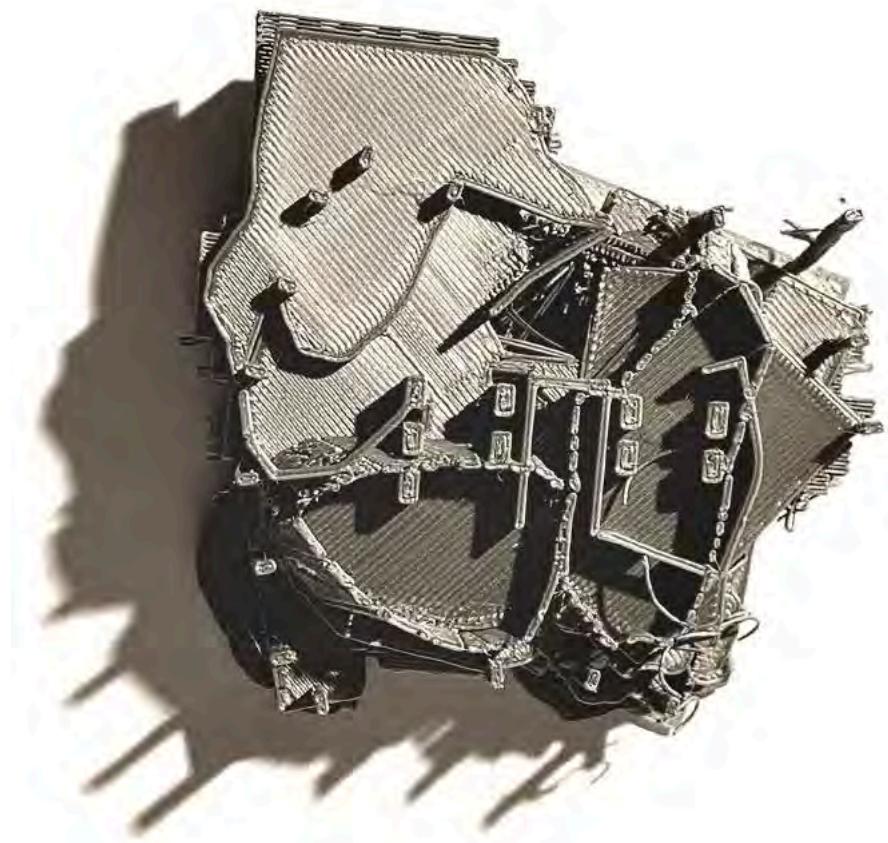
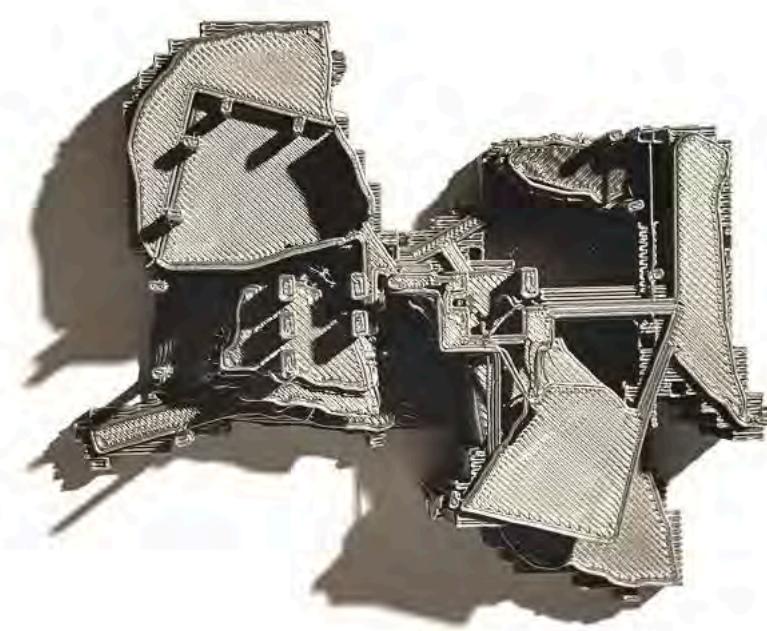




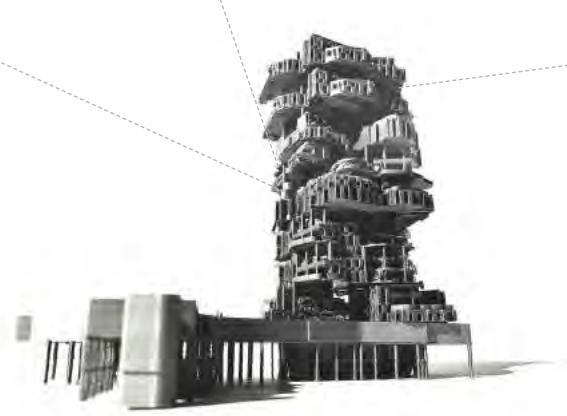
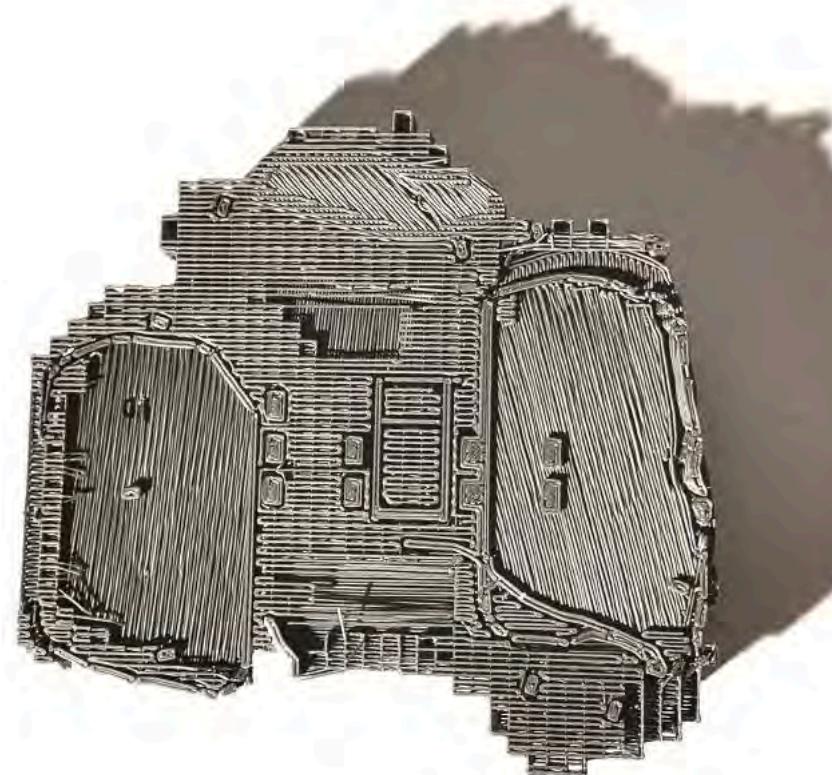
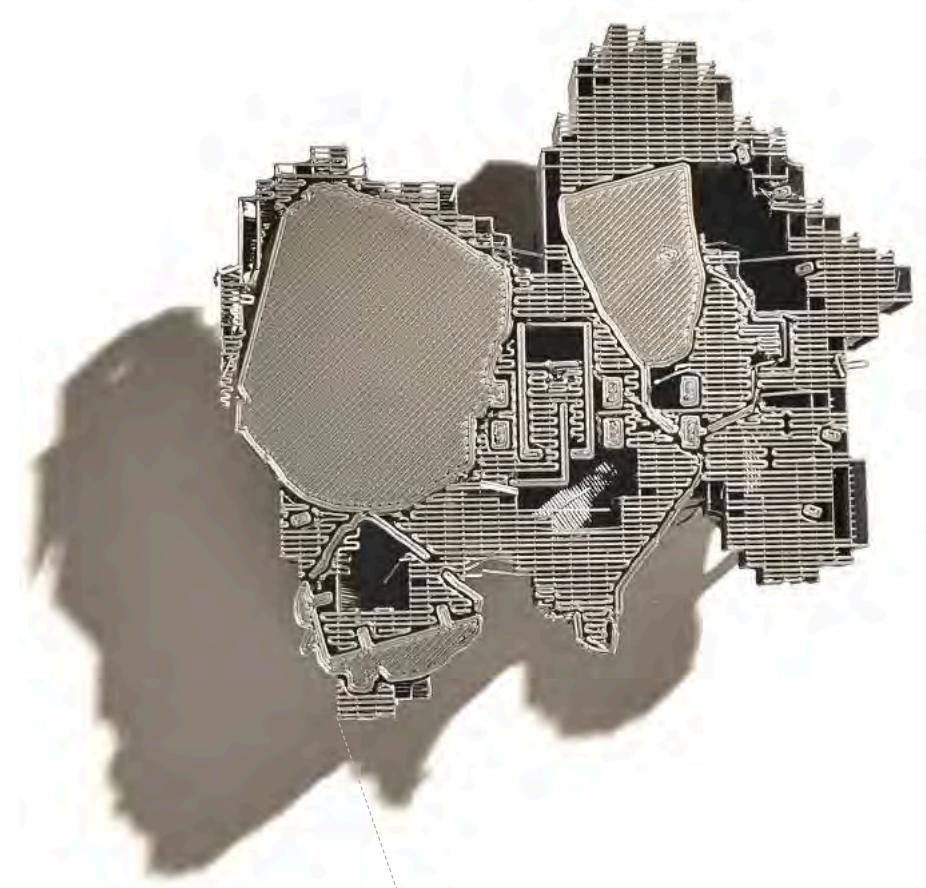
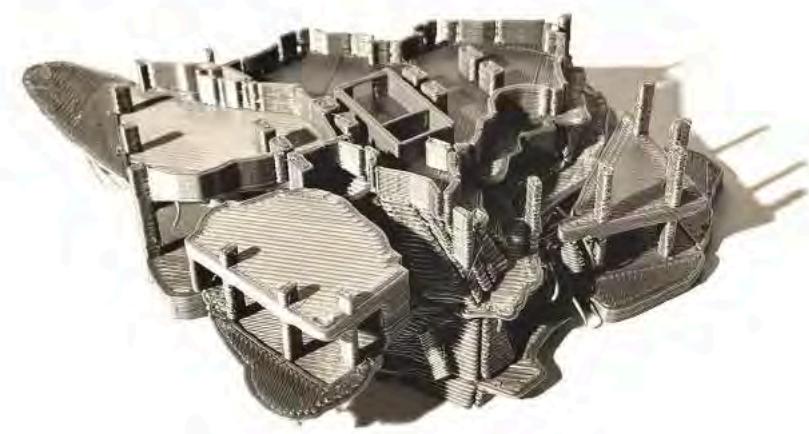
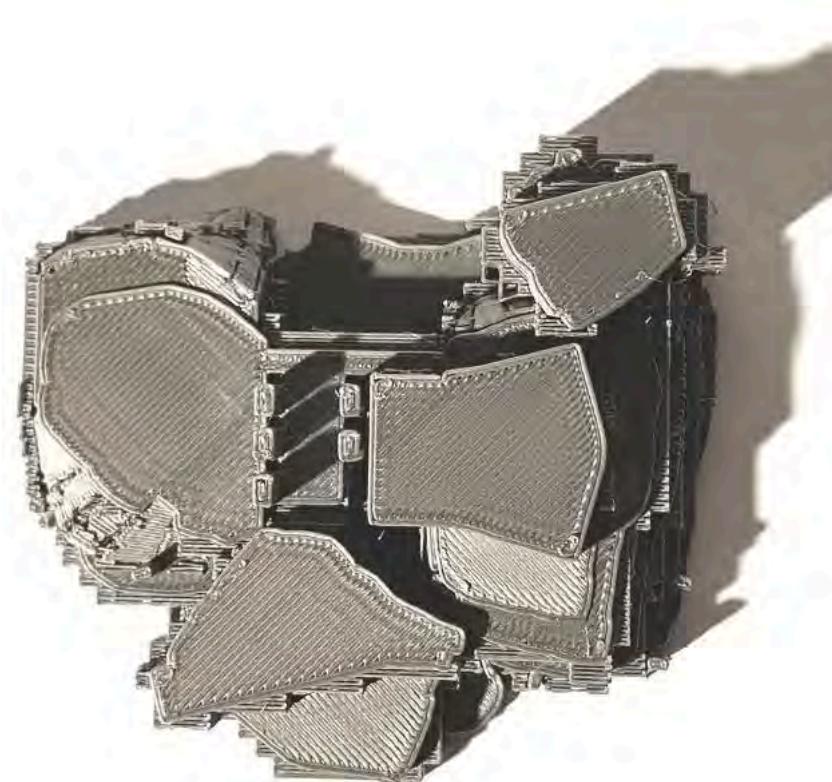
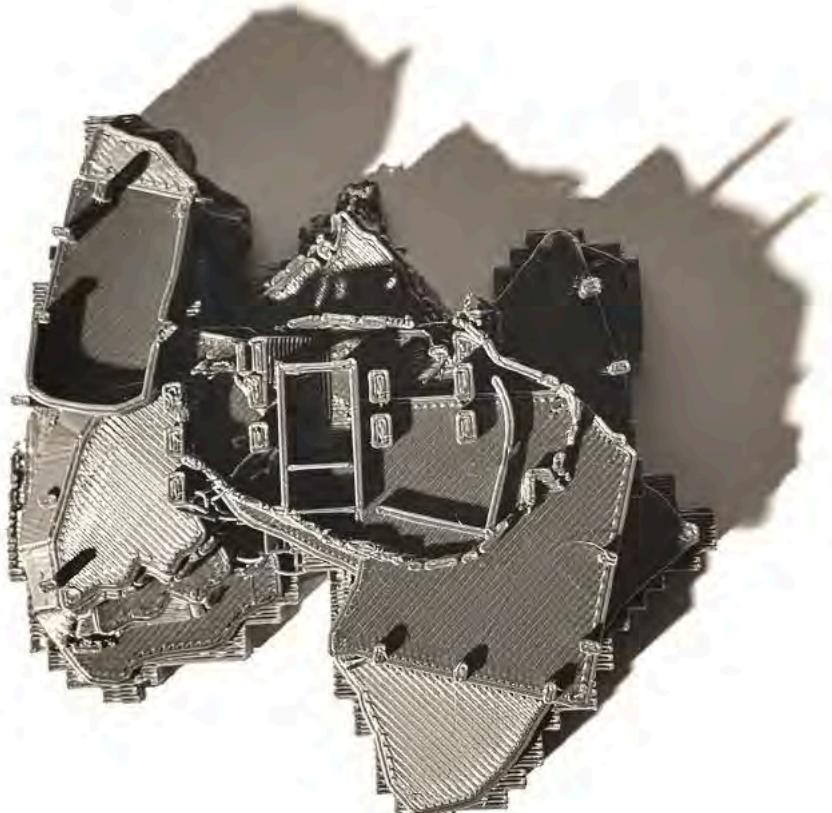
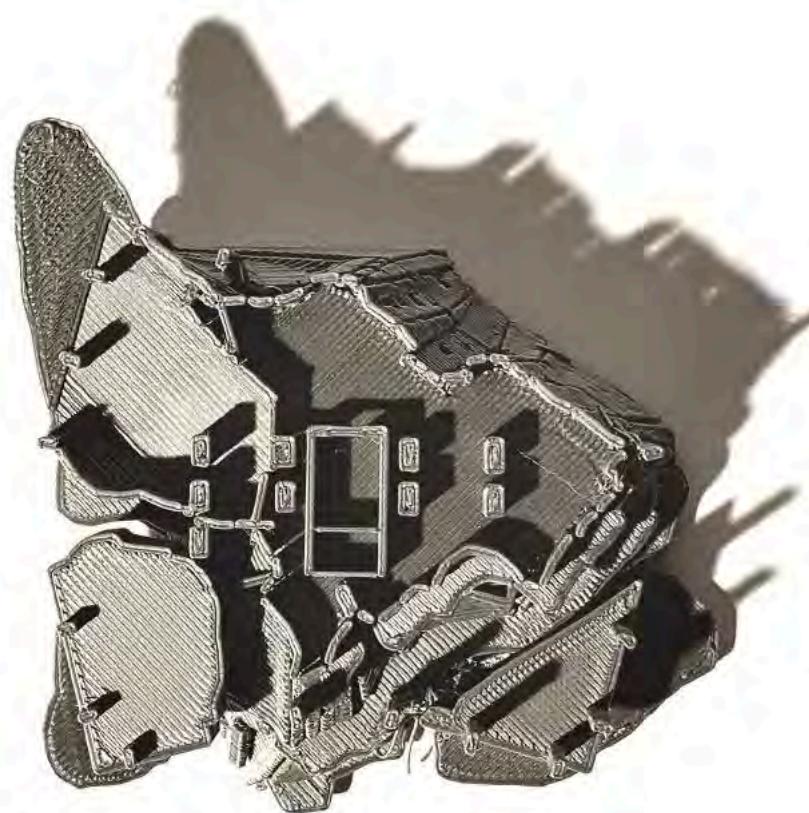
HYBRID TOTEM
Montage



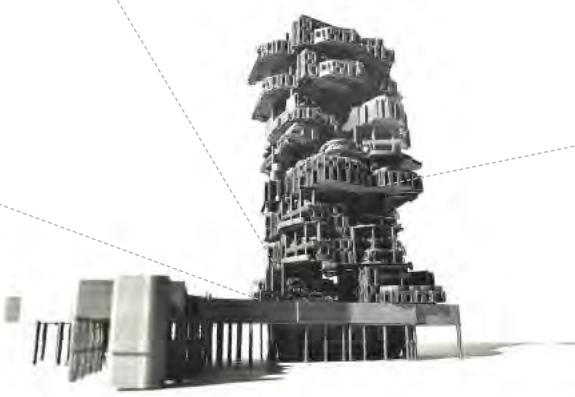
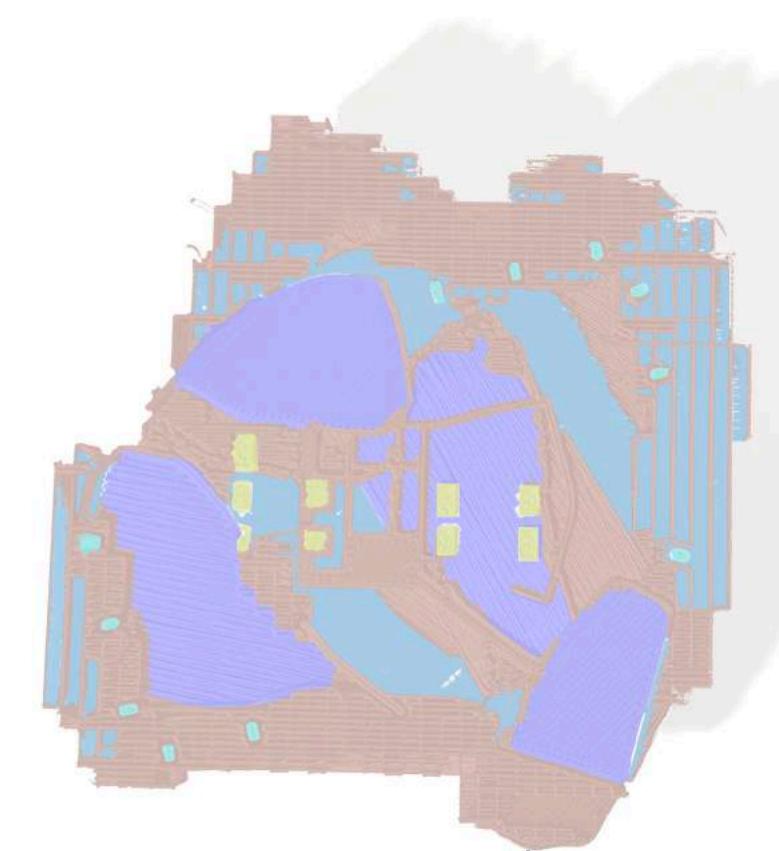
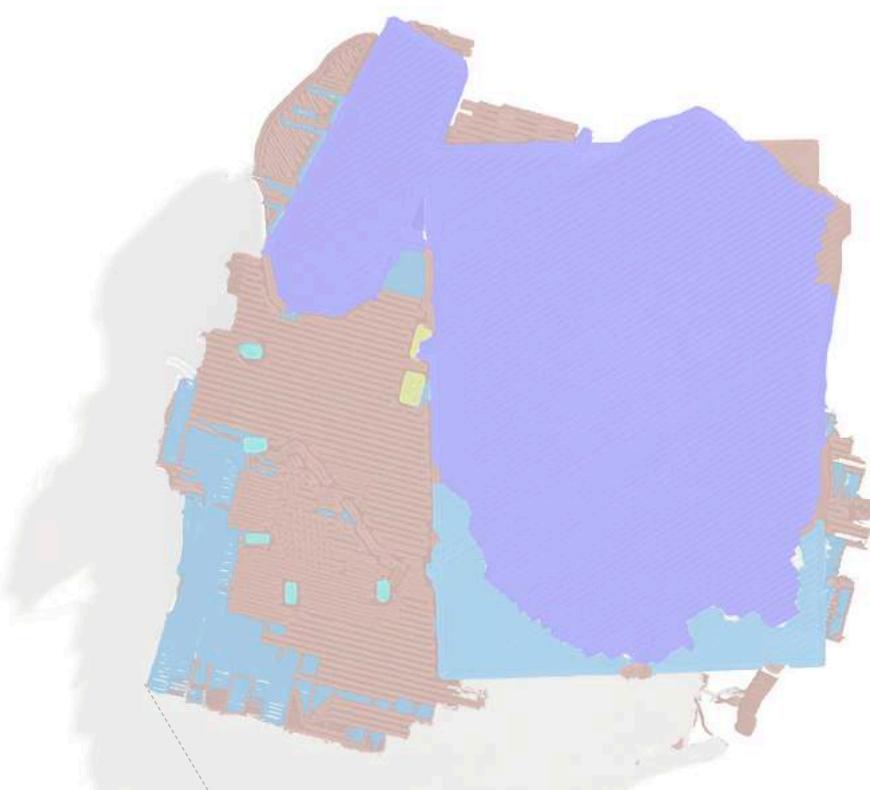
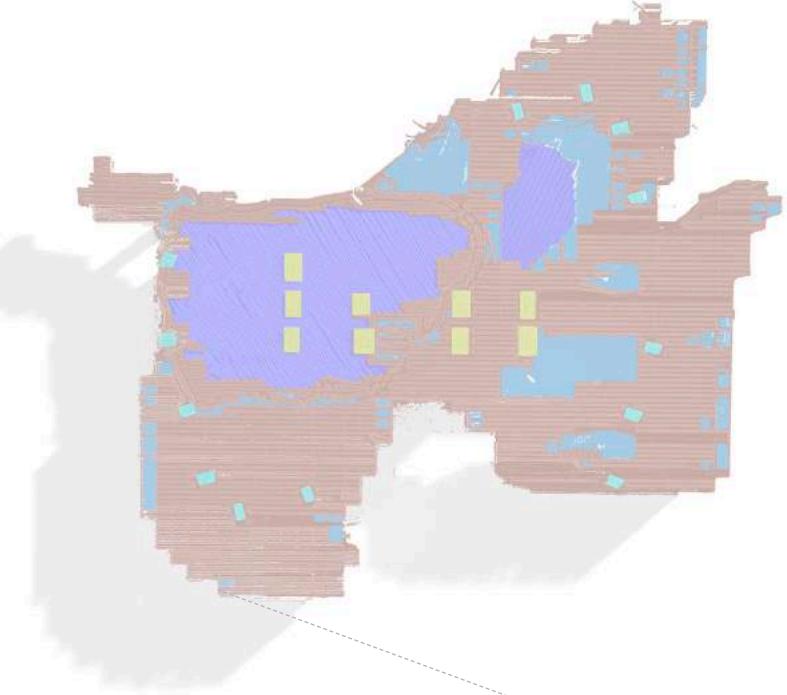
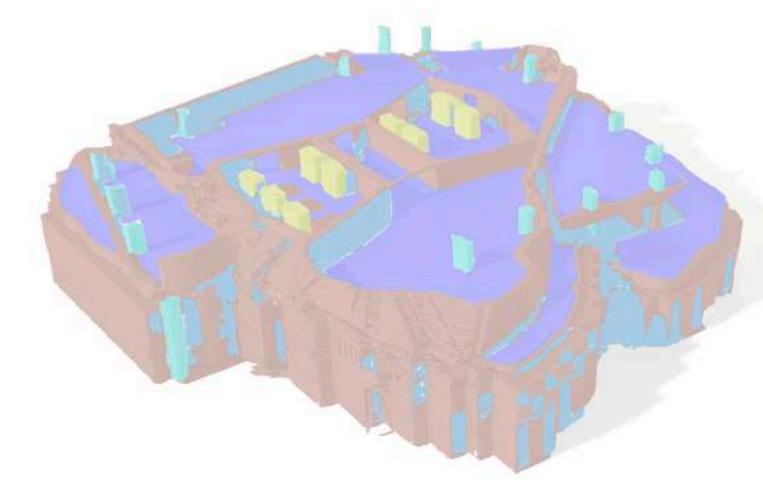
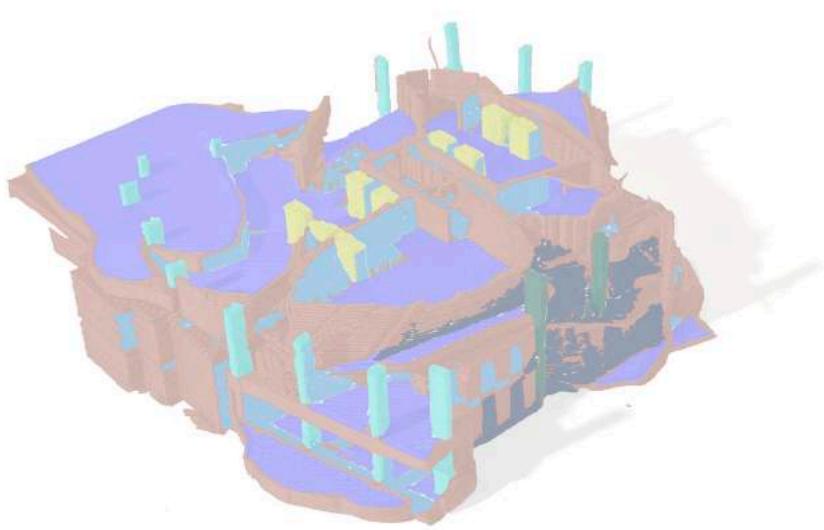
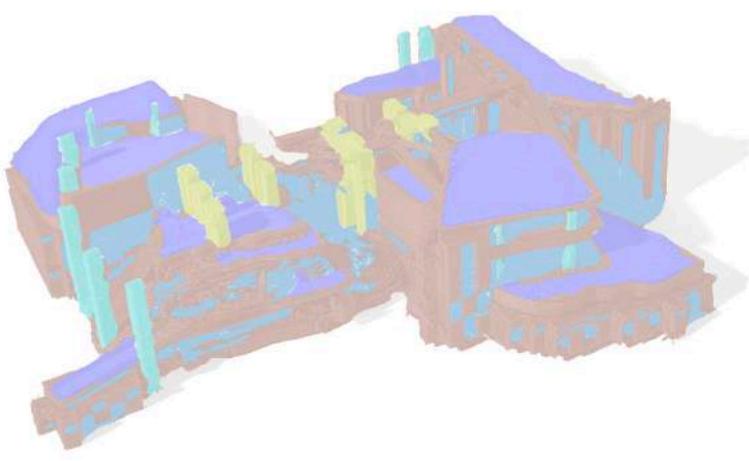
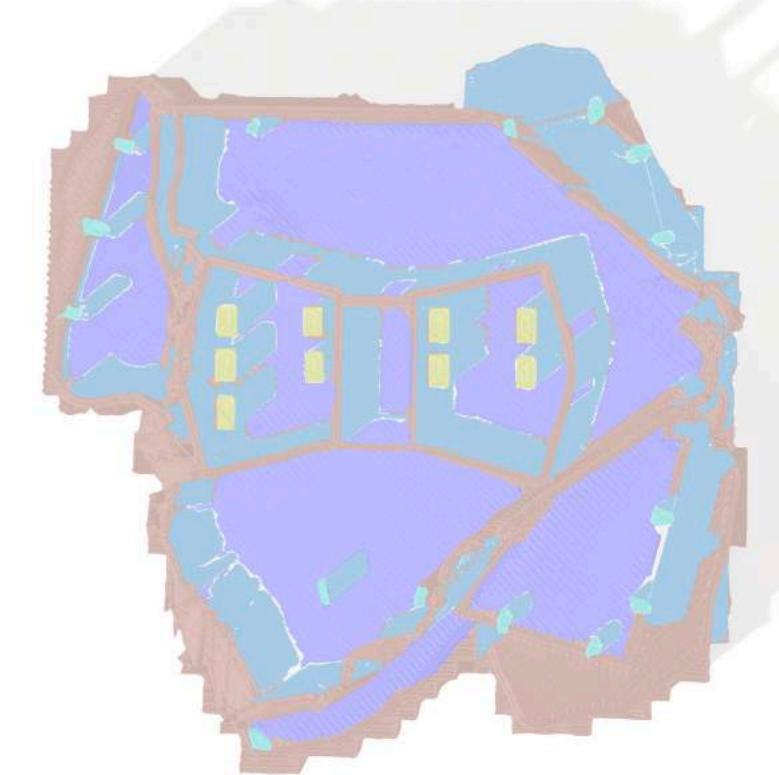
HYBRID TOTEM
3D Printed Model



