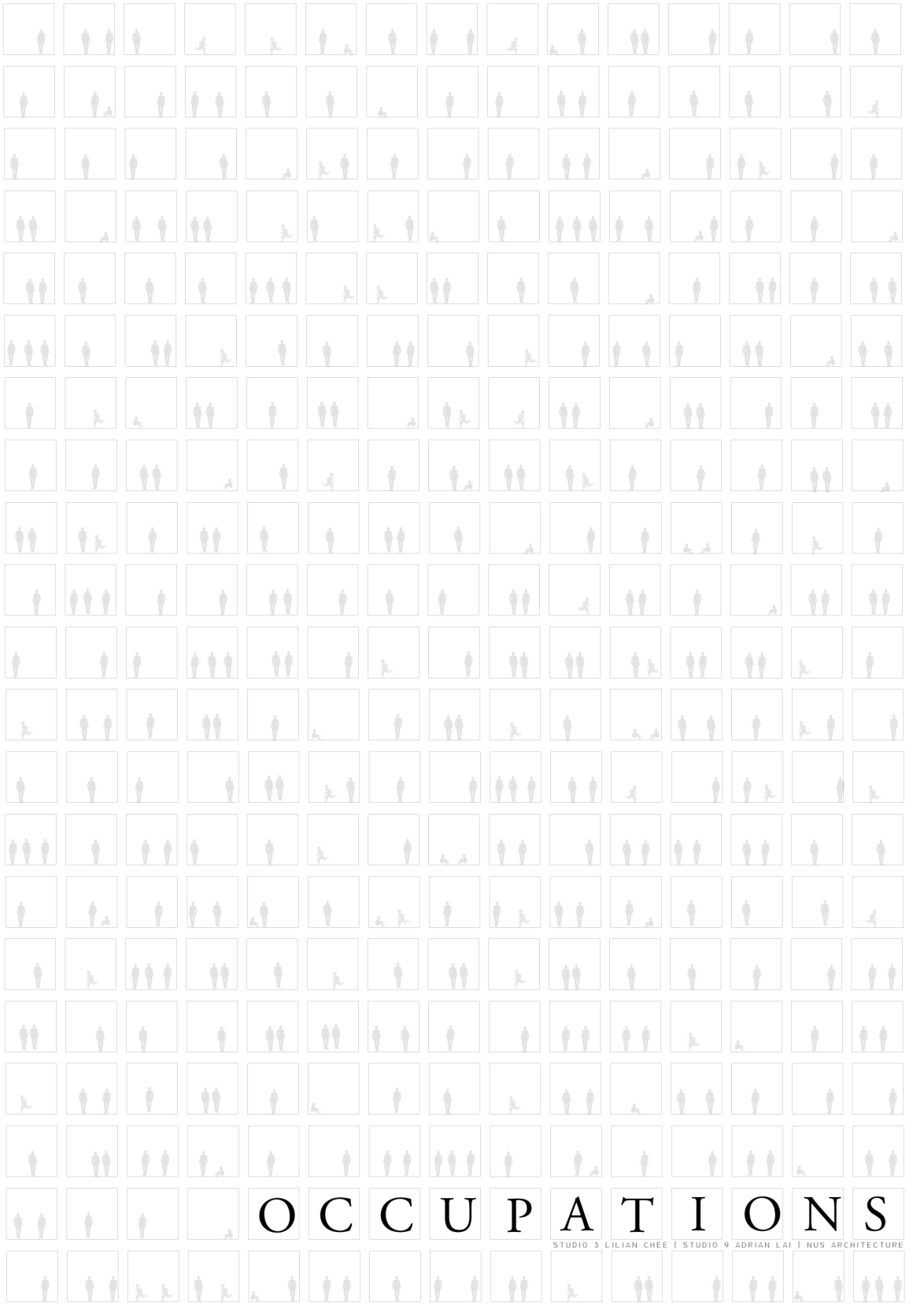

OCCUPATIONS

STUDIO 3 LILIAN CHEE | STUDIO 9 ADRIAN LAI | NUS ARCHITECTURE

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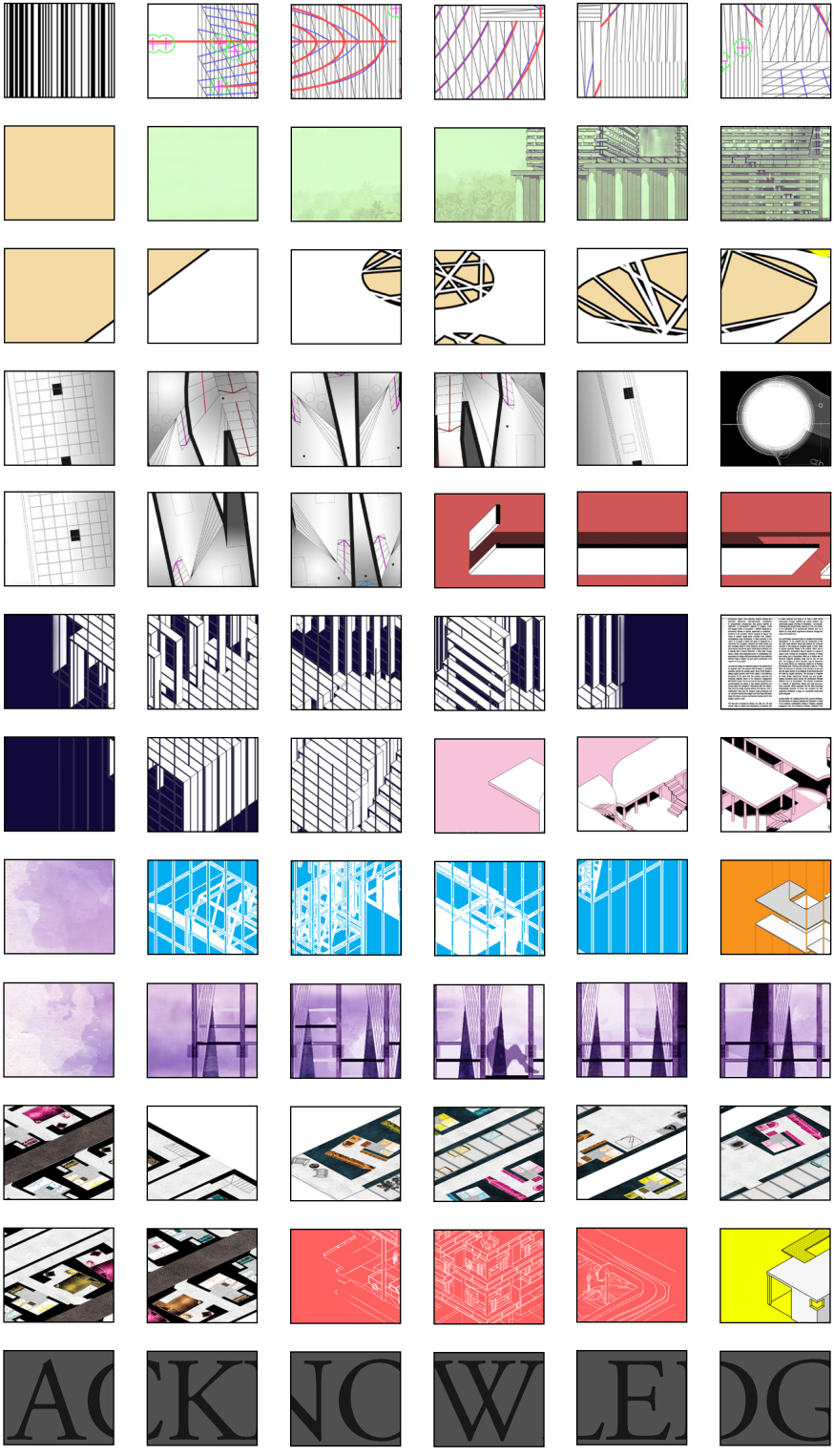