HYBRID TOTEM
3D Printed Model Dissection

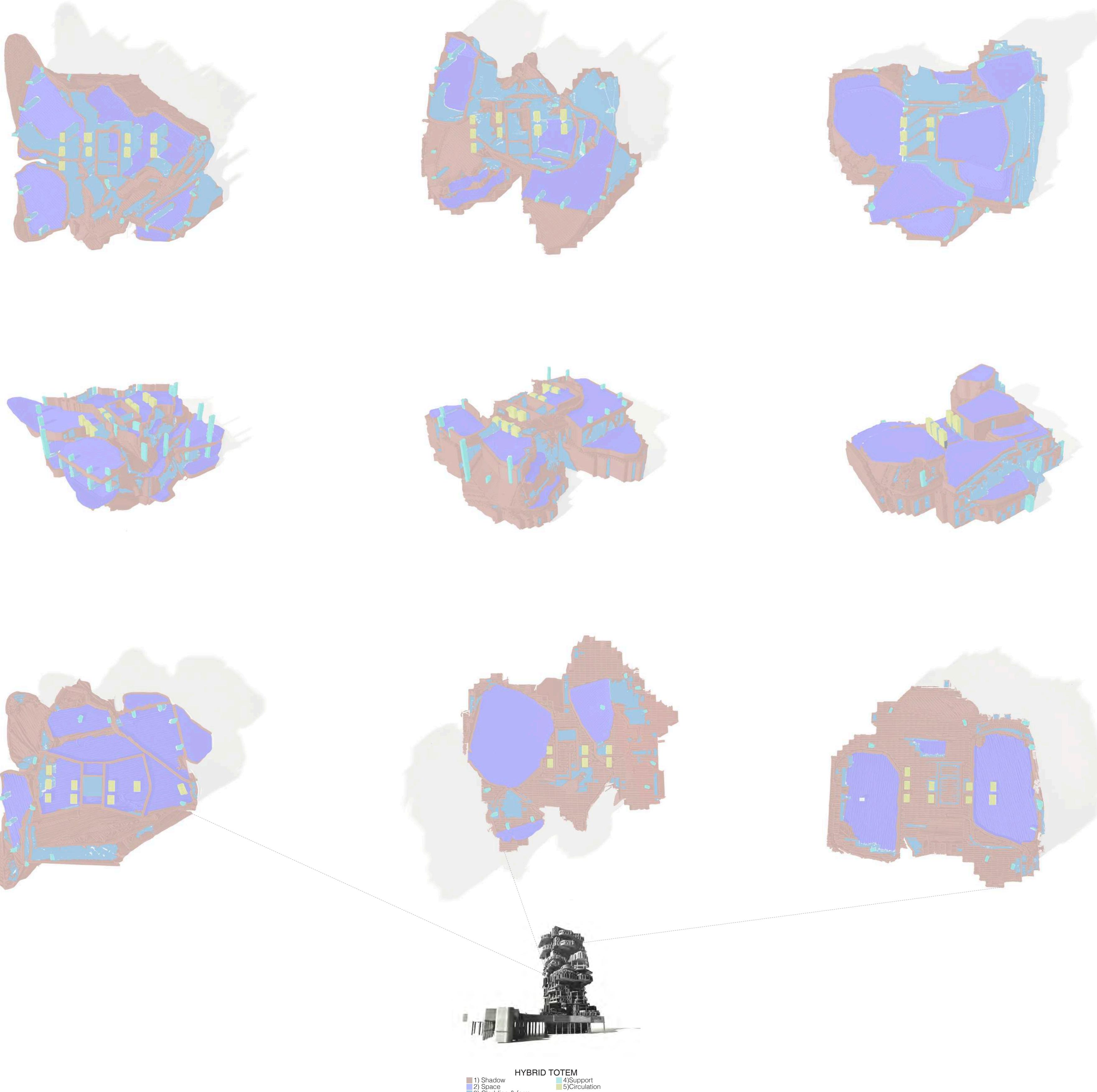


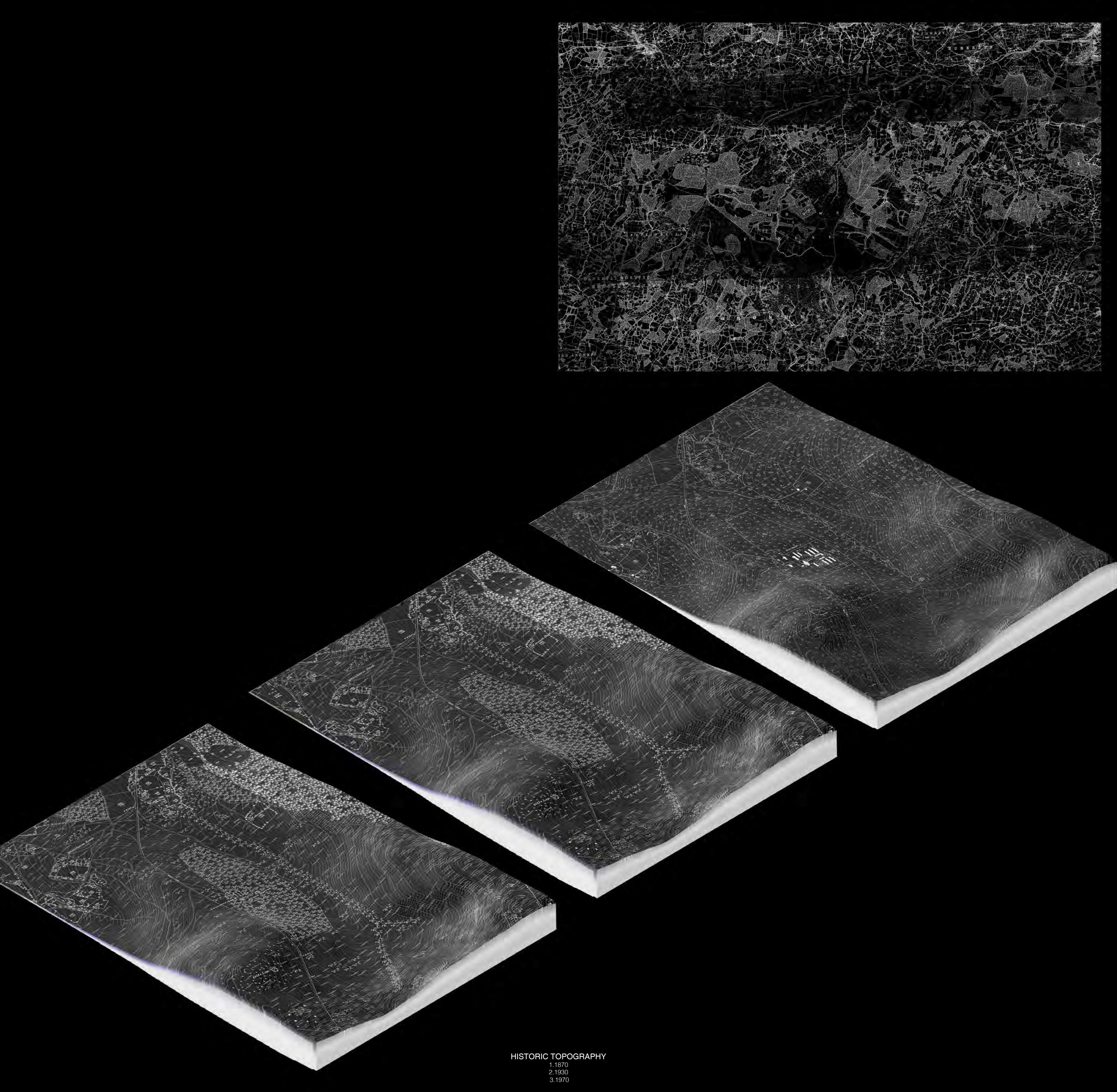
HYBRID TOTEM
3D Printed Model Dissection



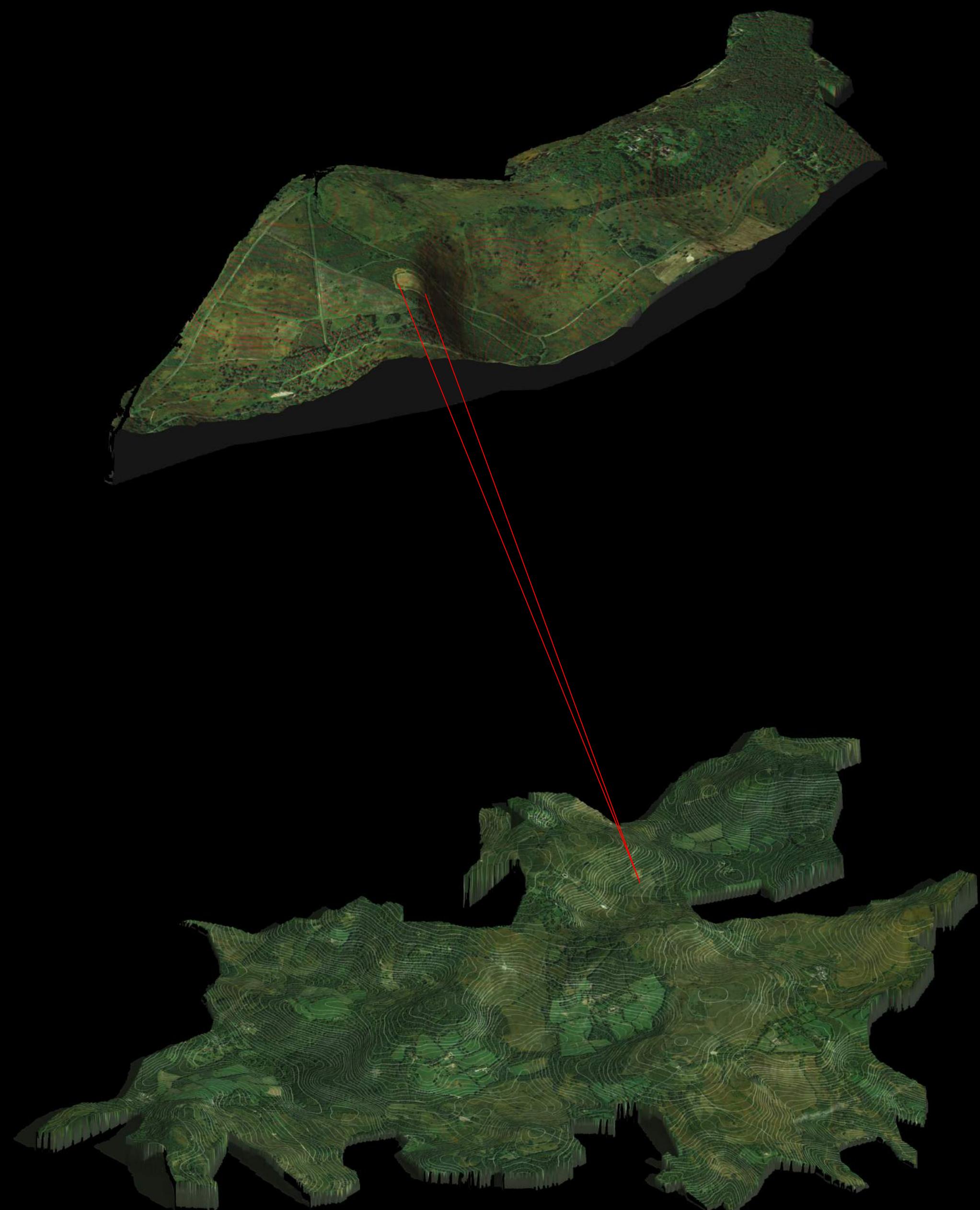
HYBRID TOTEM

- | | |
|--------------------|----------------|
| 1) Shadow | 4) Support |
| 2) Space | 5) Circulation |
| 3) Cladding & form | |

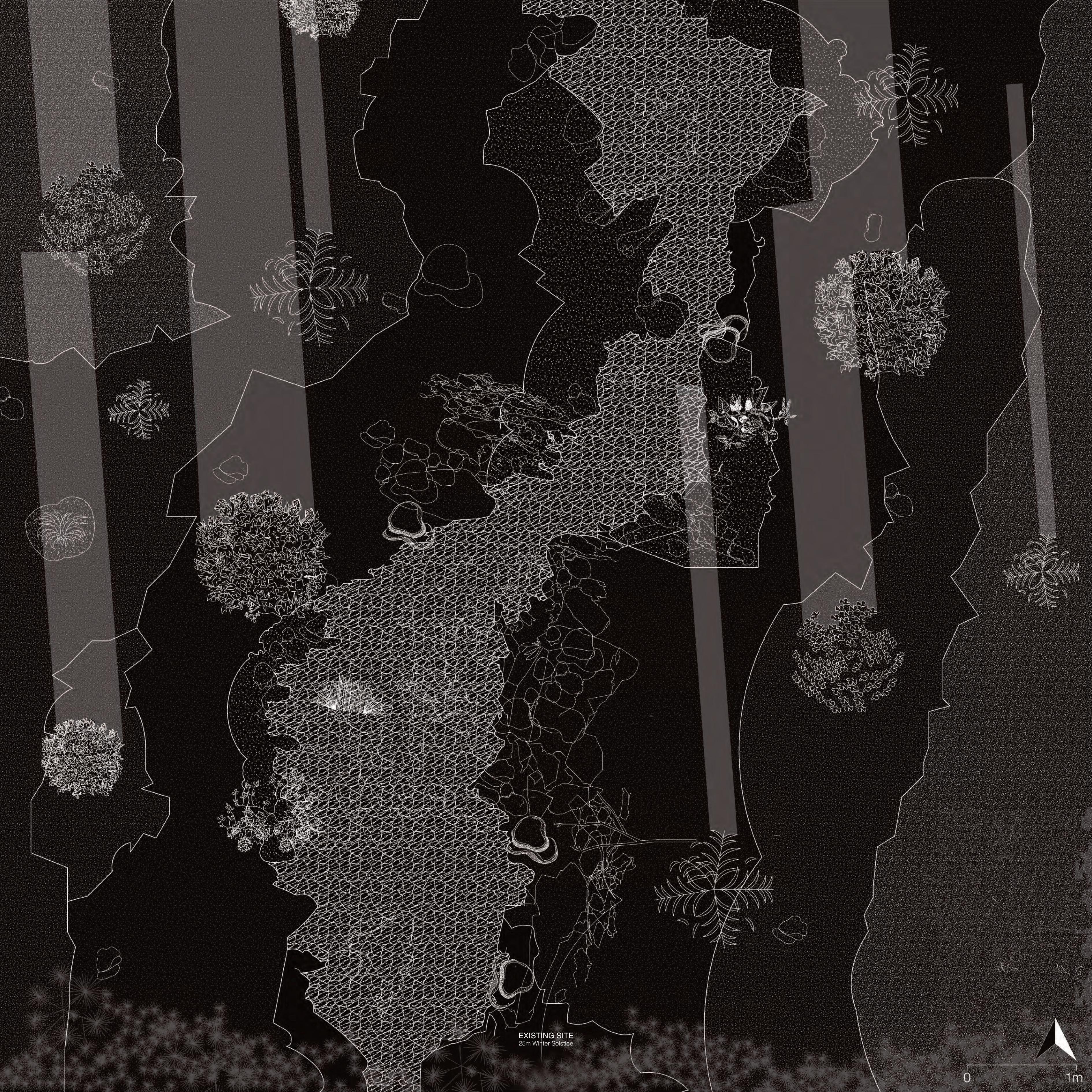




HISTORIC TOPOGRAPHY
1.1870
2.1930
3.1970



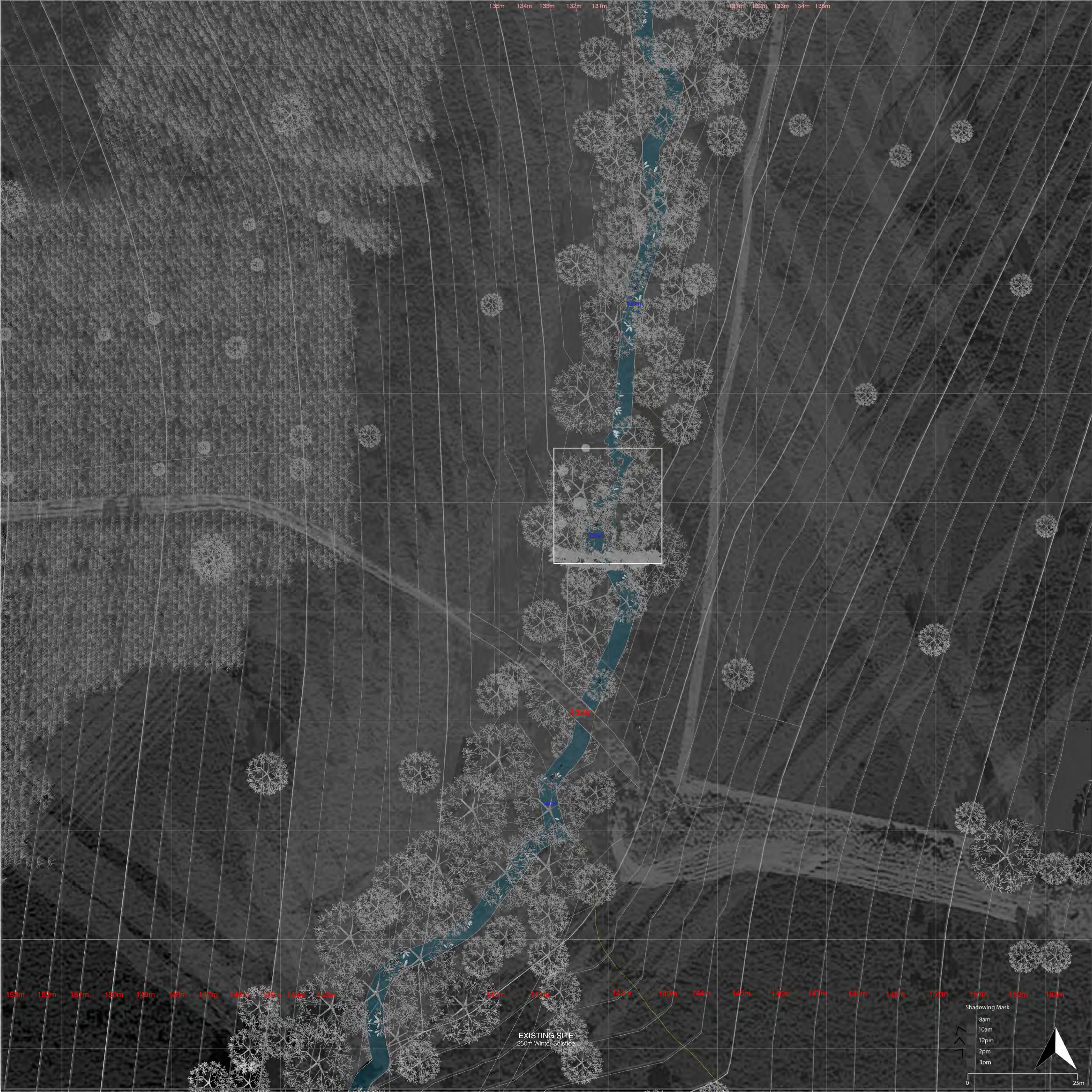
TOPOGRAPHY
Ashdown Forest



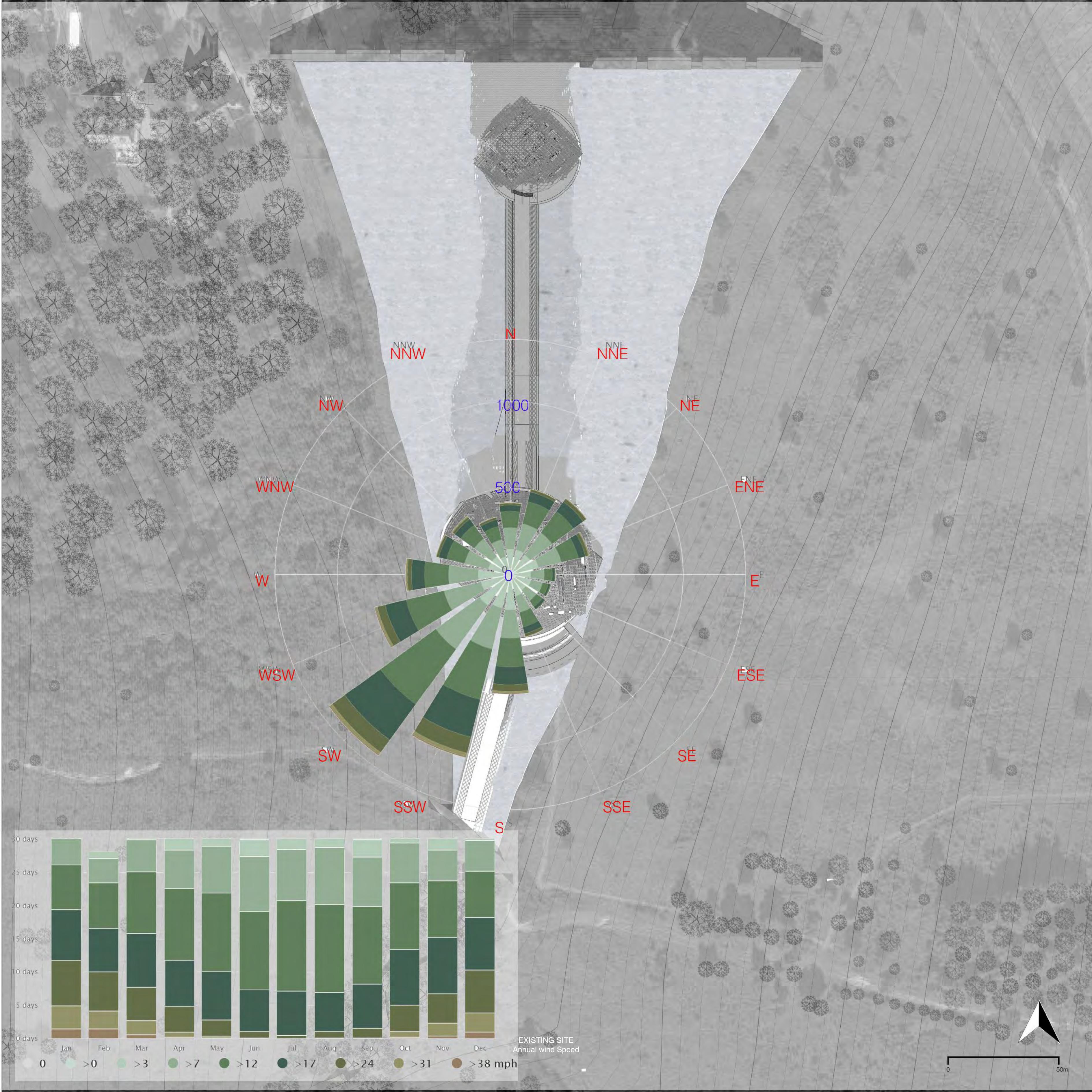
EXISTING SITE
25m Winter Solstice

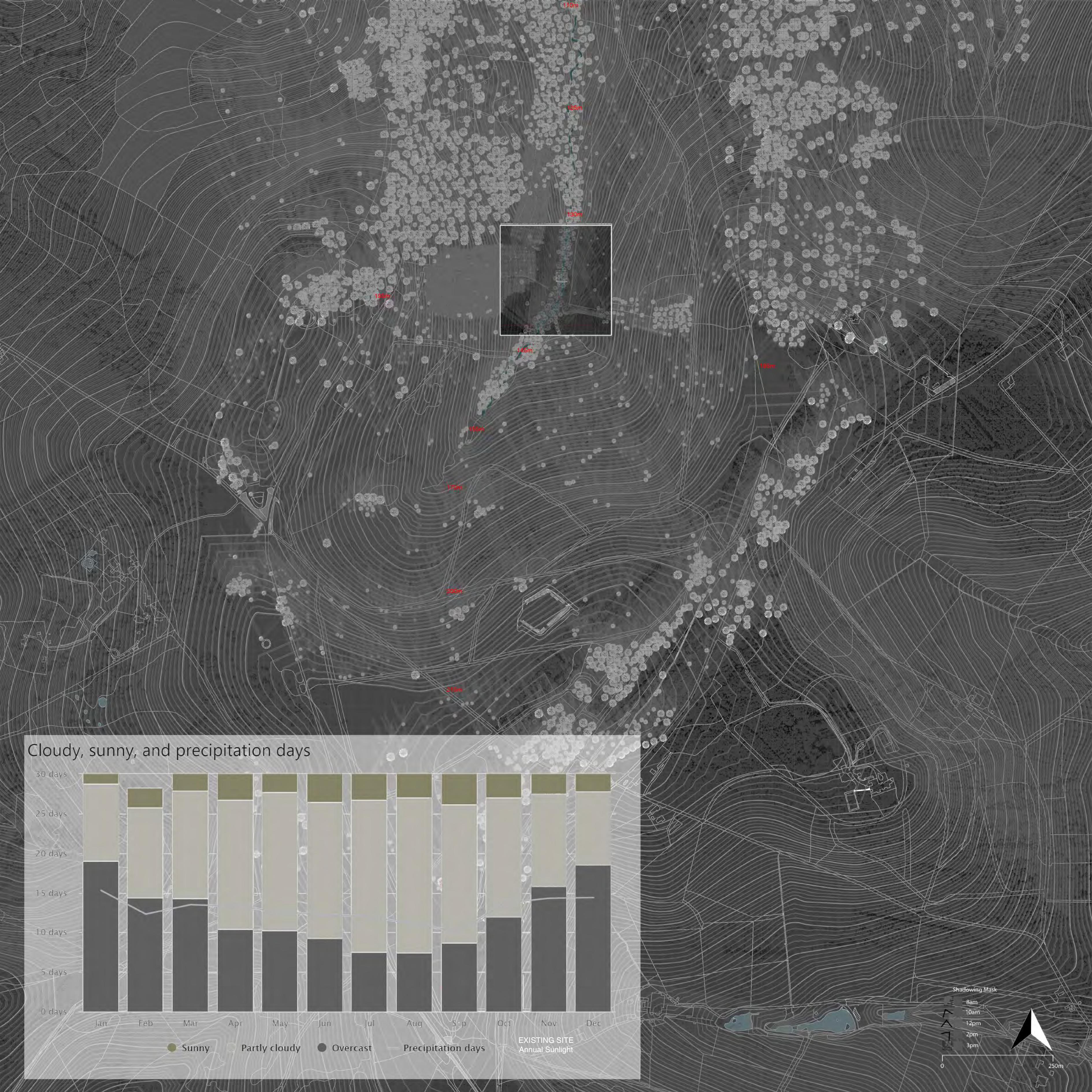
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1m





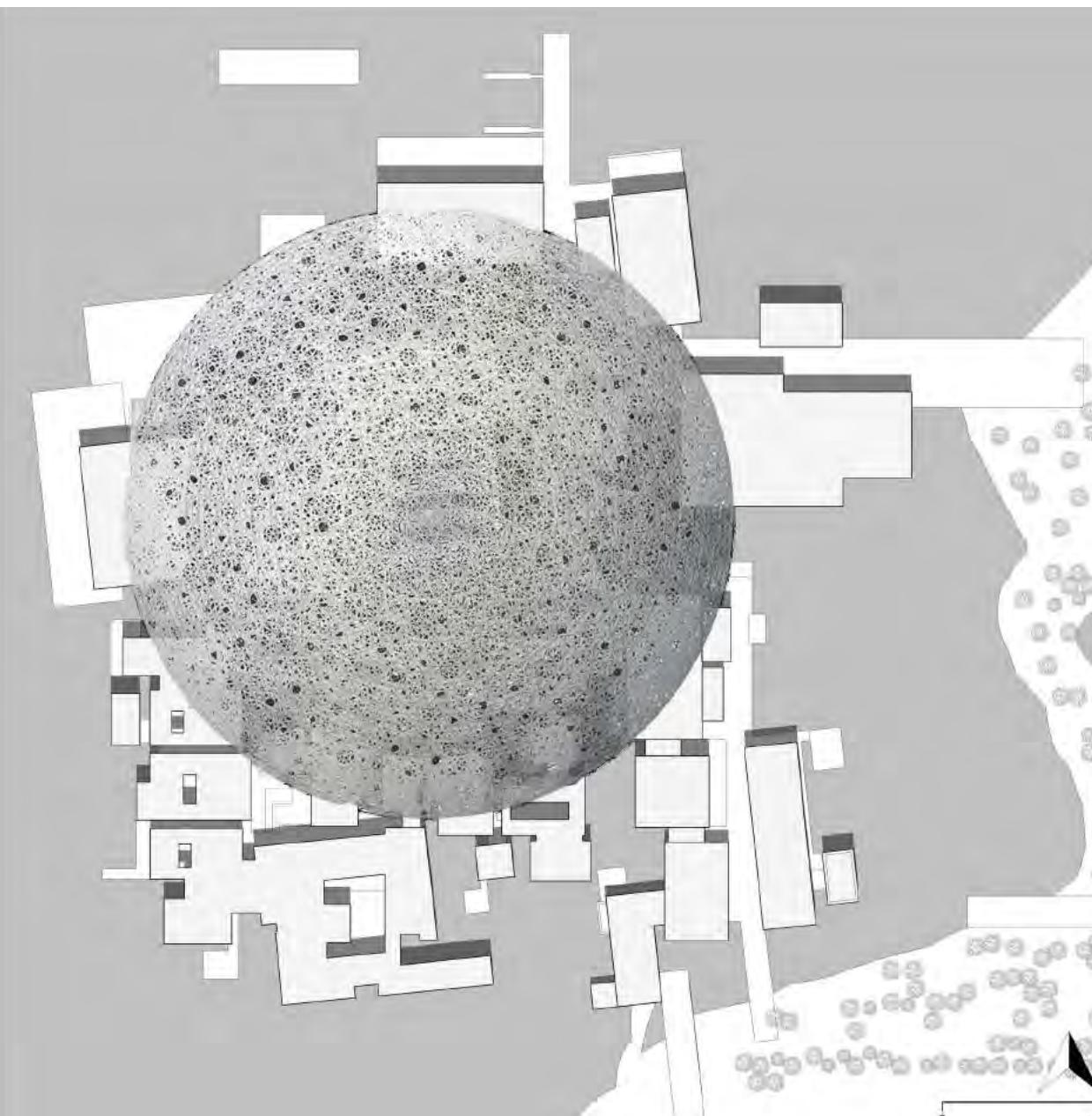




LOUVRE ABU DHABI
ATELIERS JEAN NOUVEL

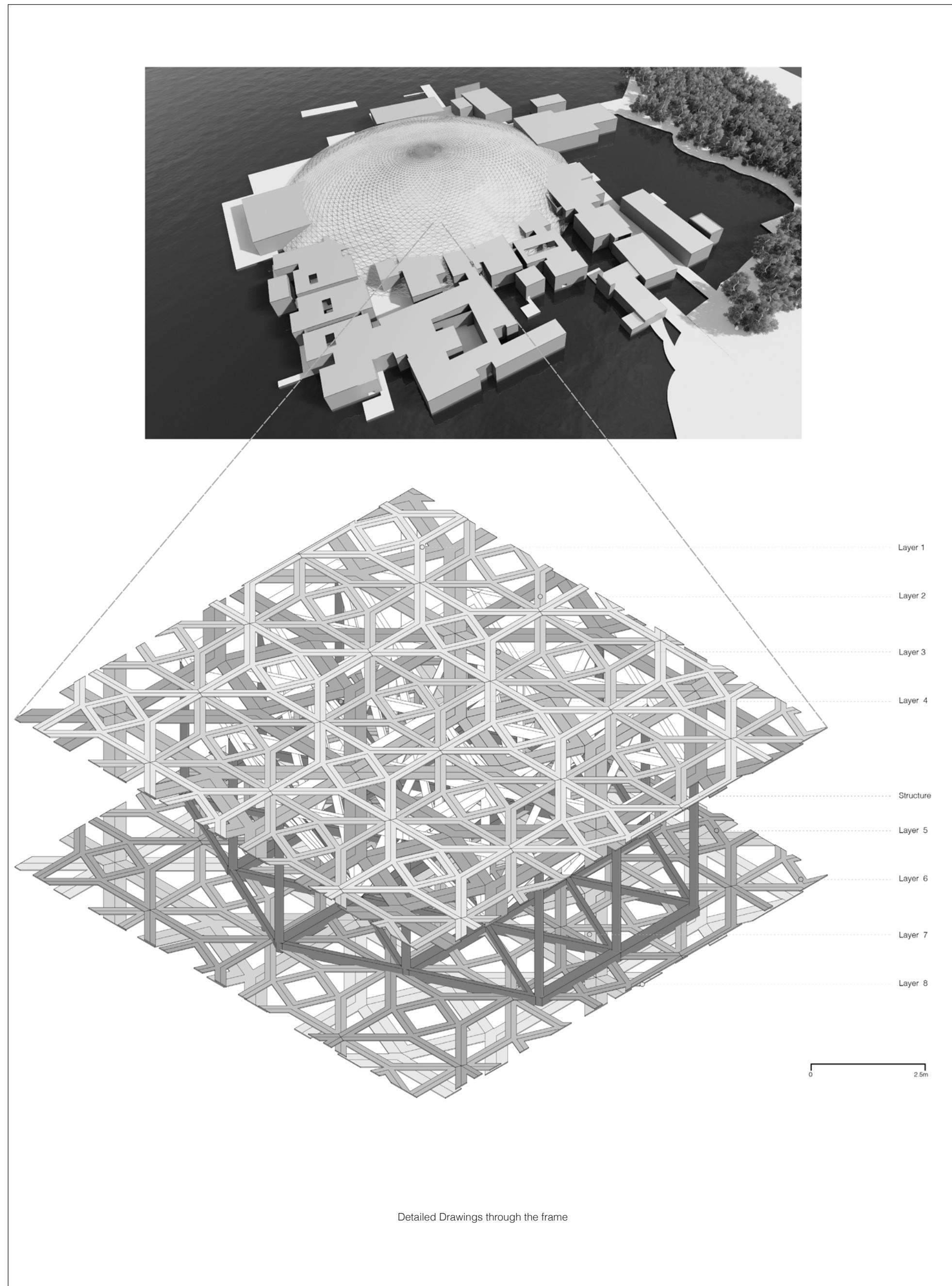
The louvre in Abu Dhabi is designed to combine light and shadow to produce reflection and calm within the museum. The museum tells a story of world history since early civilizations. The Centre wants to provide this in order to appreciate the famous work on show. The museum sits within the sea which makes the only access from boat from mainland. The 180 meters dome is made up of a singular geometric shape which is repeated with different sizes and angles. The structure is made of 3900 panels of ultra high performance fibre concrete. This is Made up of eight different layers, four outer layers clad in stainless steel and four inner layers clad in aluminum. The different voids creates a light of rain effect that varies throughout the day and creates star light arrays at night. The different occupied masses are inspired from a Medina (a low lying Arab settlement) which some sit in the dome and some out. These make out the main galleries that let in different flows of light. The water reflects the light qualities that floor through the structure.

Front elevation of Louvre Abu Dhabi

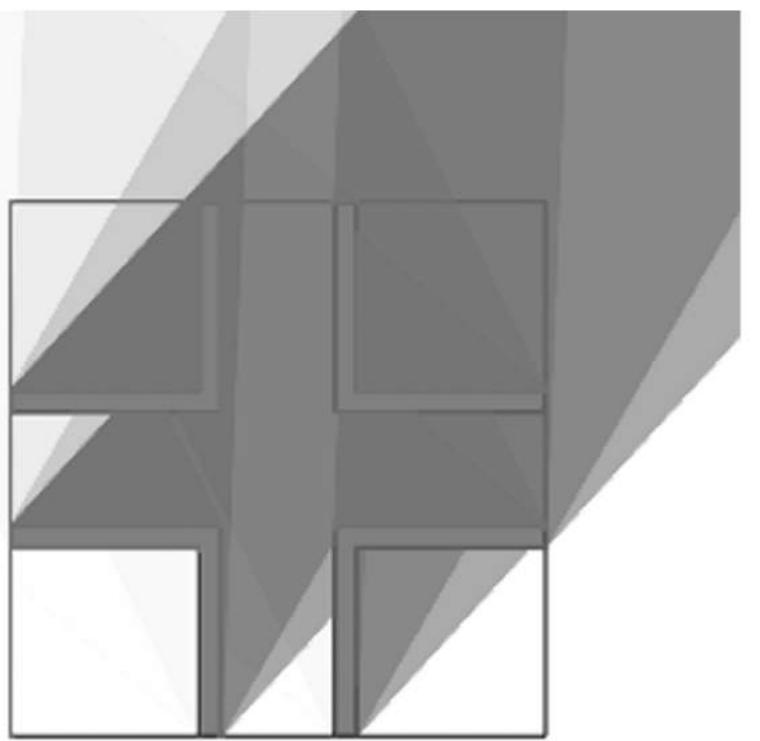


Site Plan

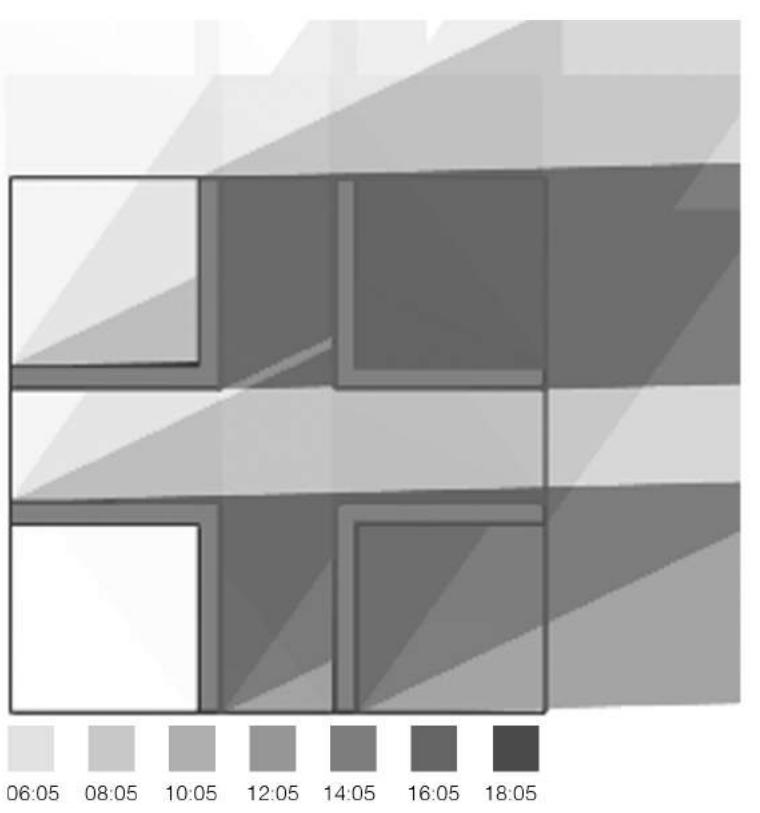




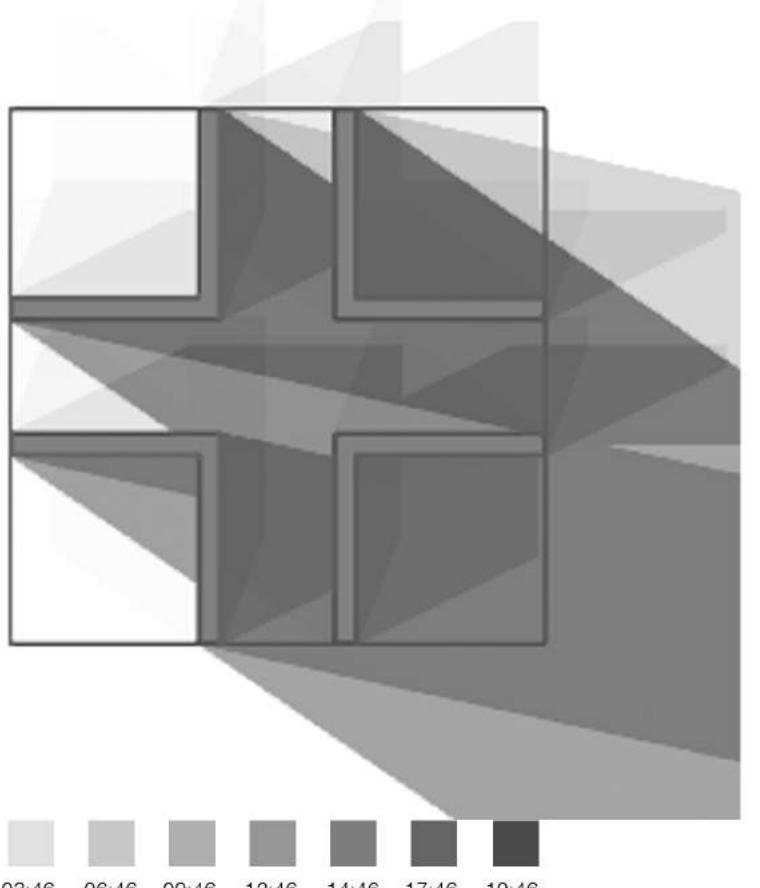
DETAIL PRECEDENT STUDY
Museum Archive - Abu Dhabi Louvre



Winter

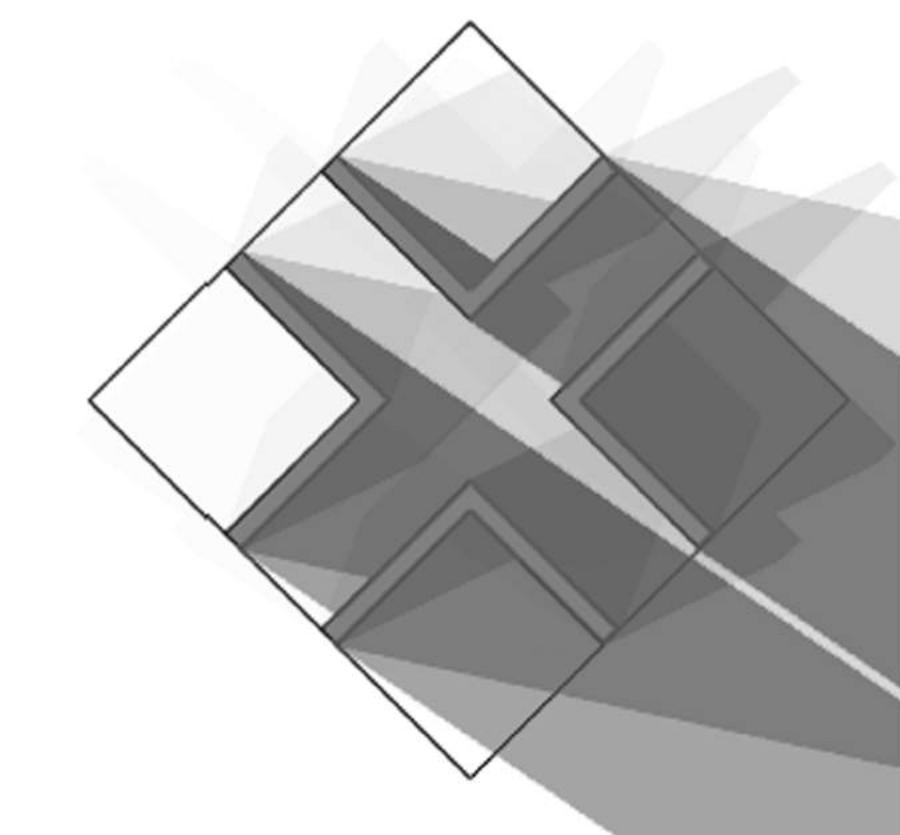
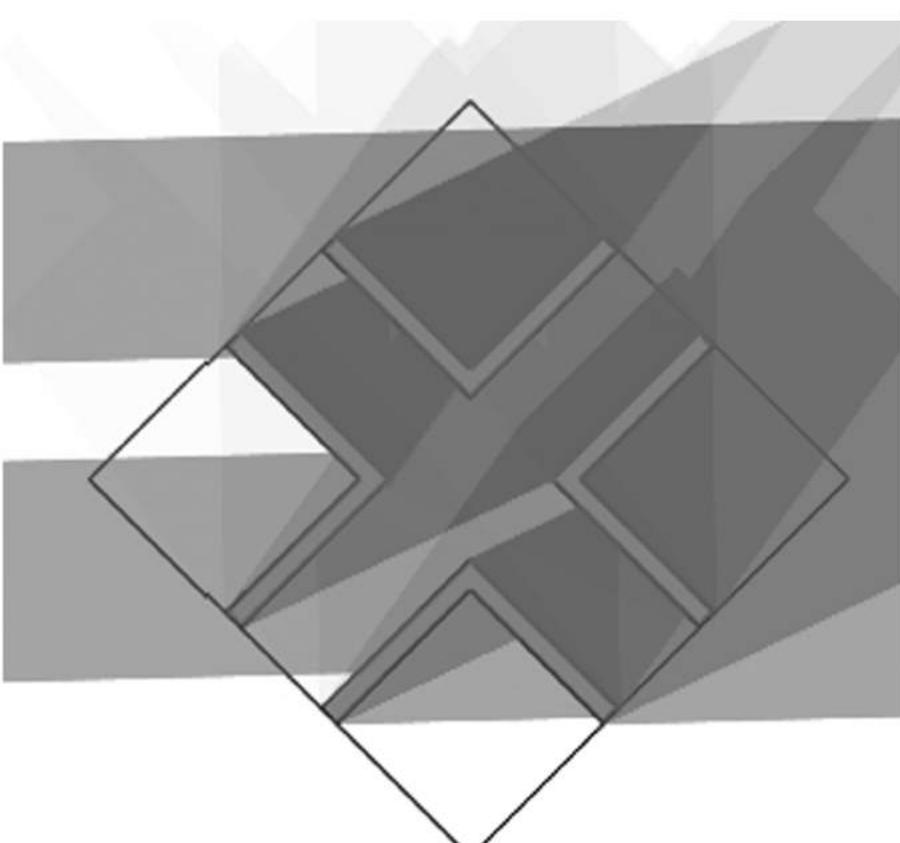
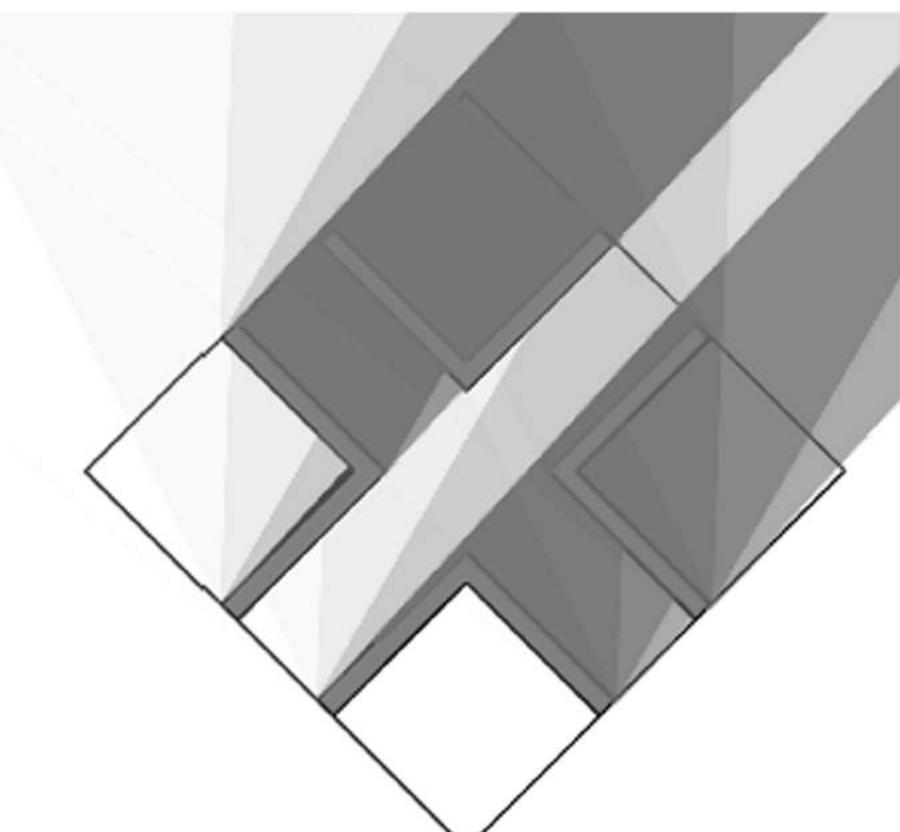


Spring

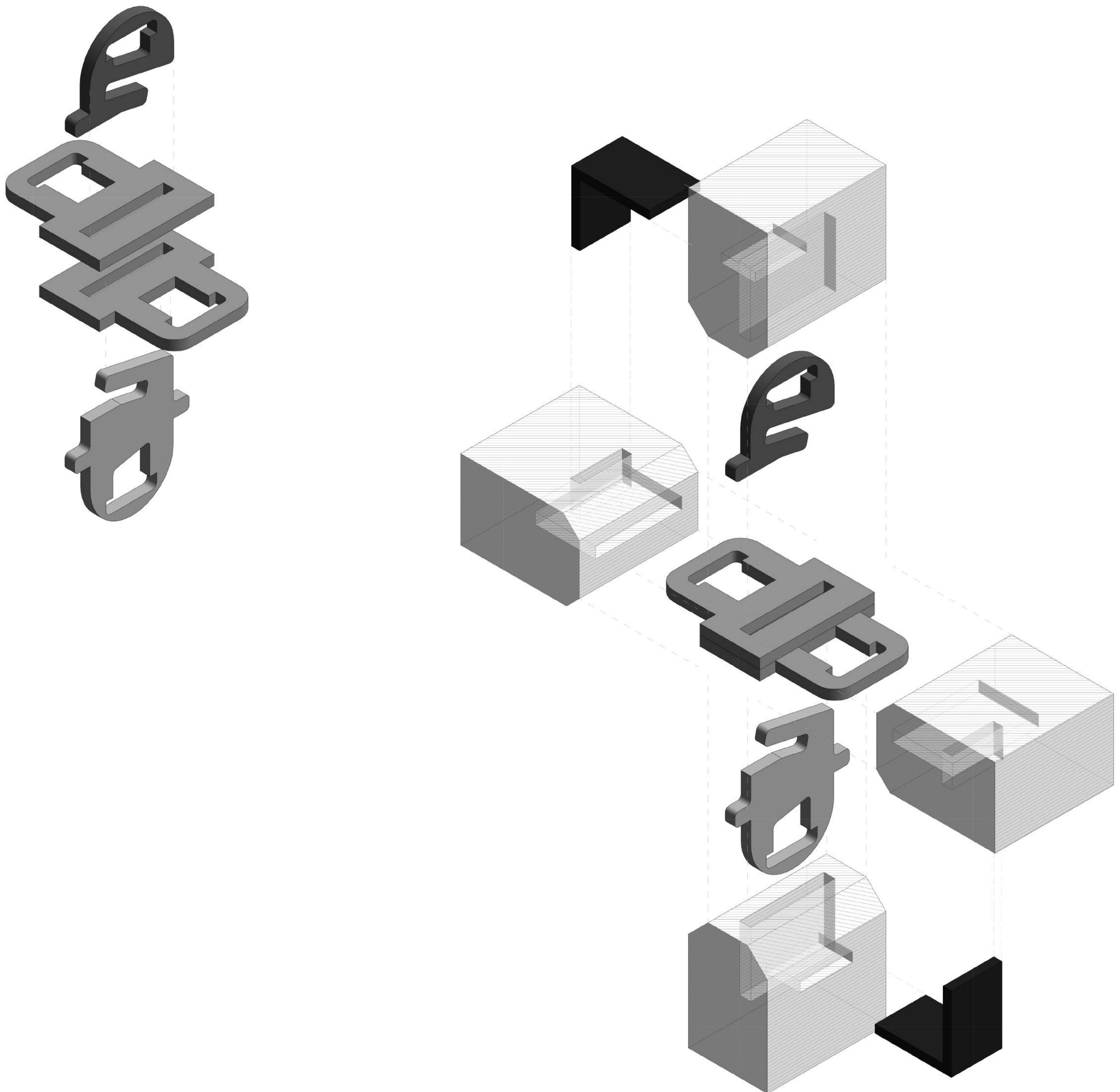


Summer

Jeffersonian Grid street Typology

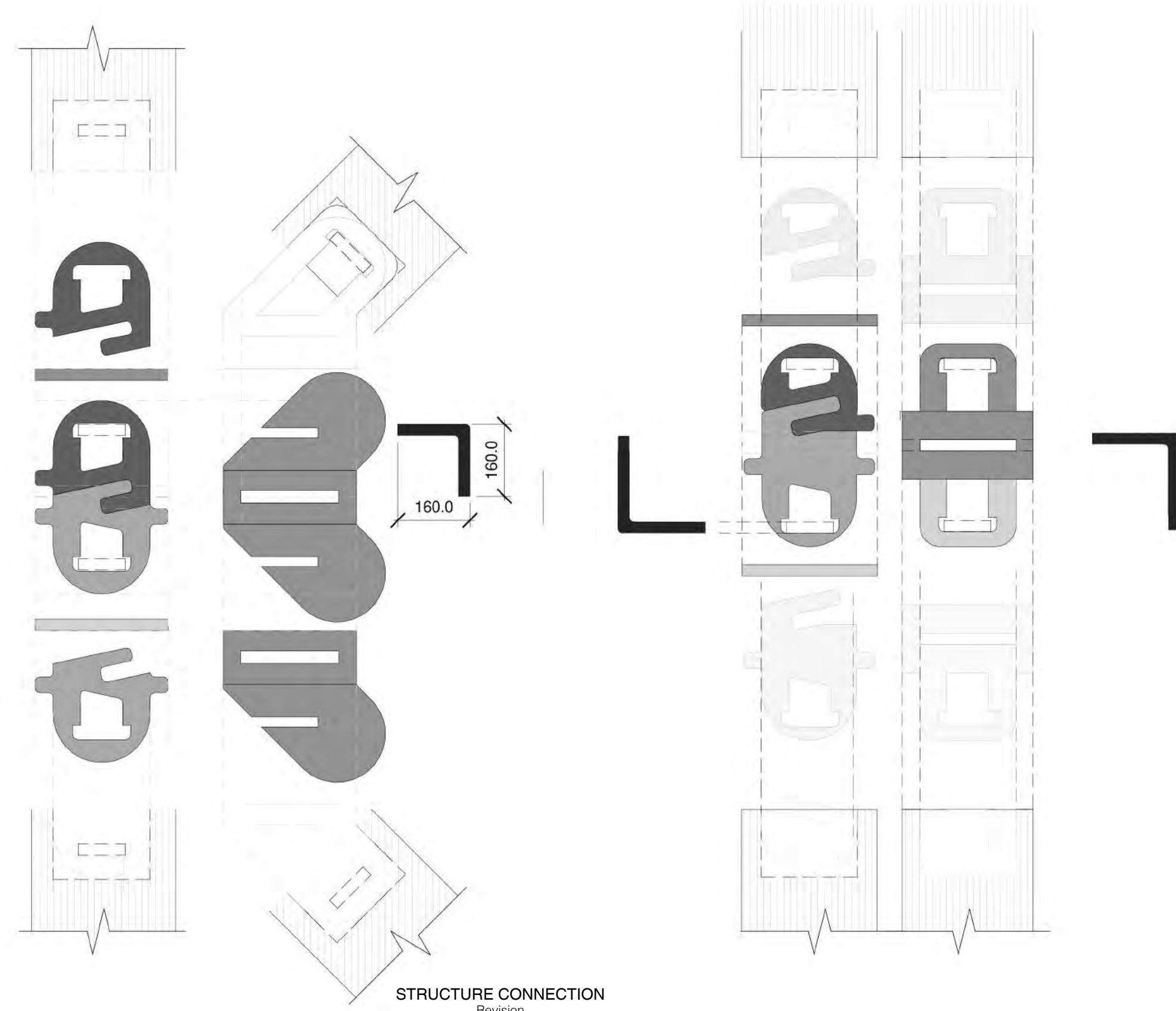
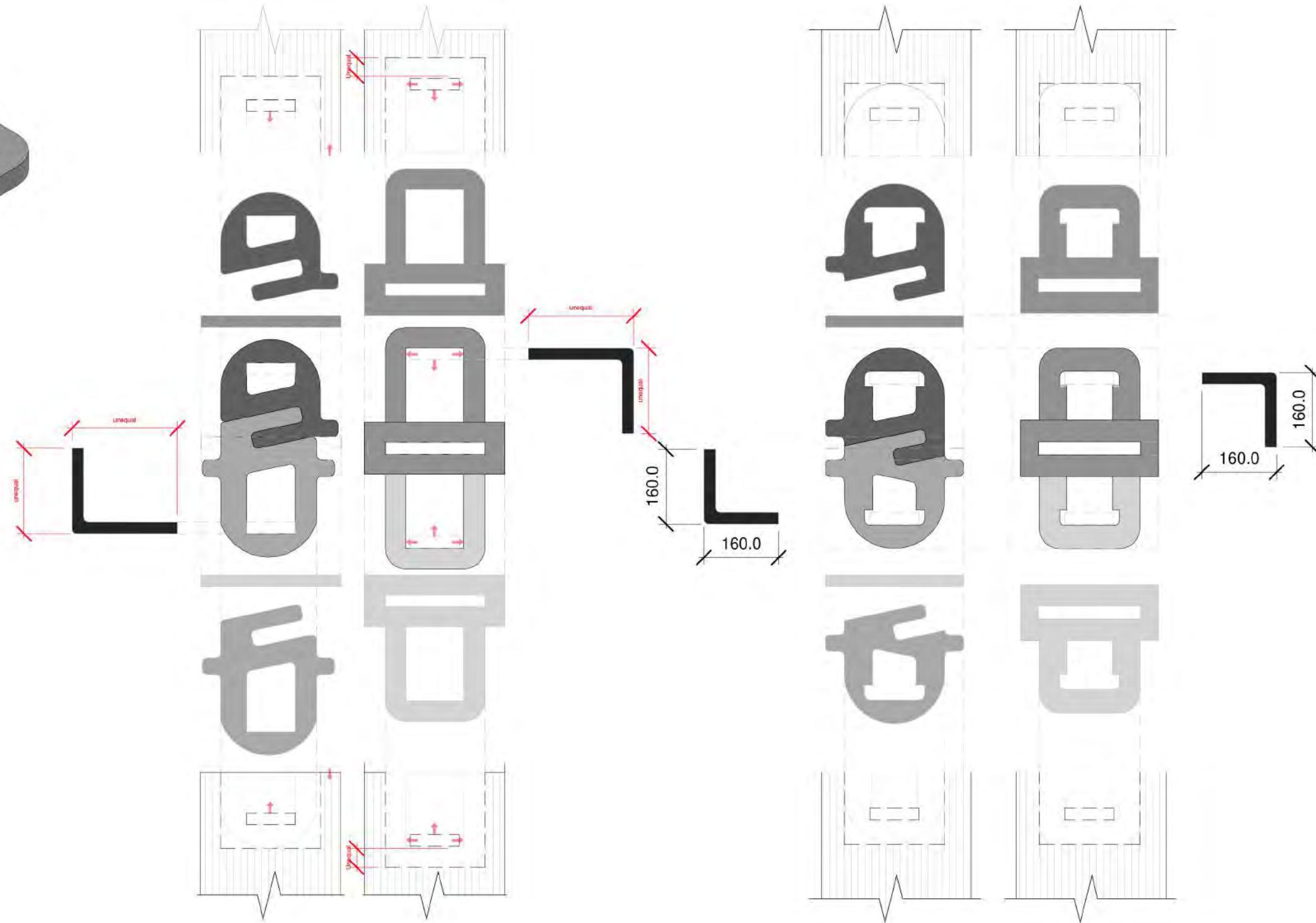
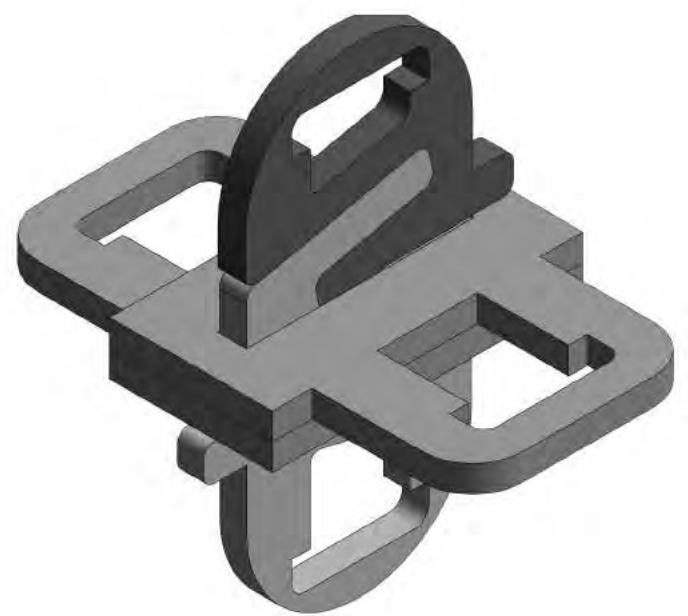


Spanish Grid street Typology



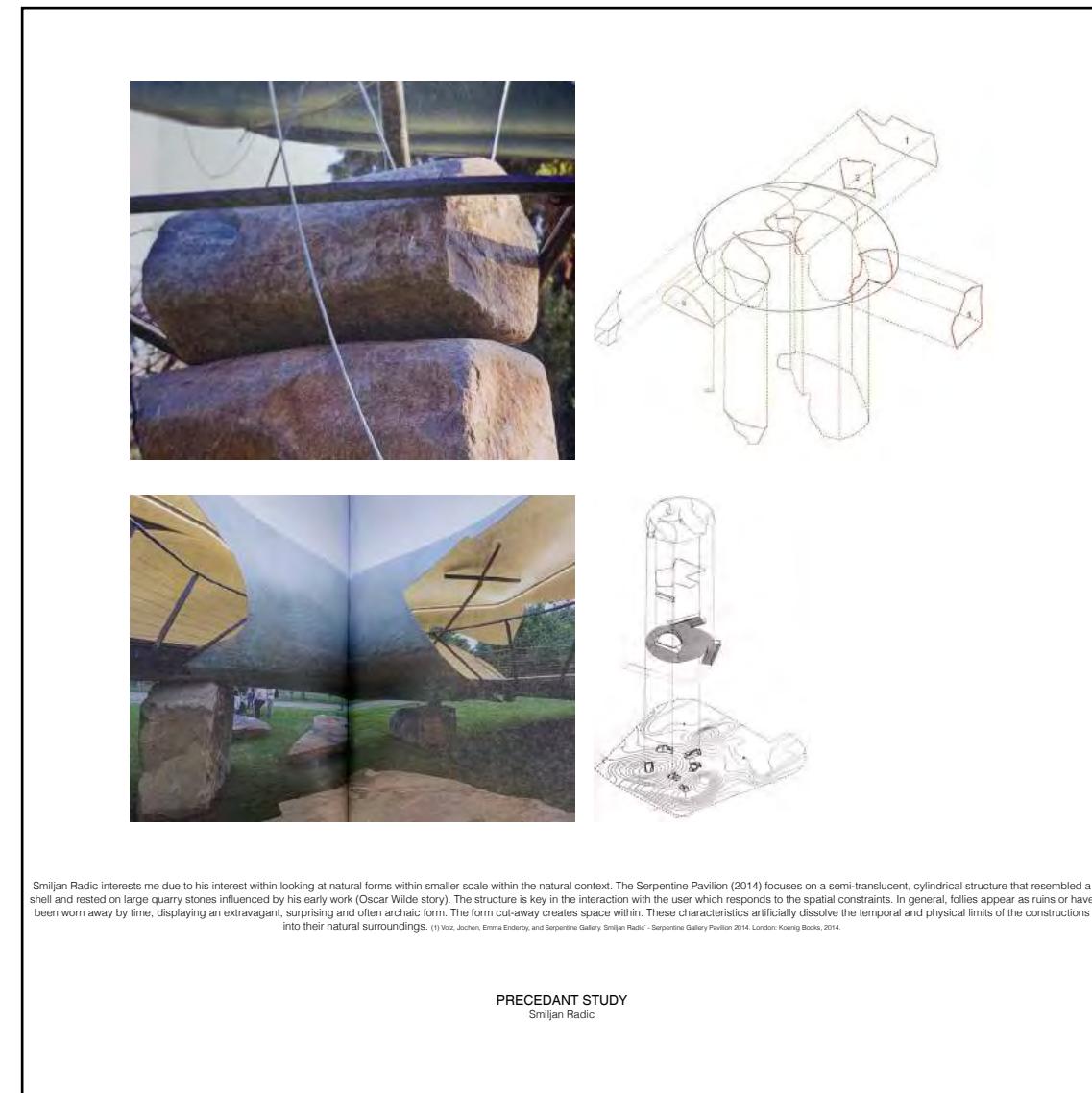
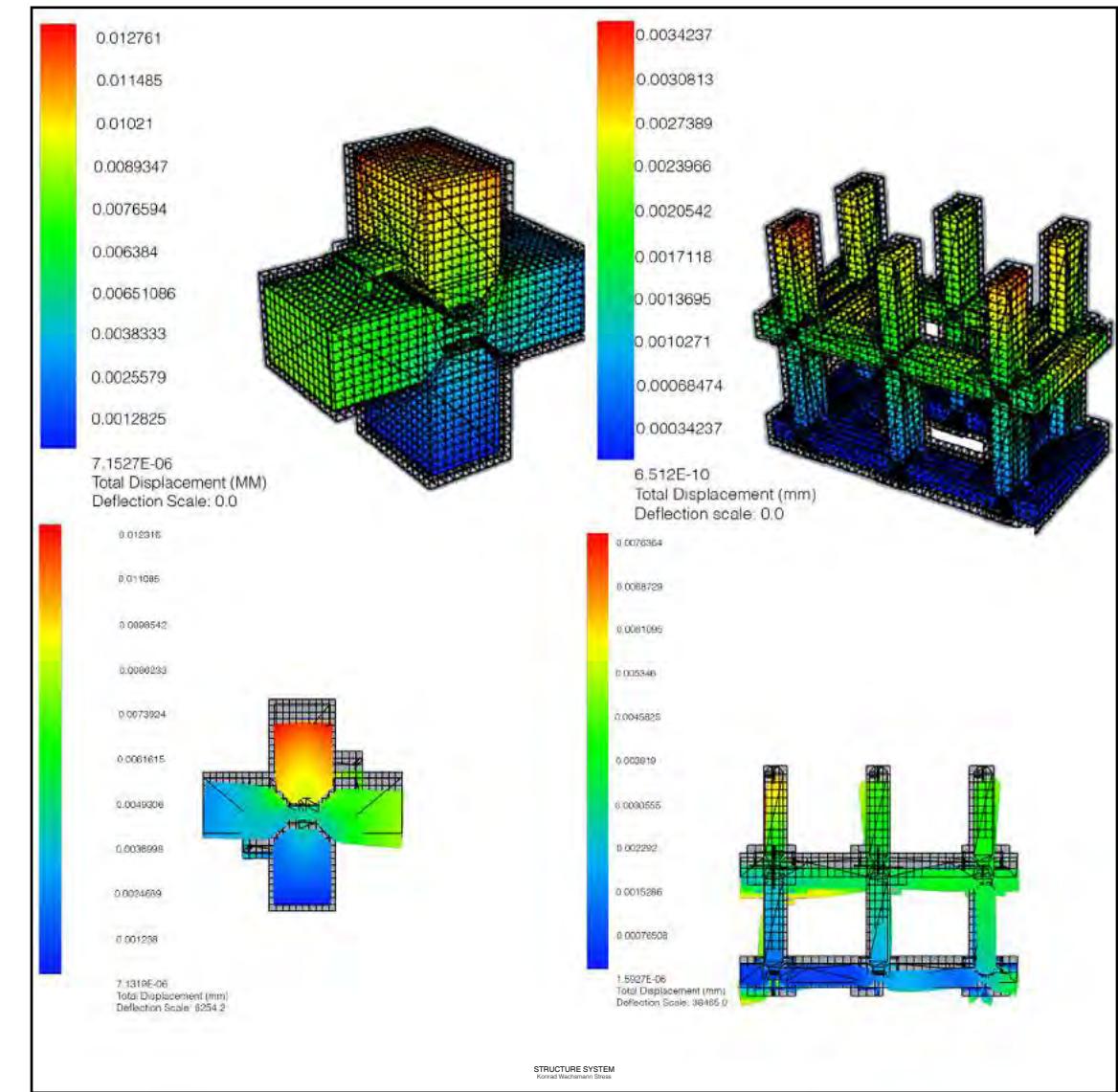
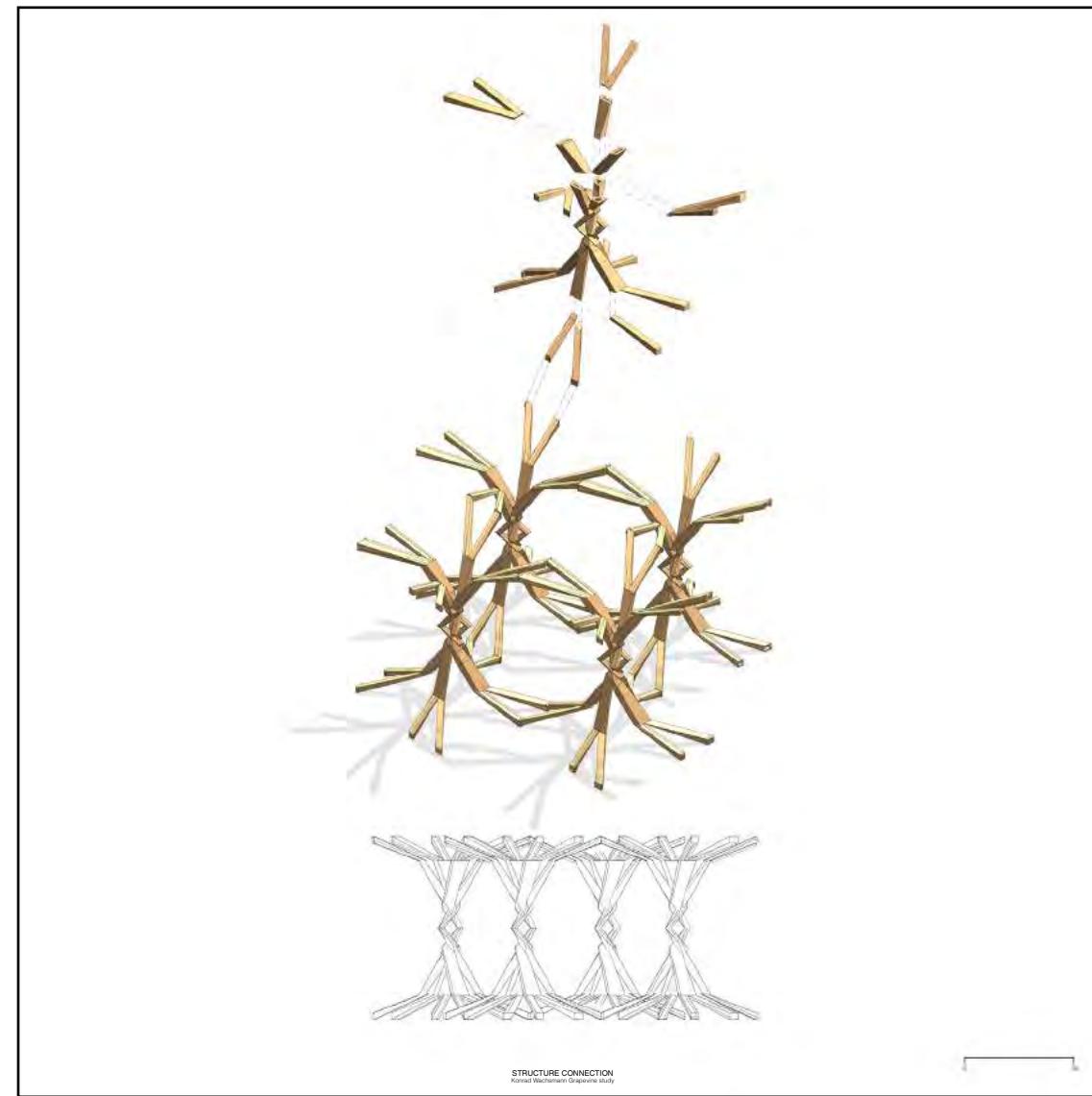
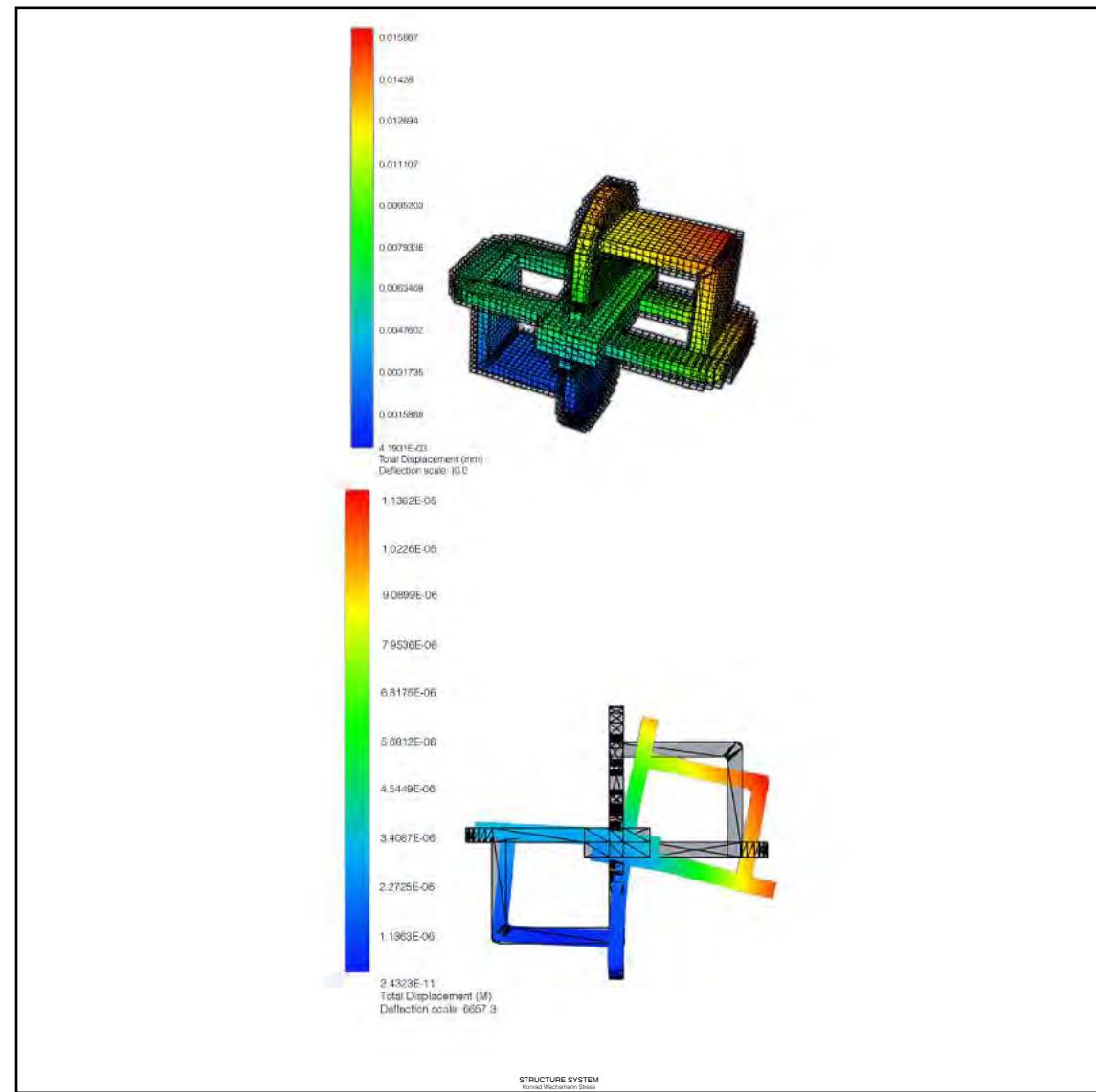
STRUCTURE CONNECTION
Konrad Wachsmann Study

0 250mm

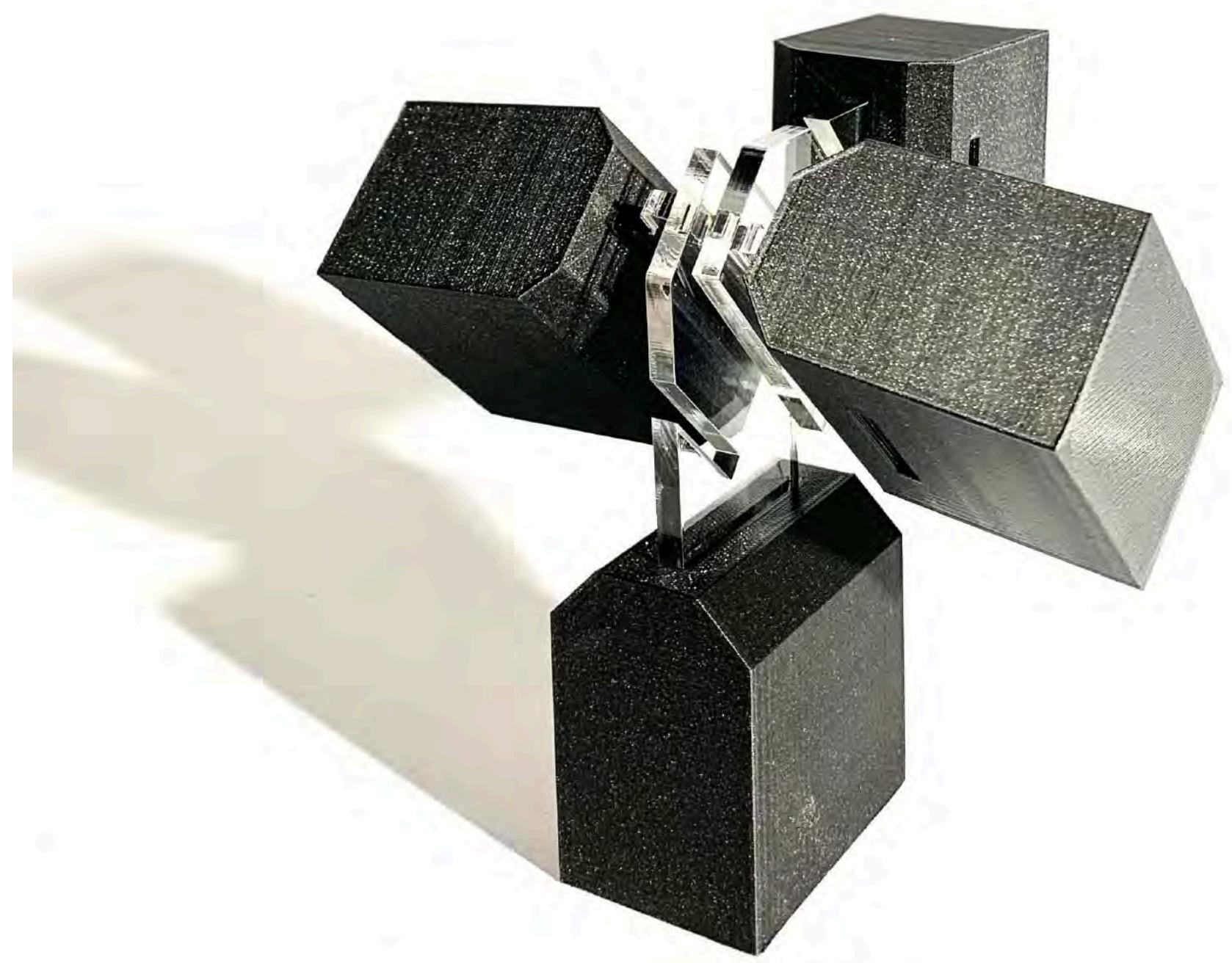
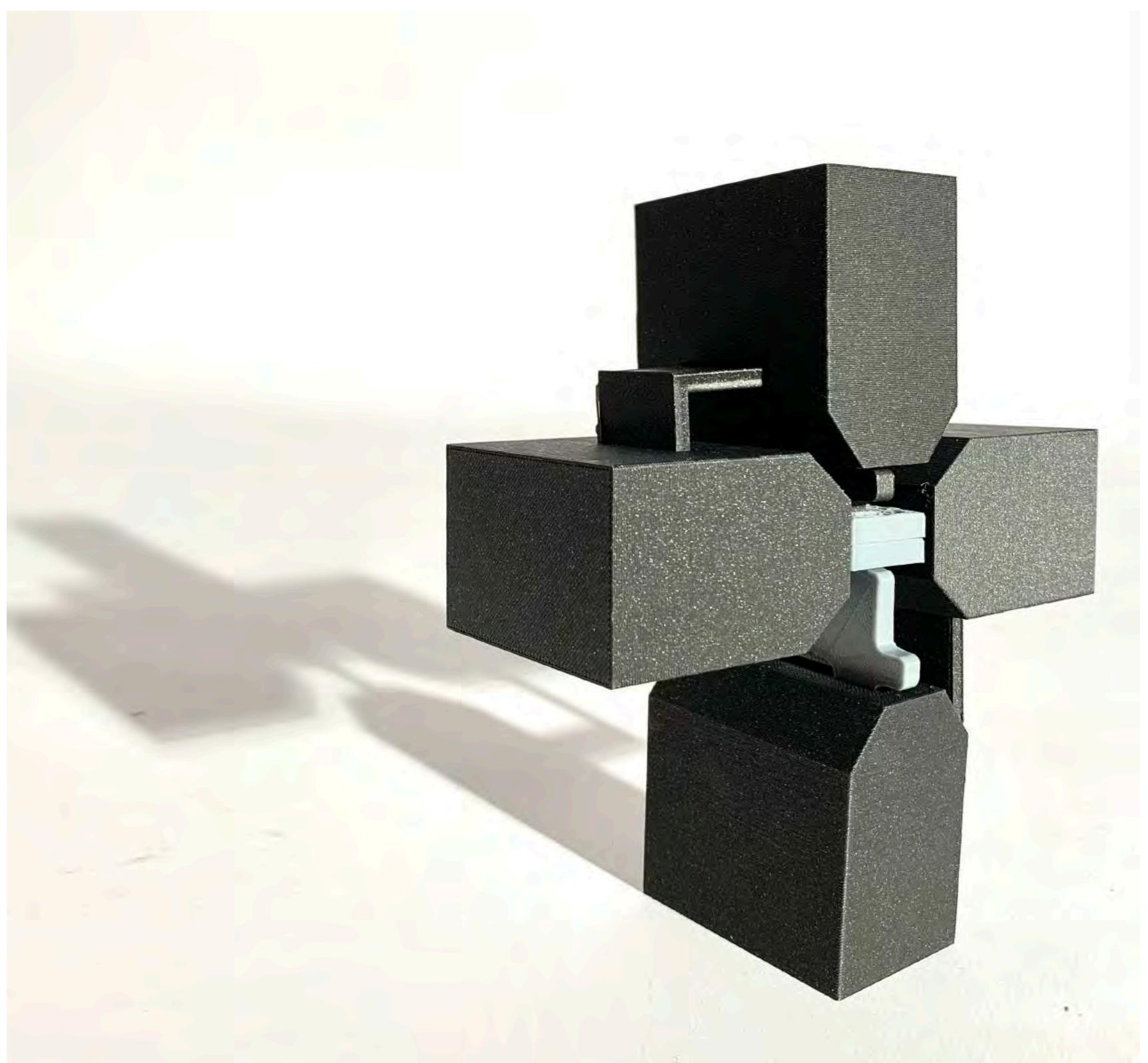


STRUCTURE CONNECTION
Revision

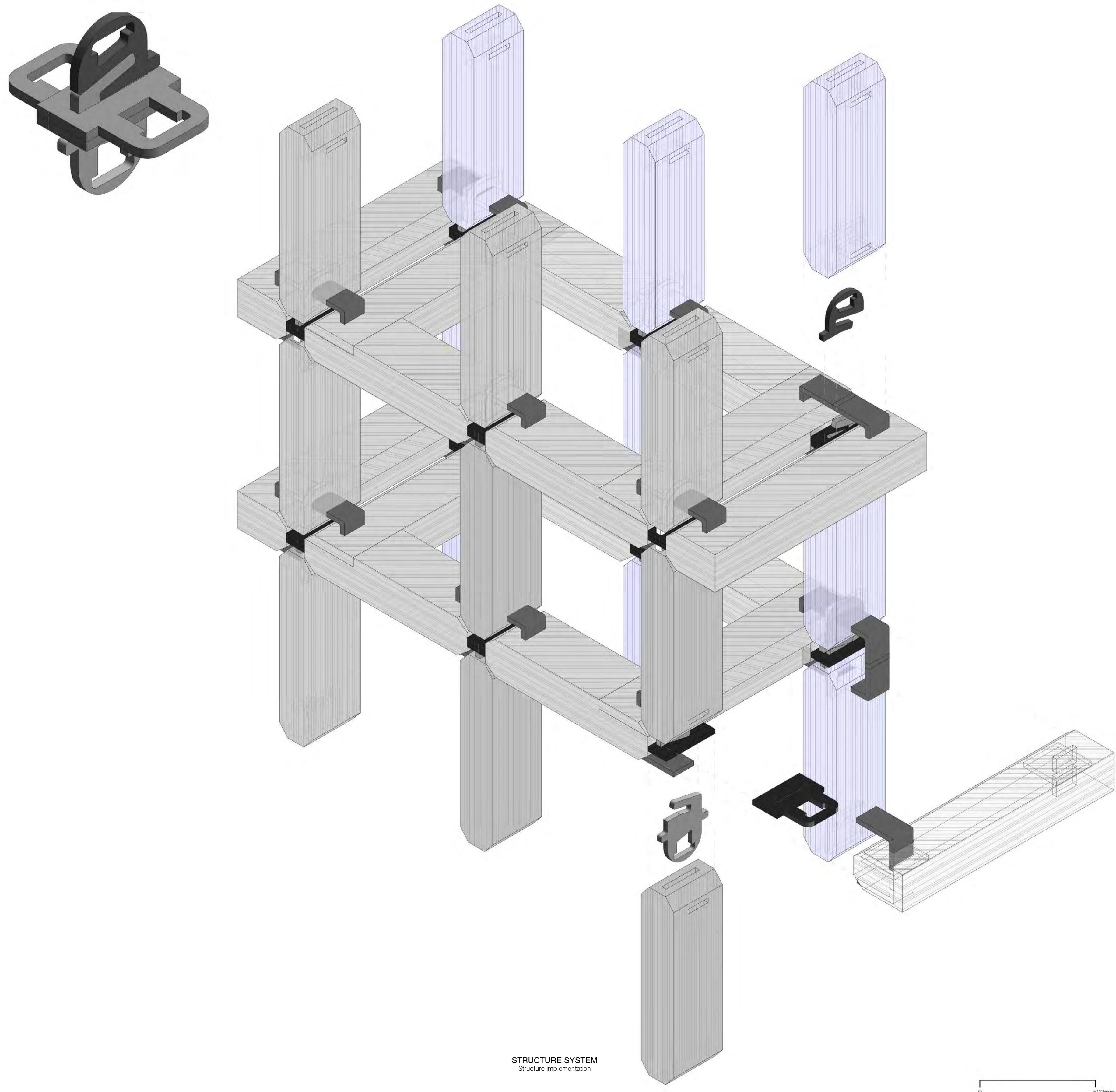
0 500mm

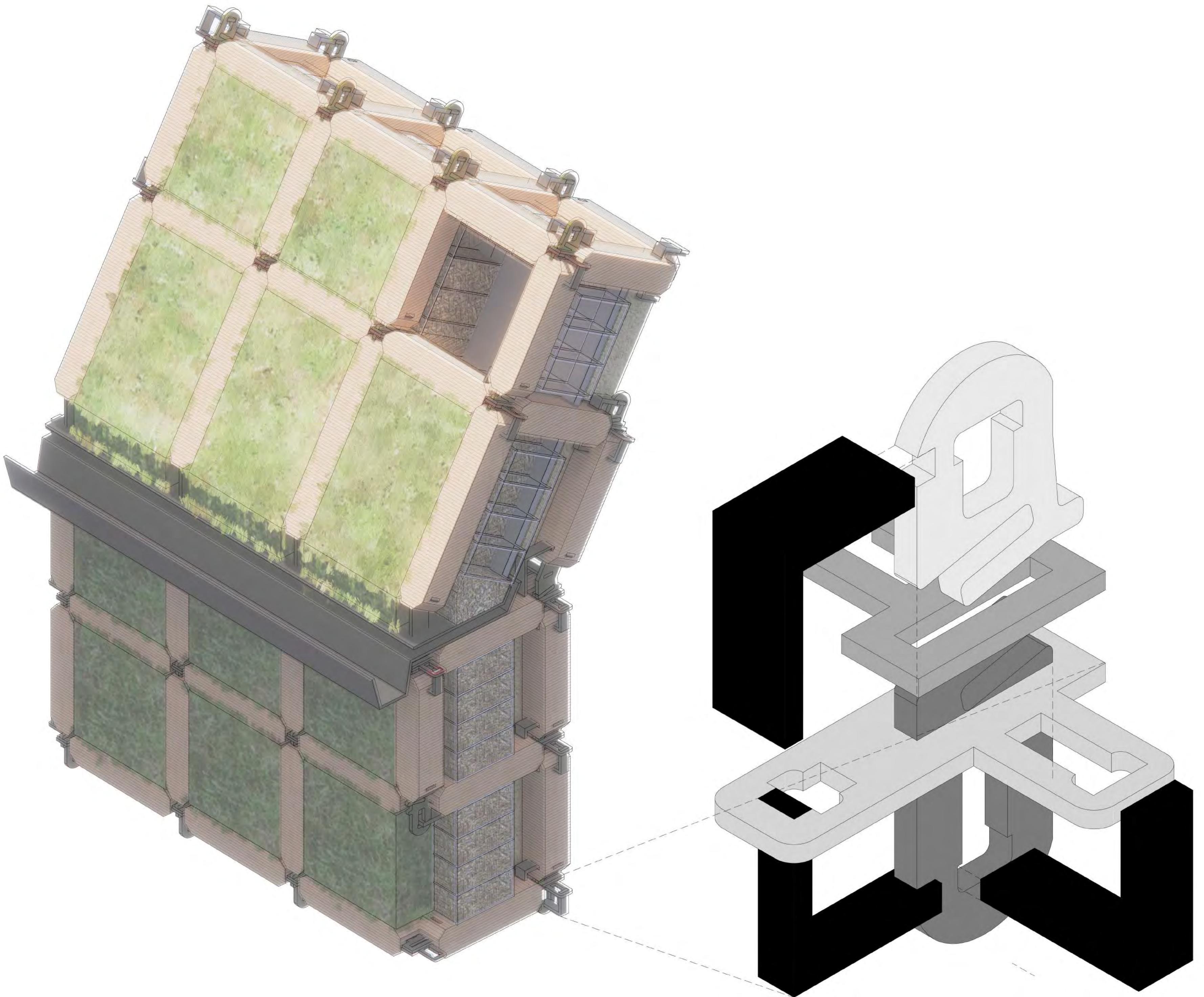


STRUCTURE CONNECTION
Visual index - See process book

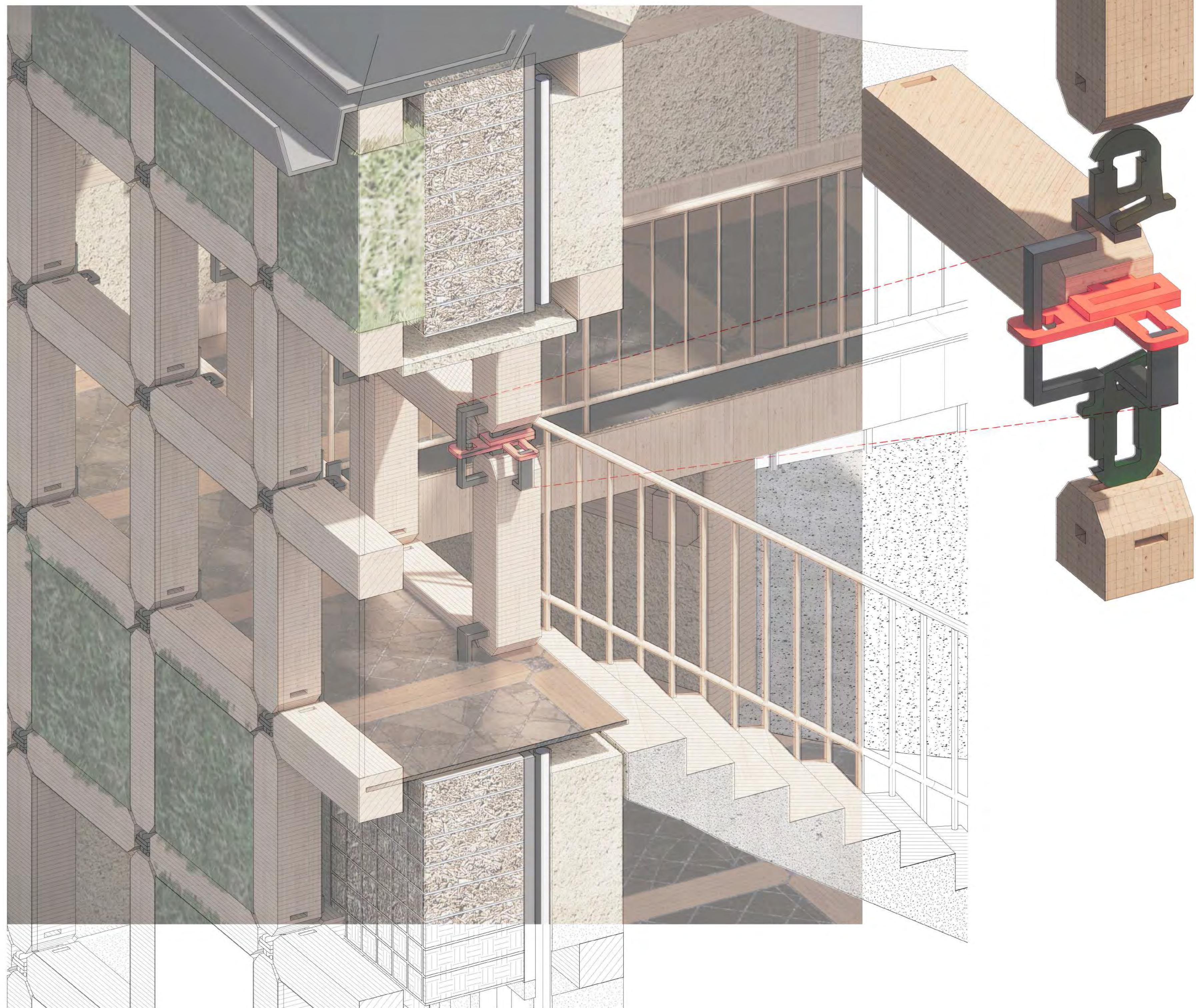


STRUCTURE SYSTEM
Development 3D PRINT TEST 2 & 3

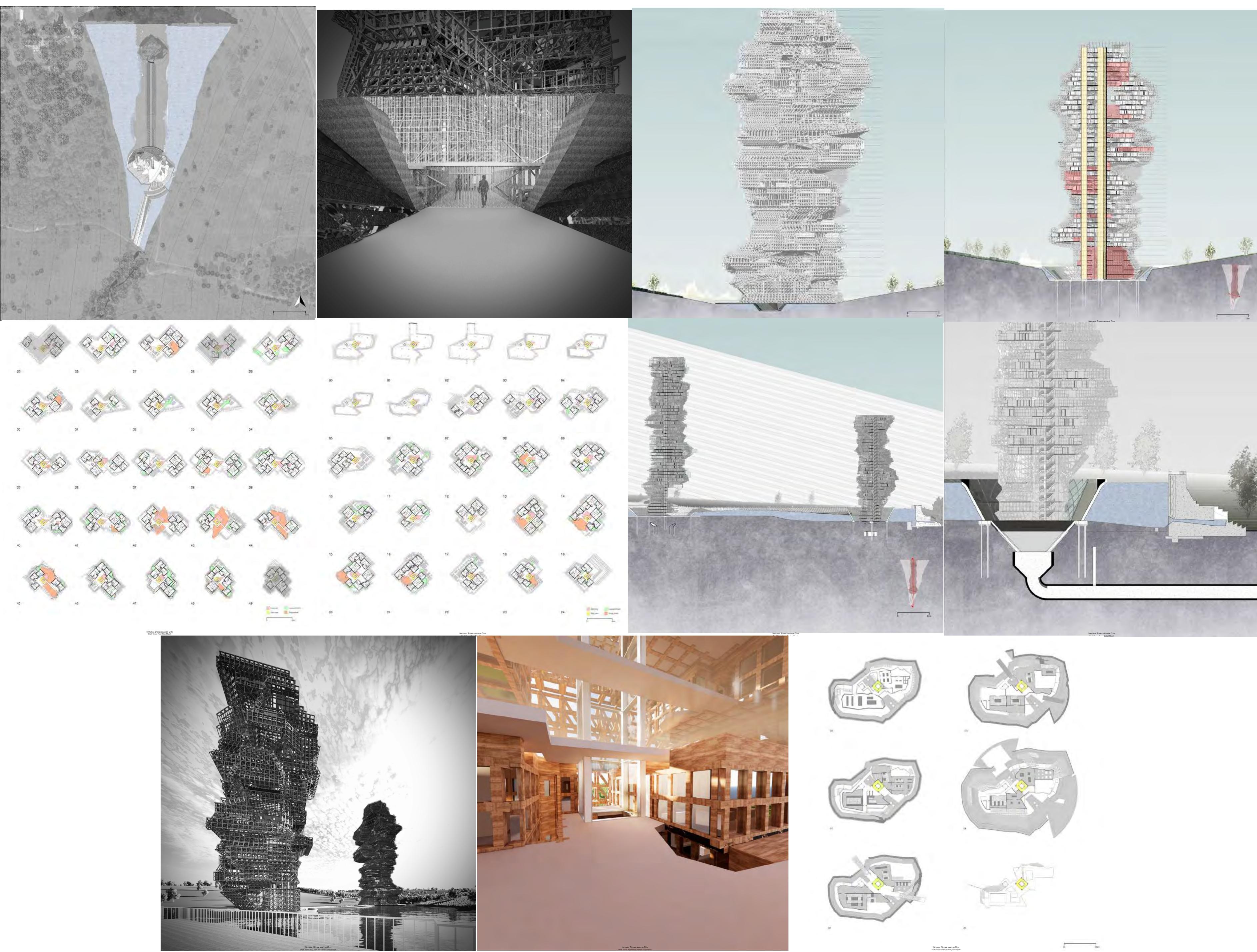




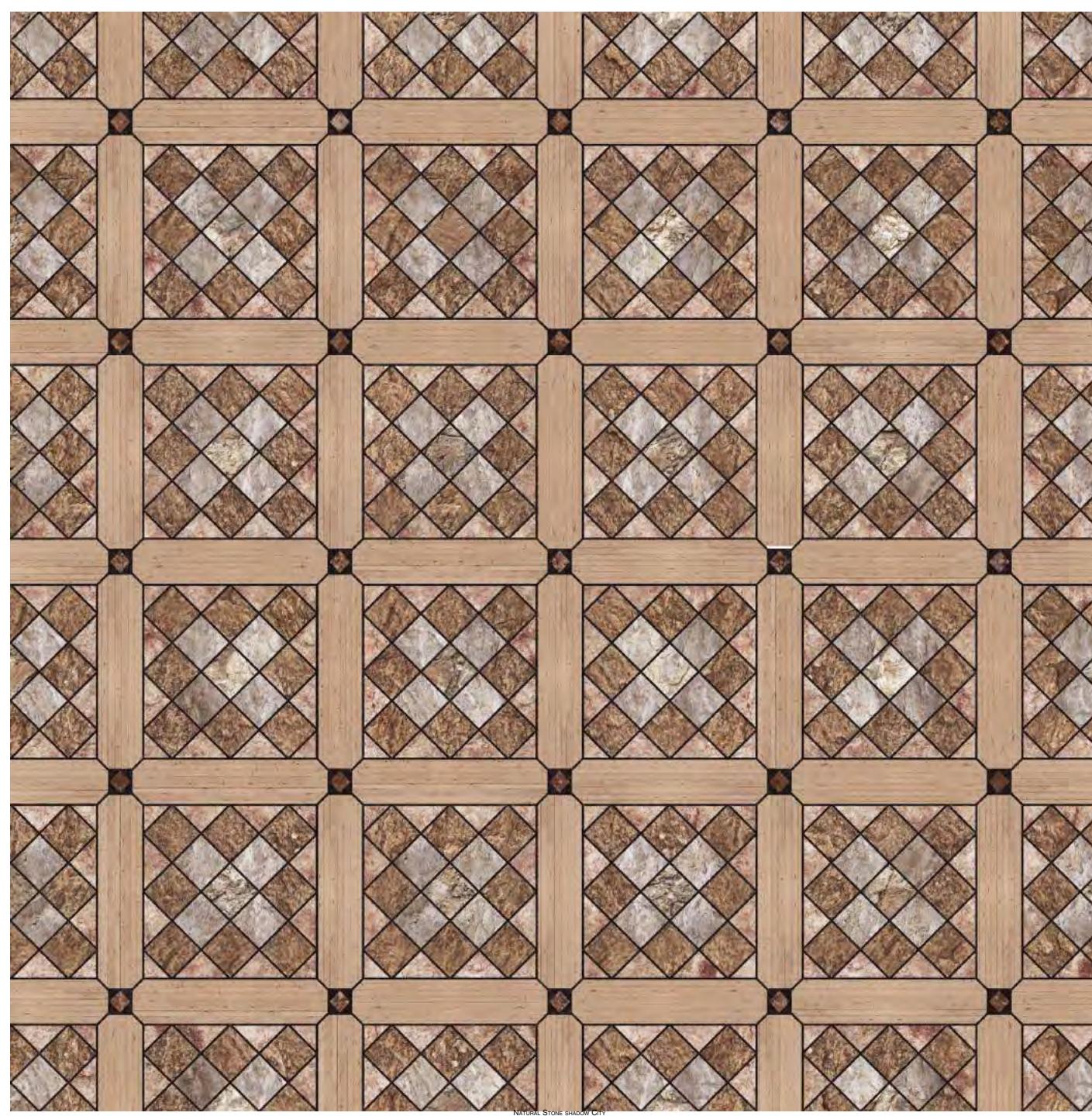
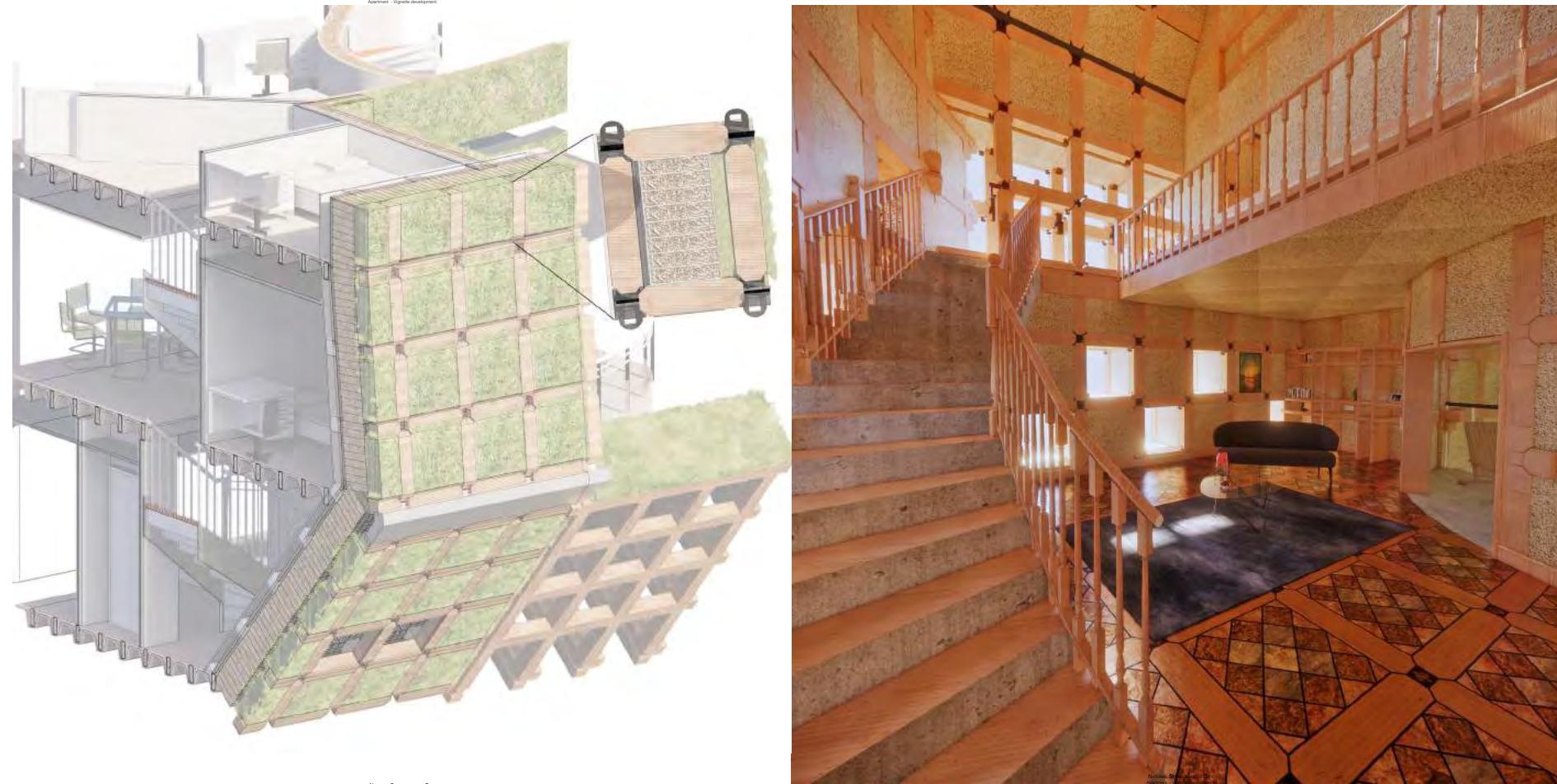
STRUCTURE SYSTEM
Application Study



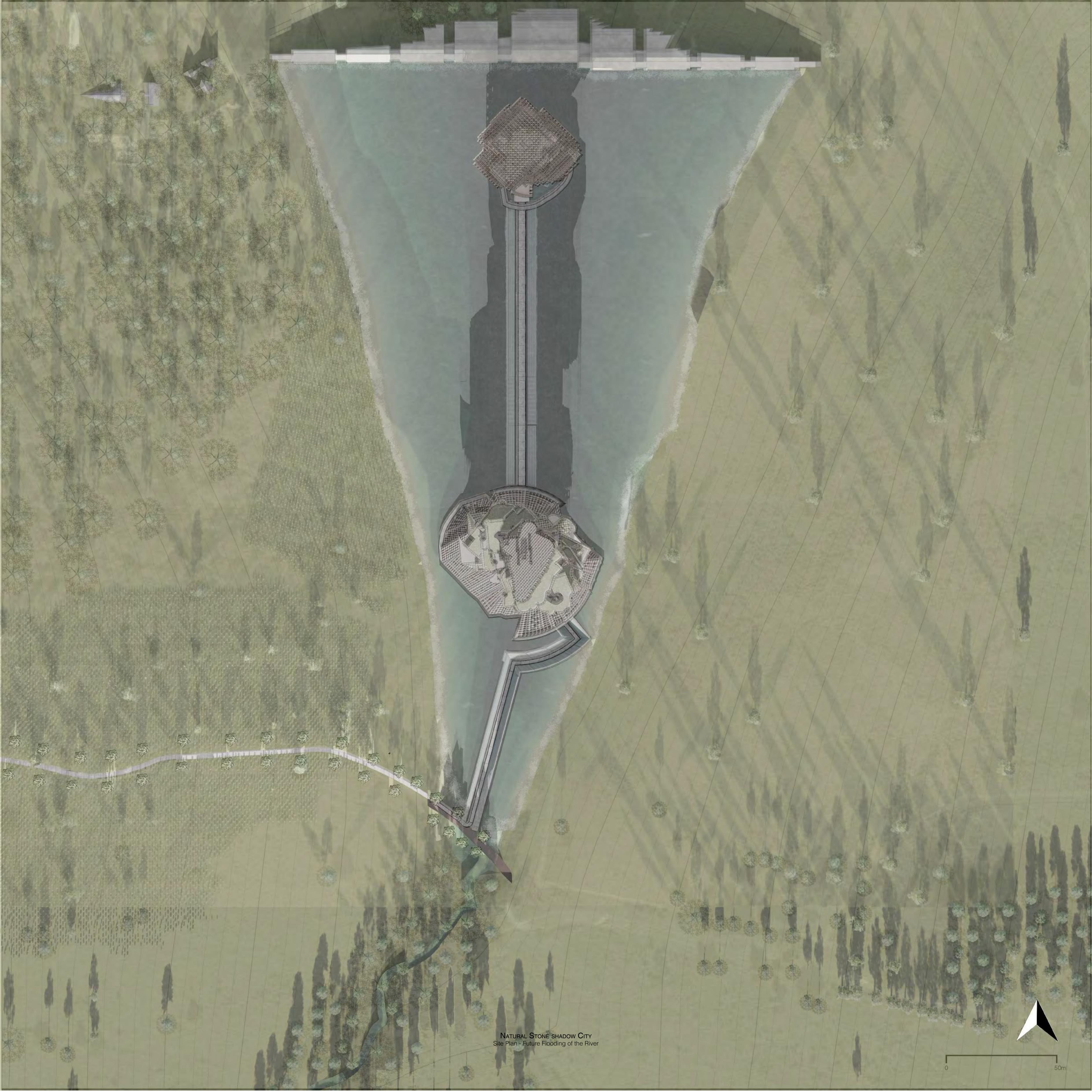
STRUCTURE CONNECTION
Detailed component of circulation



NATURAL STONE SHADOW CITY
March crit - Visual Index - See process book

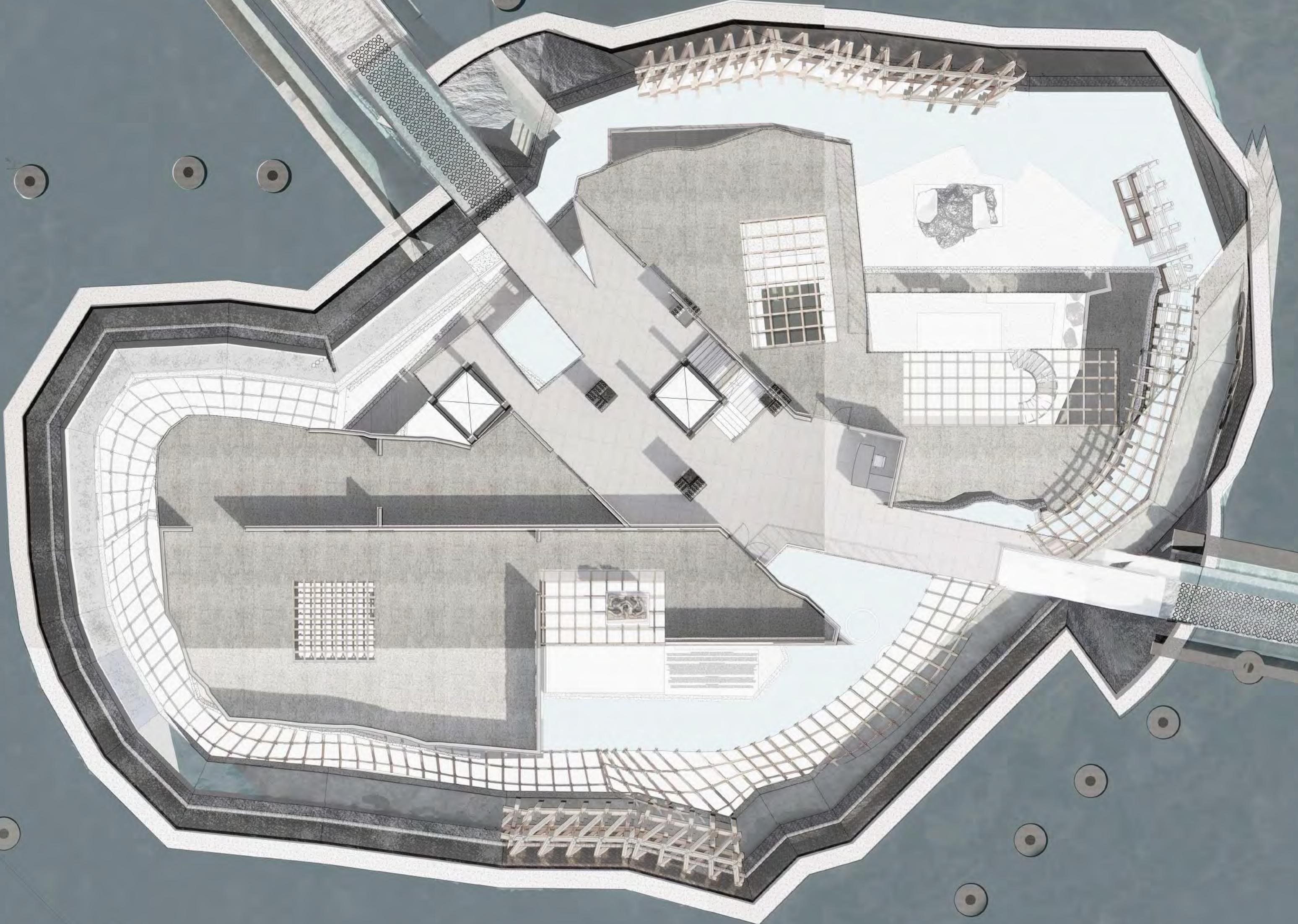


NATURAL STONE SHADOW CITY
Apartment/section development - Visual Index - See process book



NATURAL STONE SHADOW CITY
Site Plan - Future Flooding of the River

0 50m



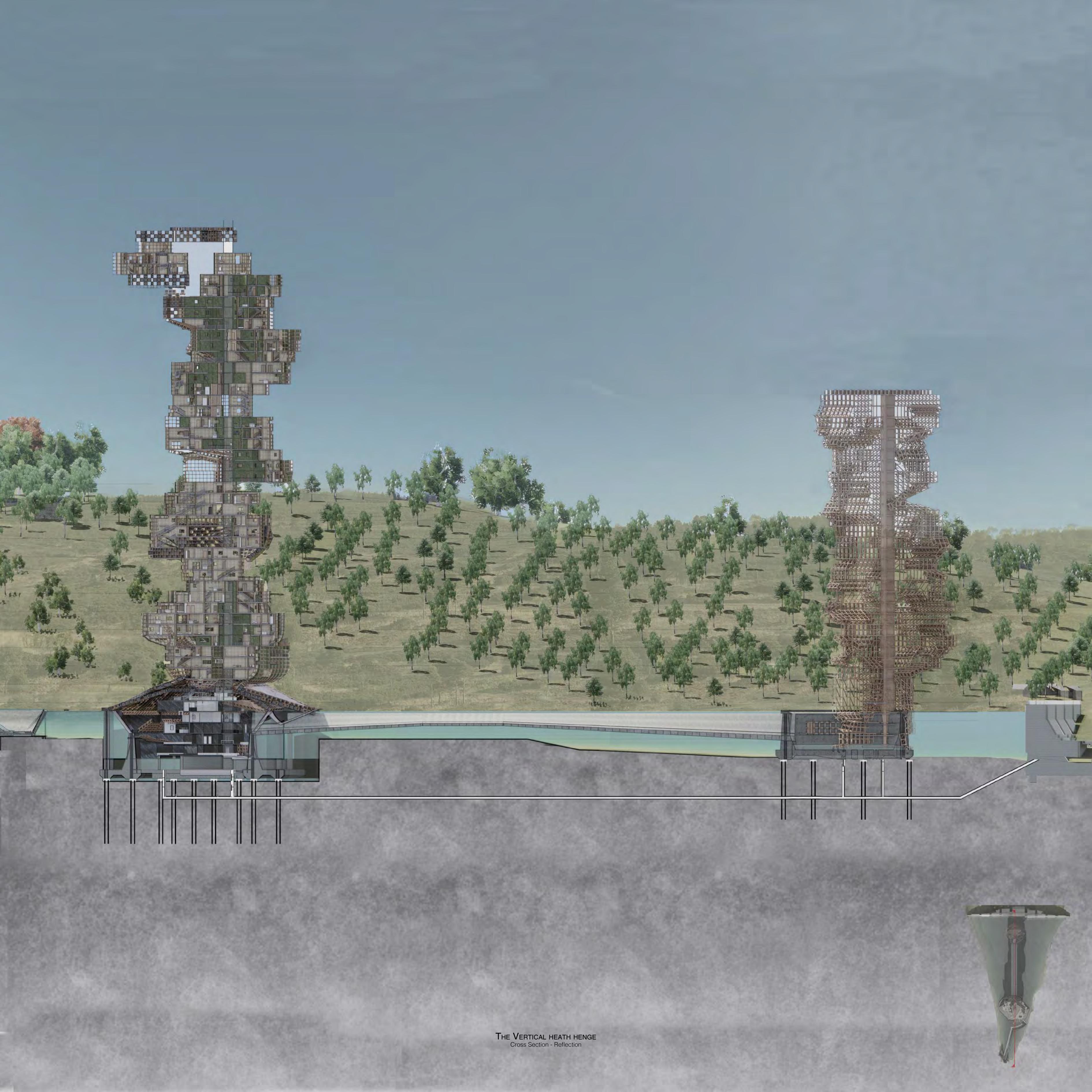
THE VERTICAL HEATH HENG
Main Hub ground floor plan



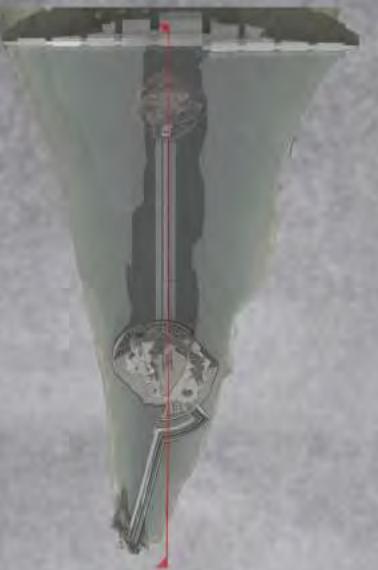
THE VERTICAL HEATH HENGE
Elevation - Natural form

0 15m





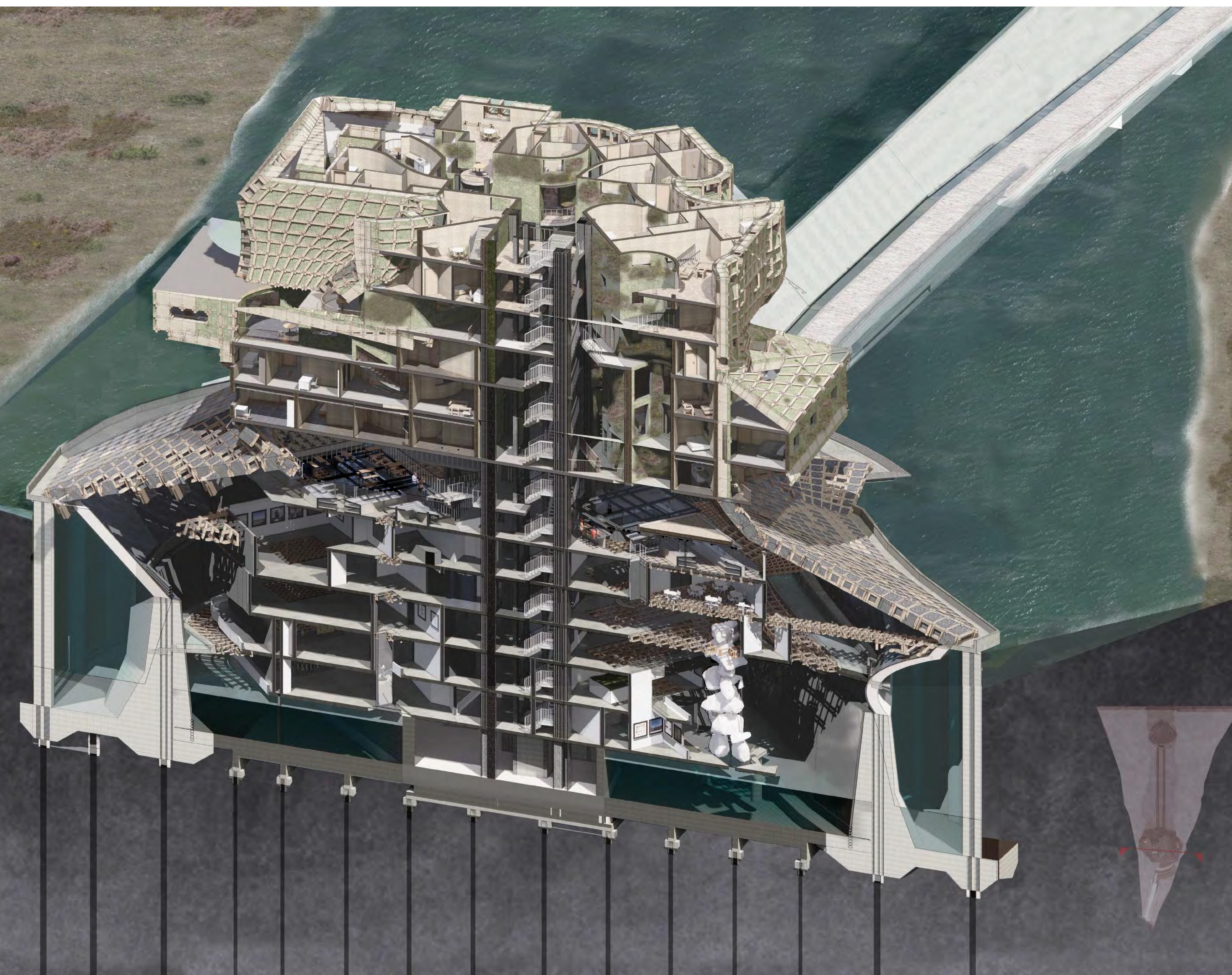
THE VERTICAL HEATH HENGE
Cross Section - Reflection



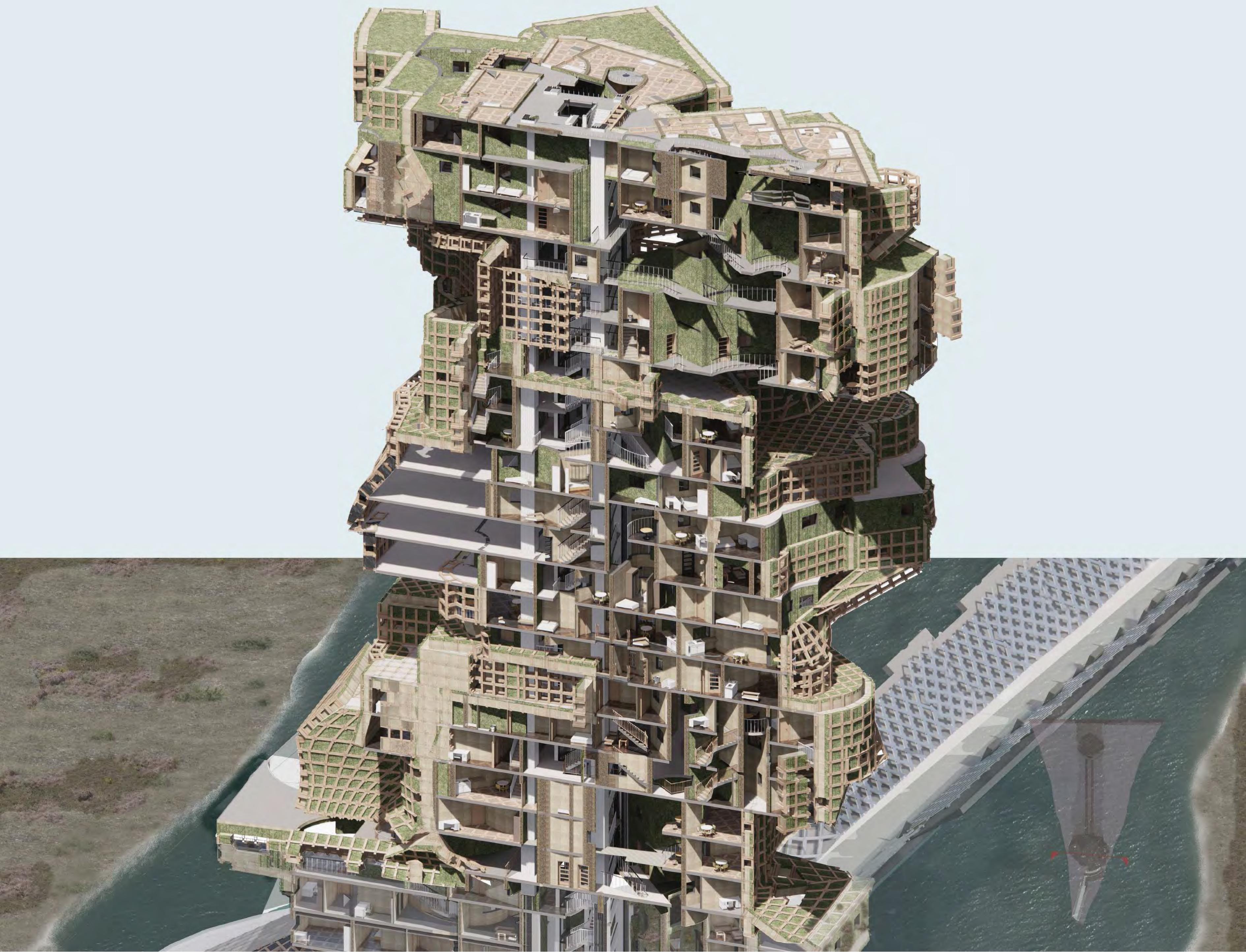


THE VERTICAL HEATH HENG
Section through the main hub

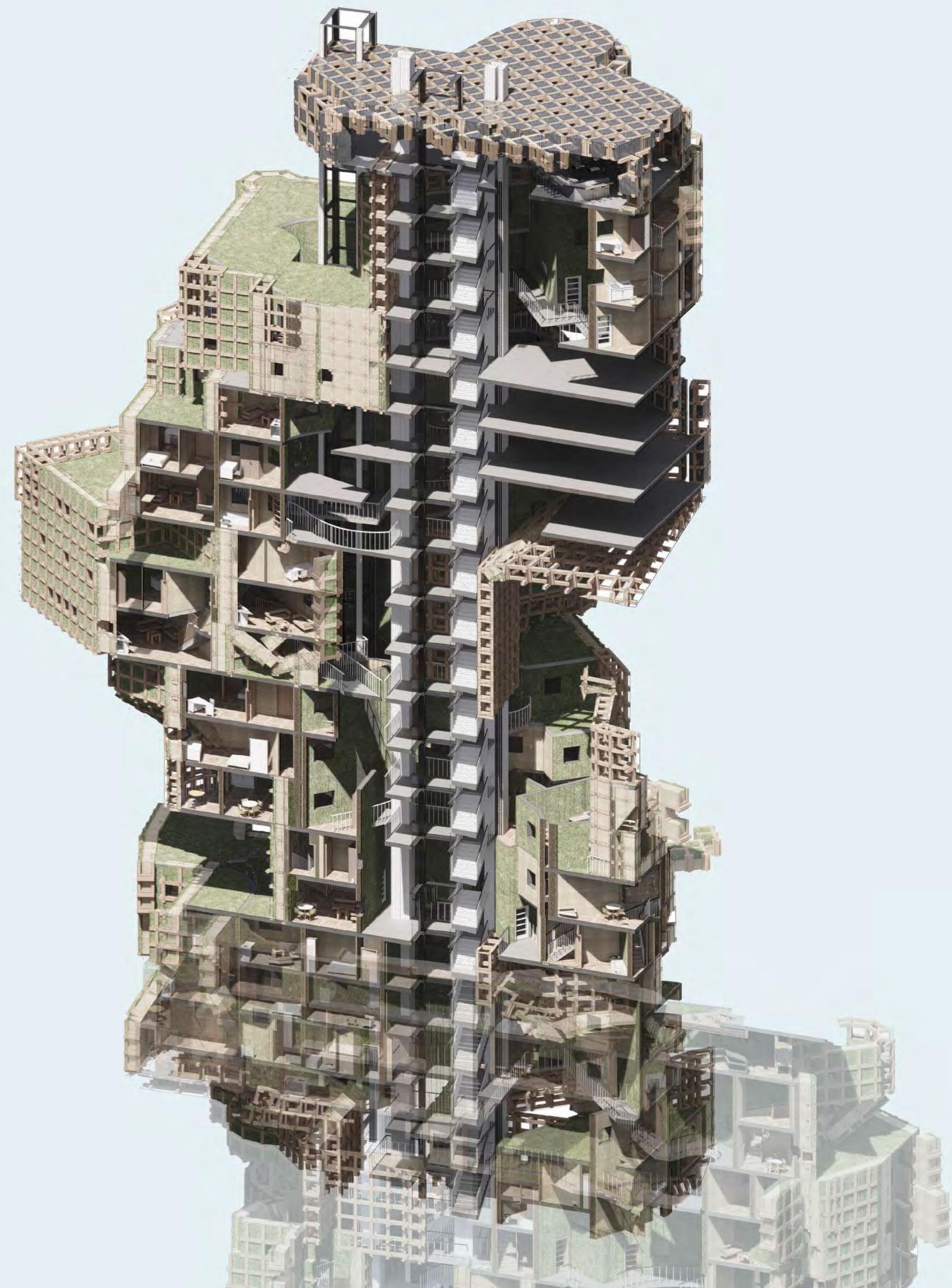
0 15m



THE VERTICAL HEATH HENGE
Sectional Dissection - BOTTOM



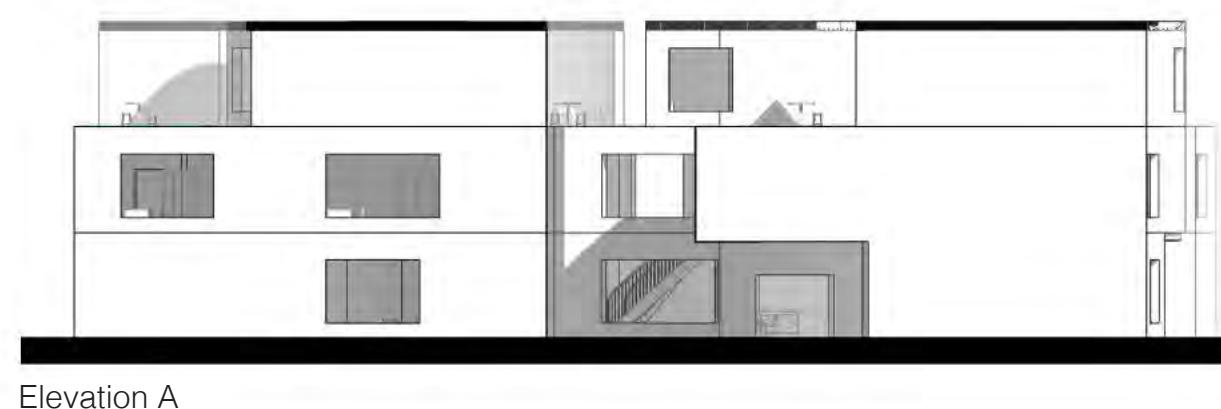
THE VERTICAL HEATH HENGE
Sectional Dissection - MIDDLE



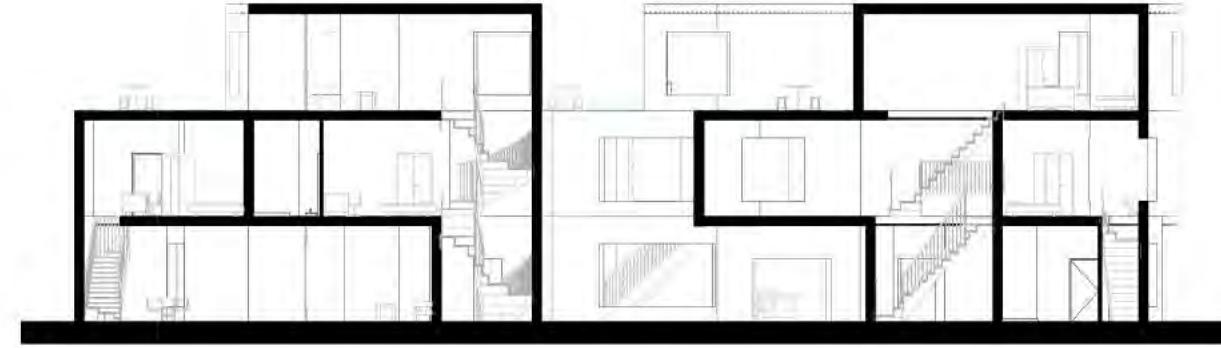
THE VERTICAL HEATH HENGE
Sectional Dissection - TOP

OKURAYAMA APARTMENT
KAZUYO SEJIMA & ASSOCIATES

It is an apartment building in Okurayama in Japan with 9 Apartment units, each about 50 smq. The apartments were constructed to produce open spaces and an dynamic atmosphere that people can enjoy living and spending lots of time in. Courtyard gardens are created such that they open up to the outside of the site from the rectangular shaped three-storied volume. In this way each garden and room opens toward outside environment while maintaining privacy. The plan has gardens cut through a rectilinear plan making it a continuous strip-shape. The cutting of strip-shaped plan randomly allows for some spaces inside and some outside terraces. The idea is the courtyard to run through from the interior to the exterior continuously. From windows opening in various directions, people can have different kinds of views such as gardens with a closed and quiet atmosphere, softly curved outside walls or townscapes. Apartments are gathered together in relation to the open spaces; one Apartment for example has a large room surrounded by a garden on the first floor and small bed room on the upper floor. Another Apartment has a three pronged room and an outside terrace on the second floor, another Apartment has a big terrace on the third floor. This is randomized throughout.



Elevation A

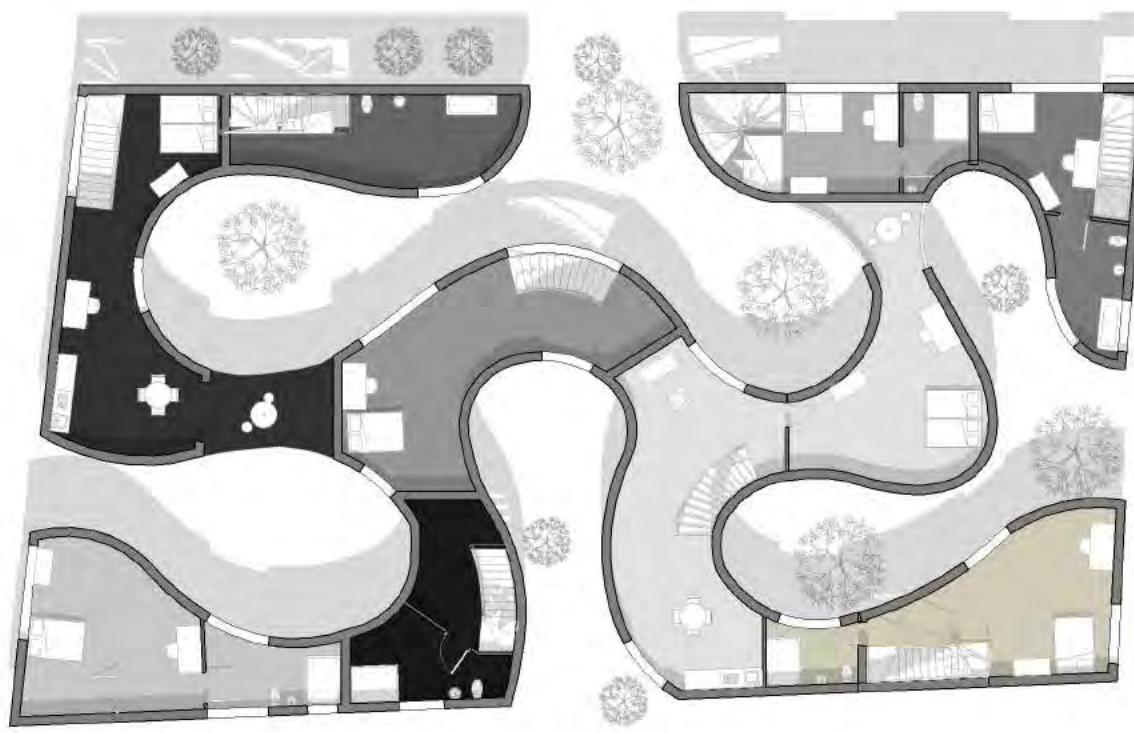


Section A

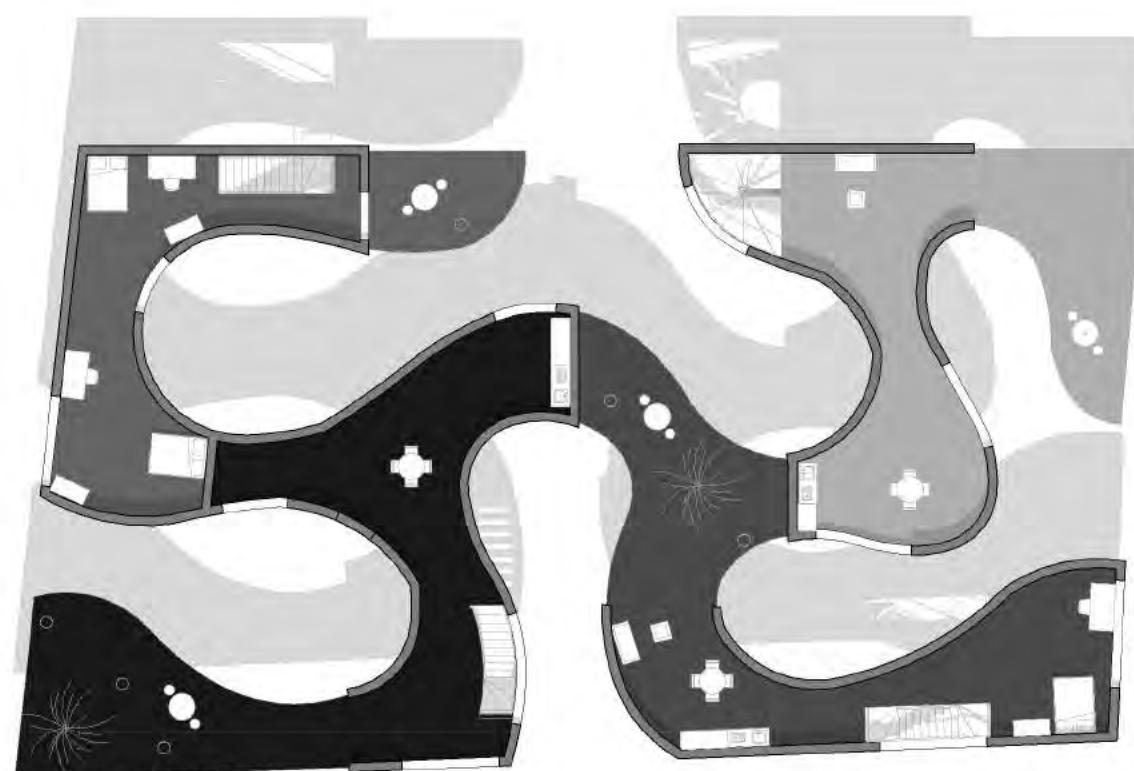
0 12.5m



GF Floor Plan



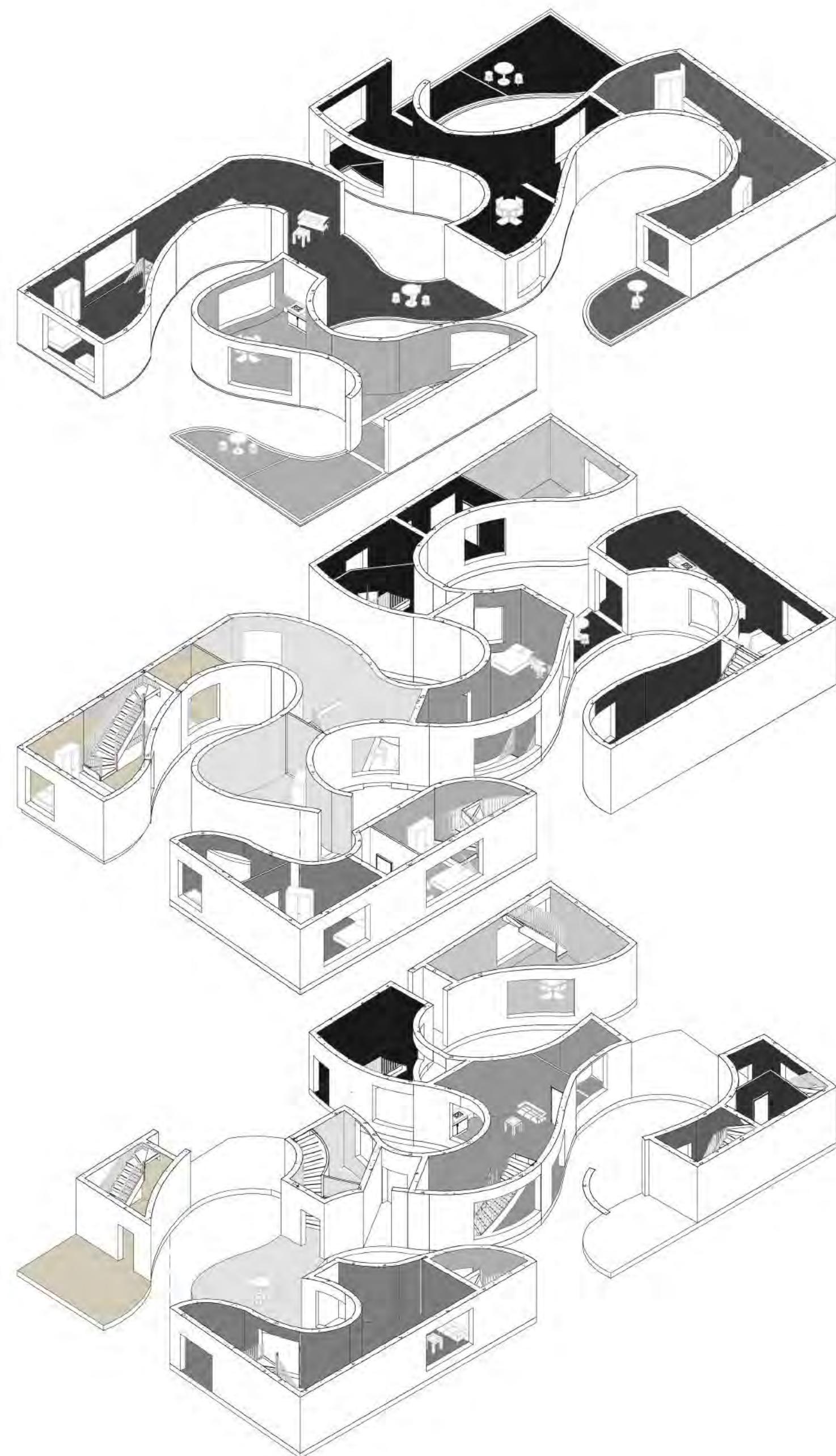
FF Floor Plan



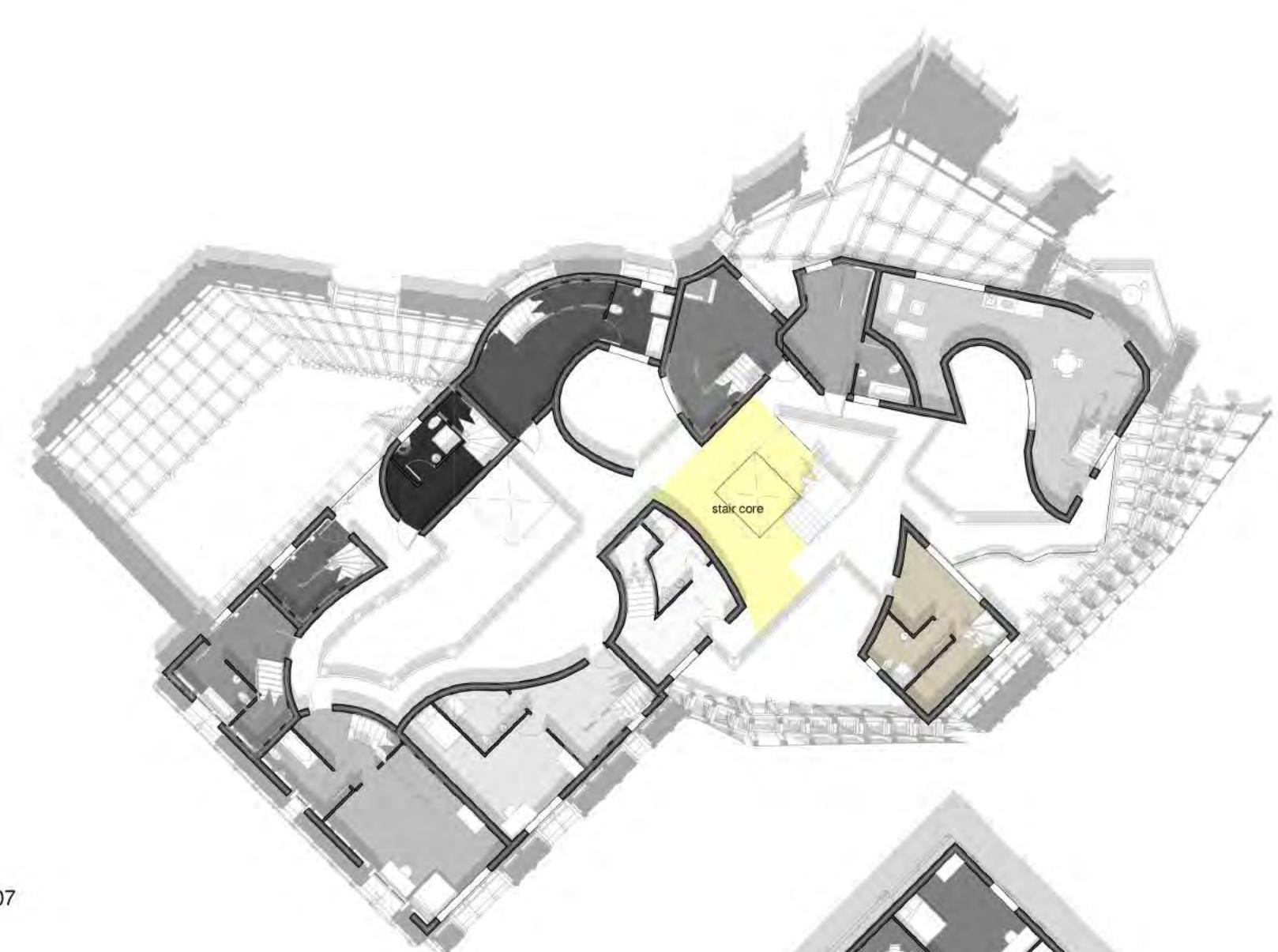
SF Floor Plan

- Apartment 1
- Apartment 2
- Apartment 3
- Apartment 4
- Apartment 5
- Apartment 6
- Apartment 7
- Apartment 8
- Apartment 9

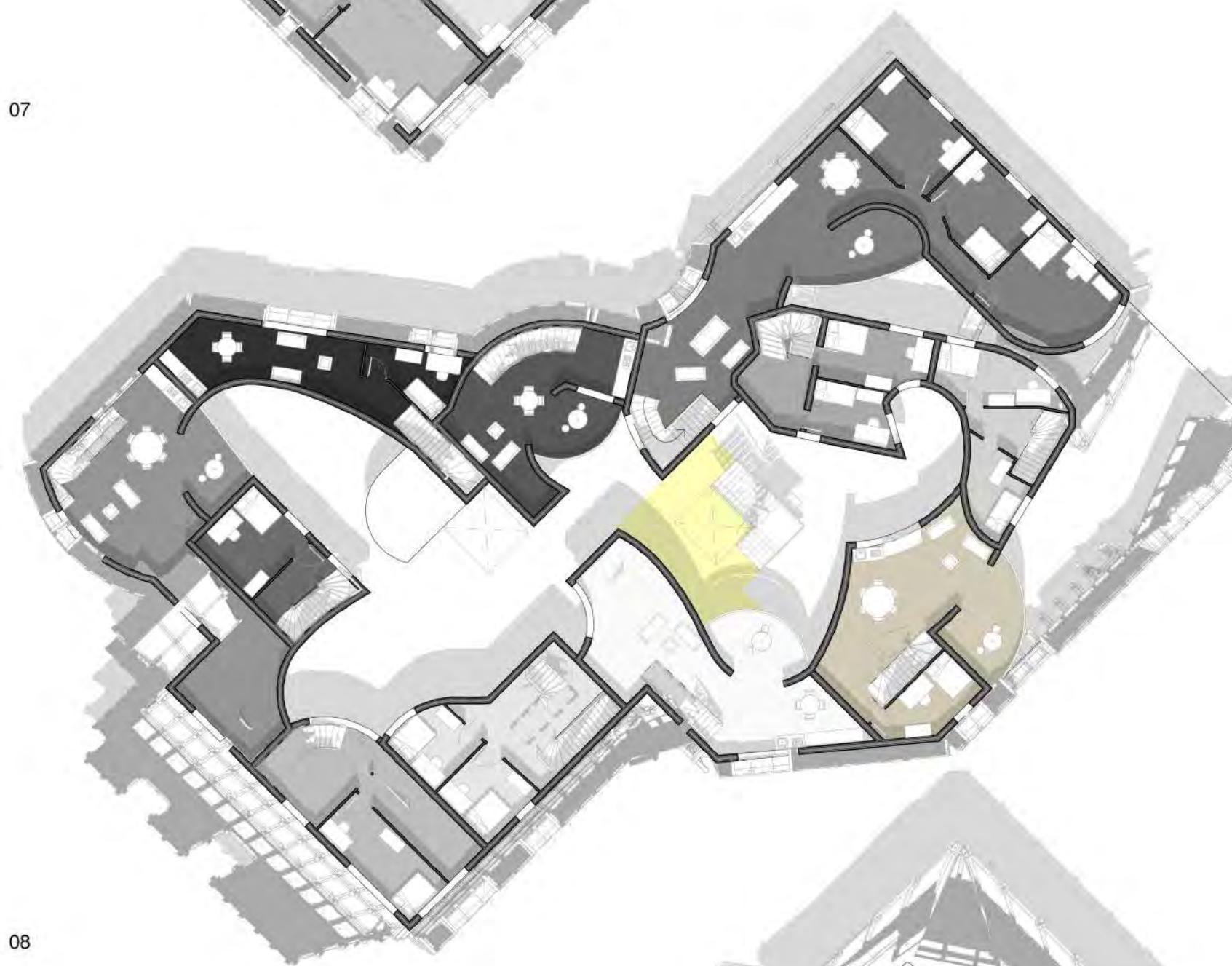
0 12.5m



Exploded drawing of Apartments
0 10m



07



08

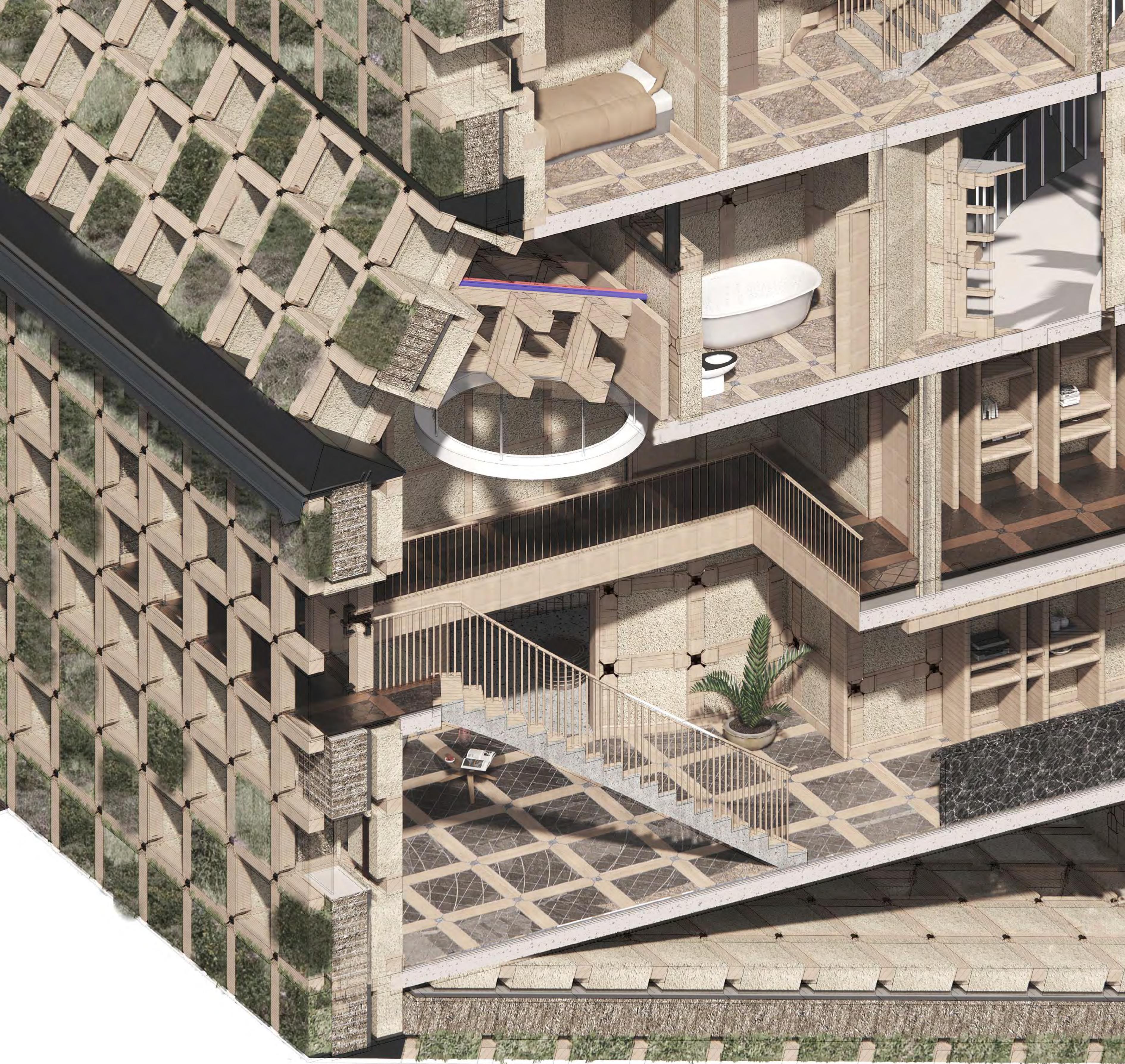


09

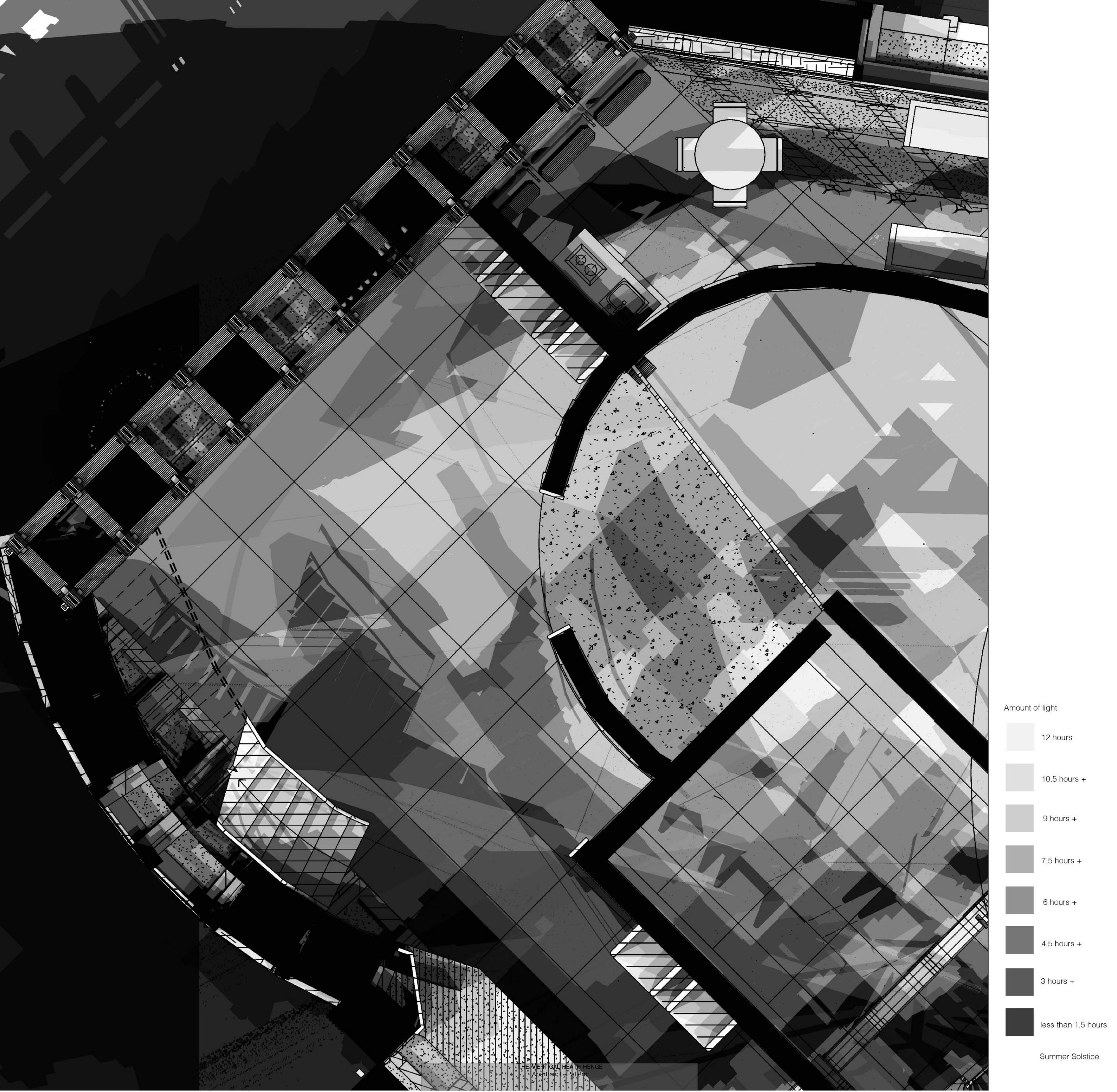
THE VERTICAL HEATH HENGE
Apartment - Plan

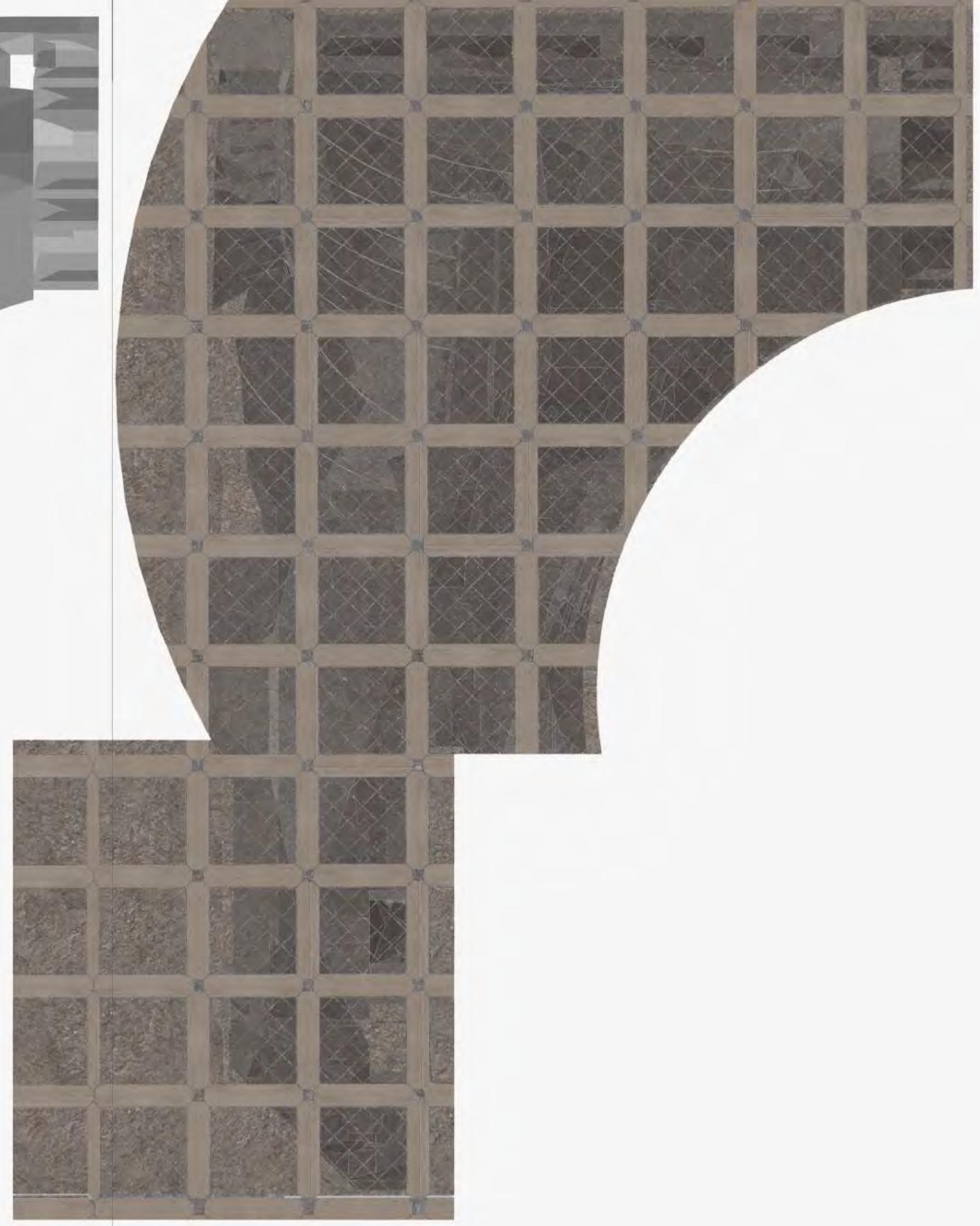
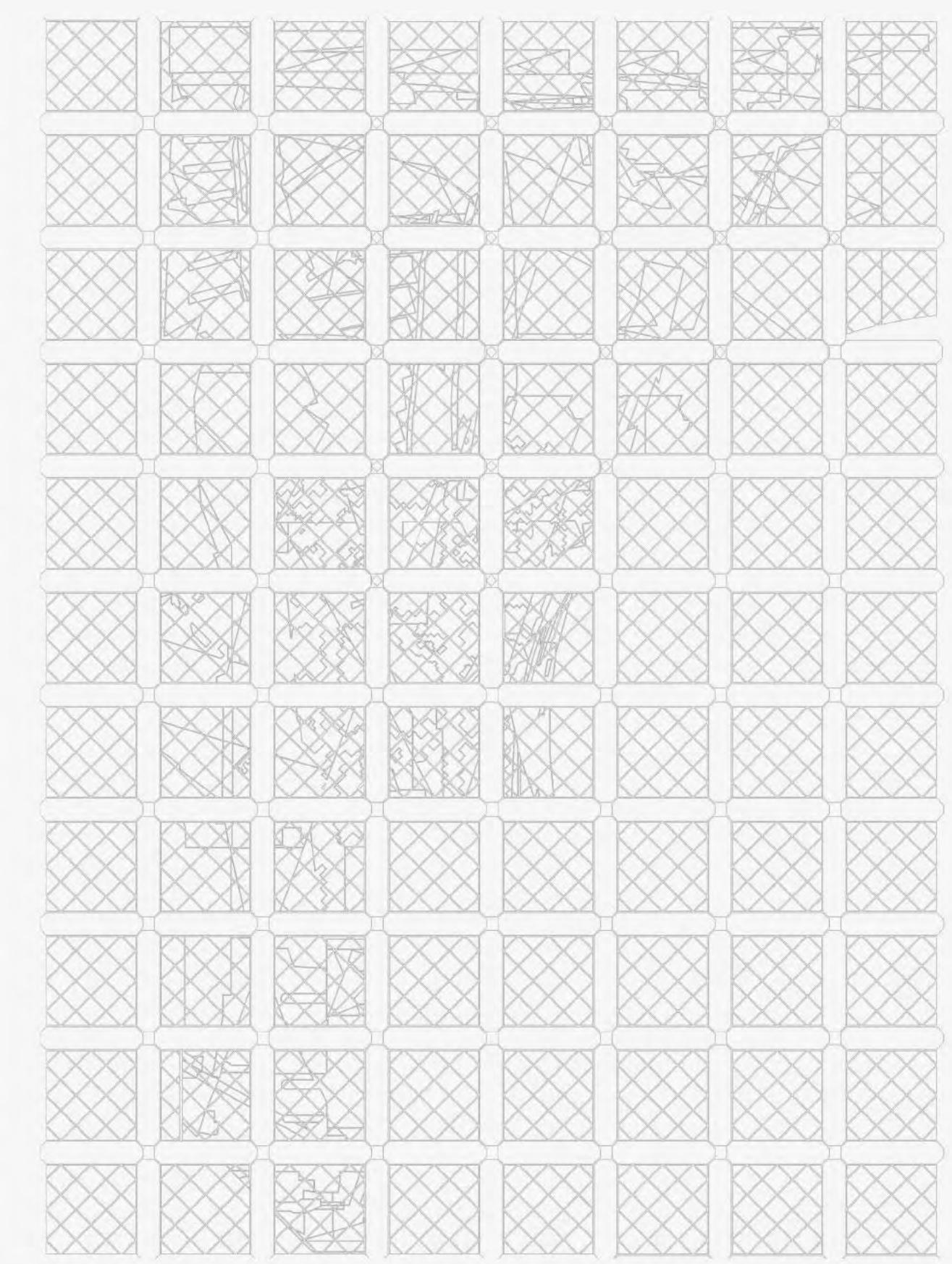
| | |
|---------------|----------------|
| ■ Apartment 1 | ■ Apartment 7 |
| ■ Apartment 2 | ■ Apartment 8 |
| ■ Apartment 3 | ■ Apartment 9 |
| ■ Apartment 4 | ■ Apartment 10 |
| ■ Apartment 5 | ■ Apartment 11 |
| ■ Apartment 6 | ■ stair core |

Scale 1:250
0 2.5 5 7.5 12.5m

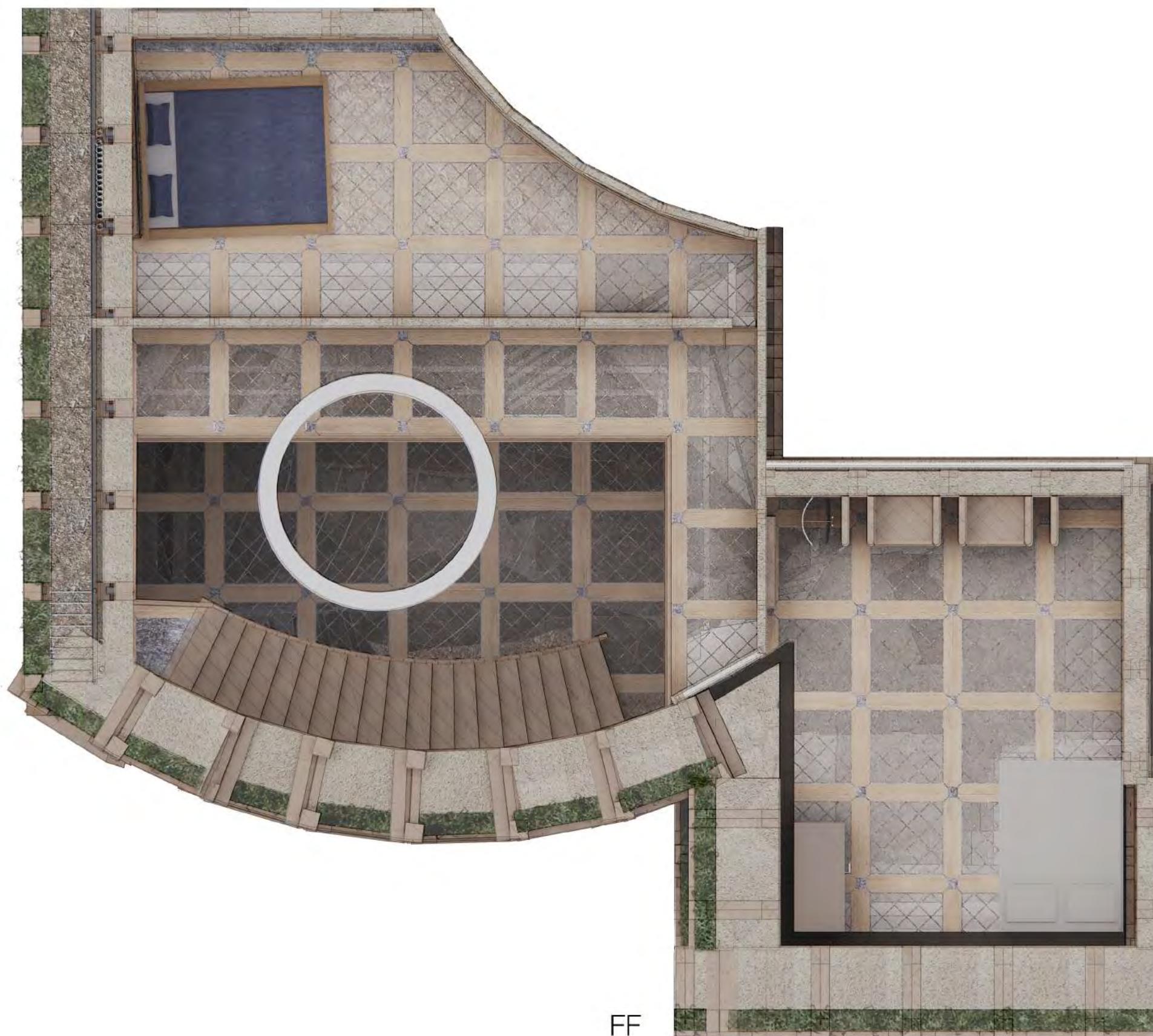
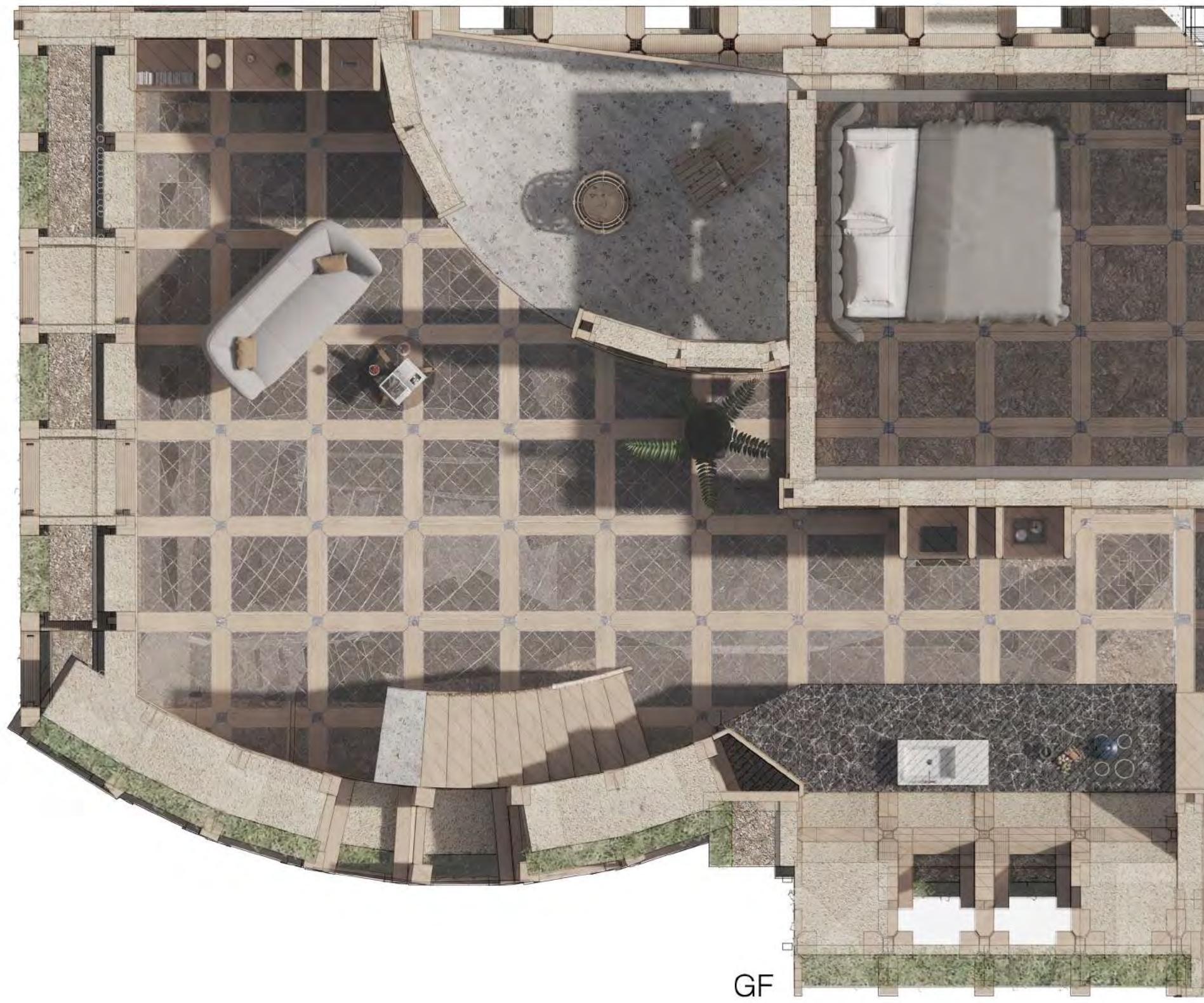


THE VERTICAL HEATH HENGE
Apartment - Dissection





THE VERTICAL HEATH HENGE
Apartment - shadow texture pattern



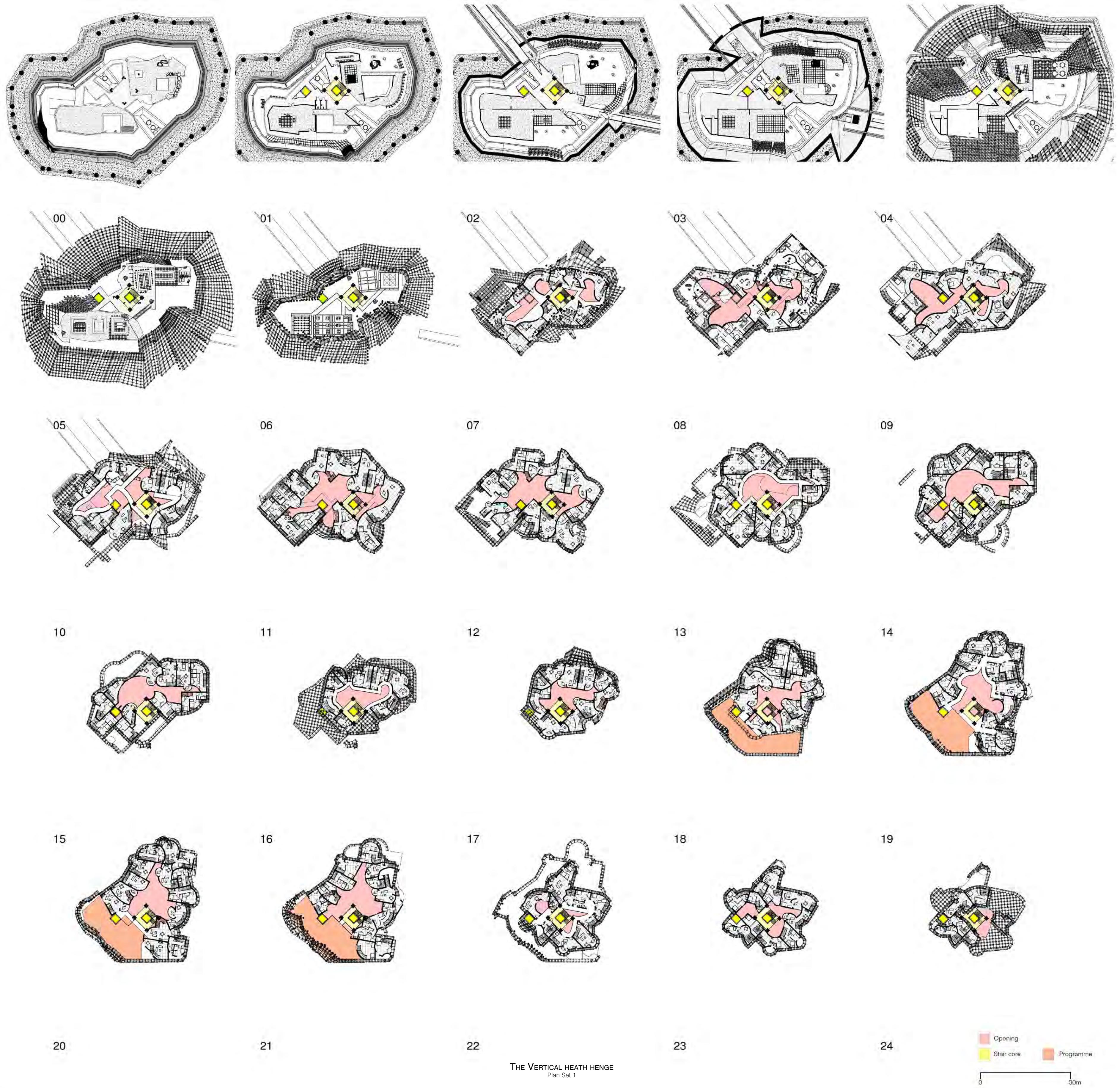
THE VERTICAL HEATH HENGE
Apartment - Shadow texture pattern floor plans



THE VERTICAL HEATH HENGE
Apartment Living space - Vignette



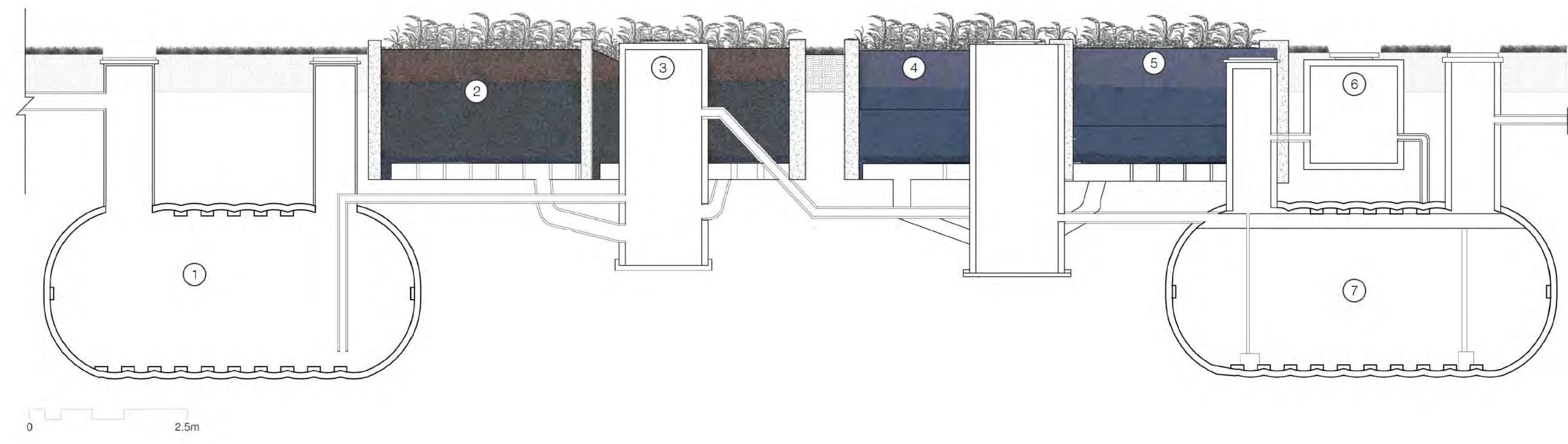
THE VERTICAL HEATH HENGE
Apartment shadow texture - Vignette





THE VERTICAL HEATH HENGE
Archive - Plan

0 1.5 3 4.5 7.5m



LIVING MACHINE PROCESS
 1) Primary tanks & components
 2) Stage 1 - Living machine wetland cells
 3) Tidal Module
 4) Stage 2 - Living machine wetland cells
 5) Plants
 6) Polishing module
 7) Reuse tank & components

PLANT FILTRATION METHOD
 Living machine



THE VERTICAL HEATH HENGE
Archive - Vignette



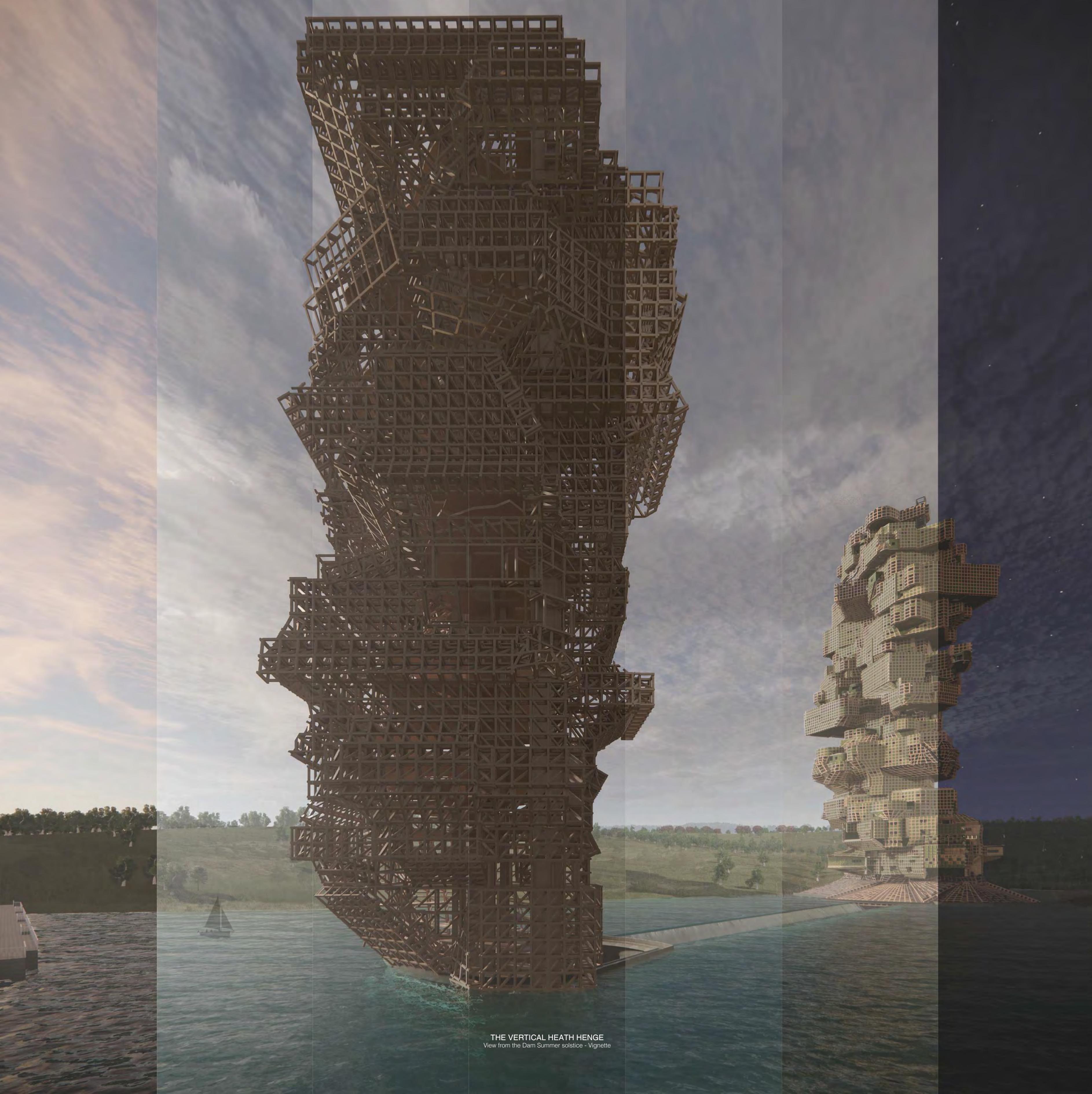
THE VERTICAL HEATH HENGE
Walkway - Vignette



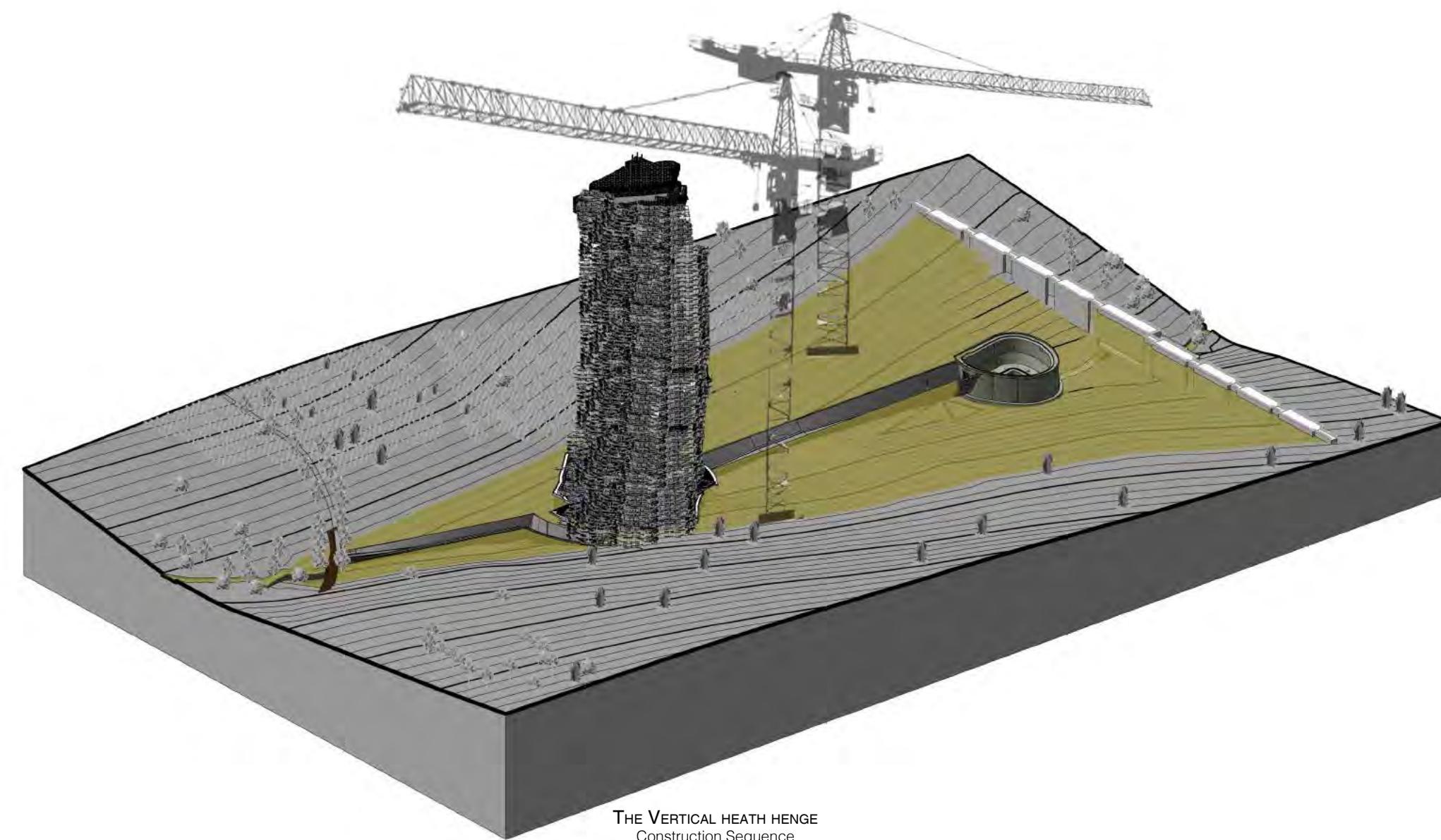
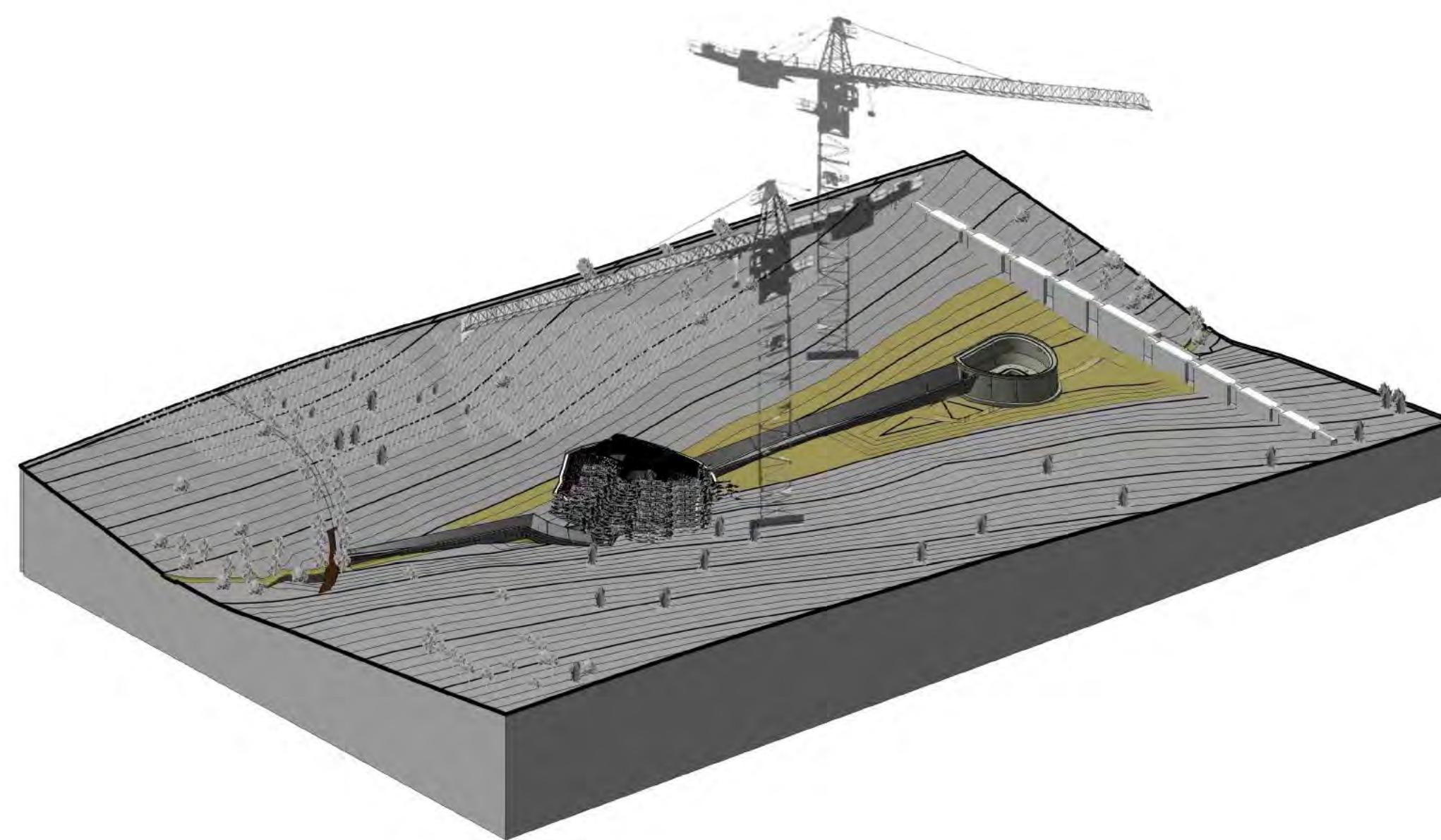
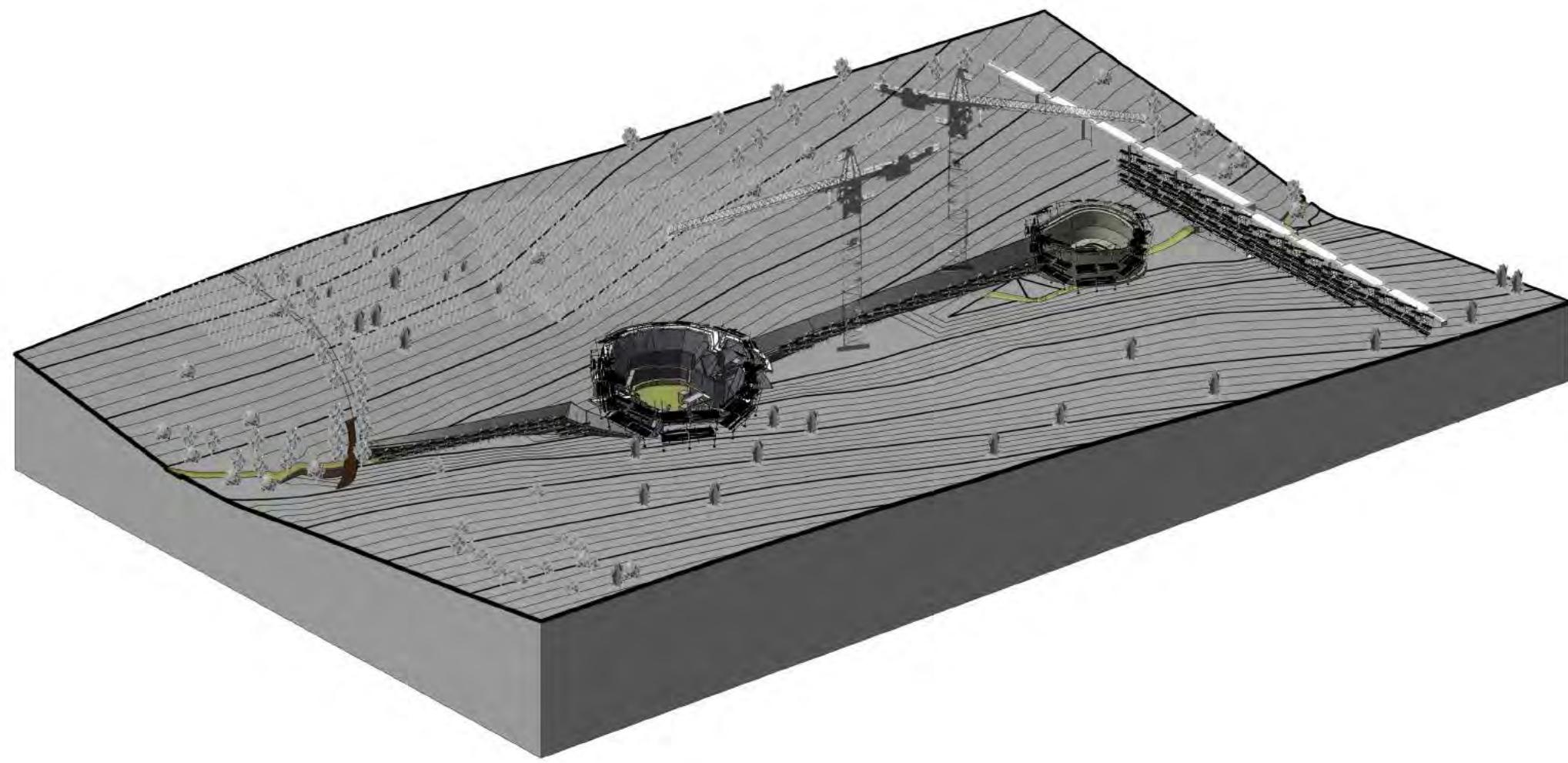
THE VERTICAL HEATH HENGE
Entrance- Vignette



THE VERTICAL HEATH HENGE
View from Blackhill Woods



THE VERTICAL HEATH HENGE
View from the Dam Summer solstice - Vignette



THE VERTICAL HEATH HENGE
Construction Sequence



THE VERTICAL HEATH HENGE
Front Entrance Summer solstice day- Vignette



THE VERTICAL HEATH HENGE
The sunrise between the Henge's - Vignette