Occupations

1. A person's usual or principle work or business, vocation
2. Any activity in which a person is engaged in
3. Possession, settlement, or the use of land
4. The act of occupying
5. The state of being occupied
6. (Pre)occupied: to engross the mind of (someone) to the exclusion of other thoughts.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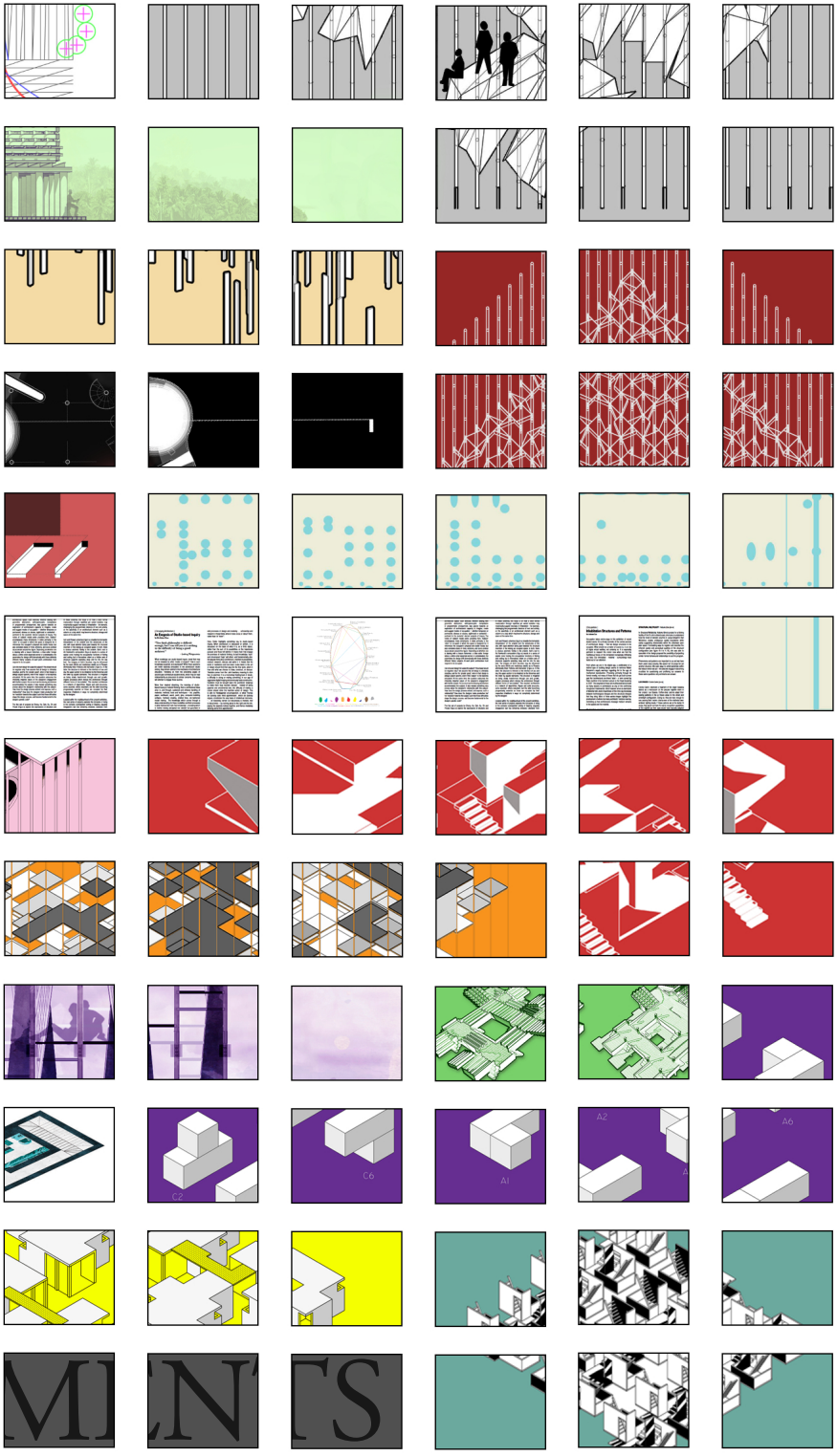
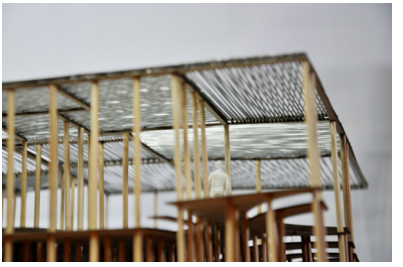
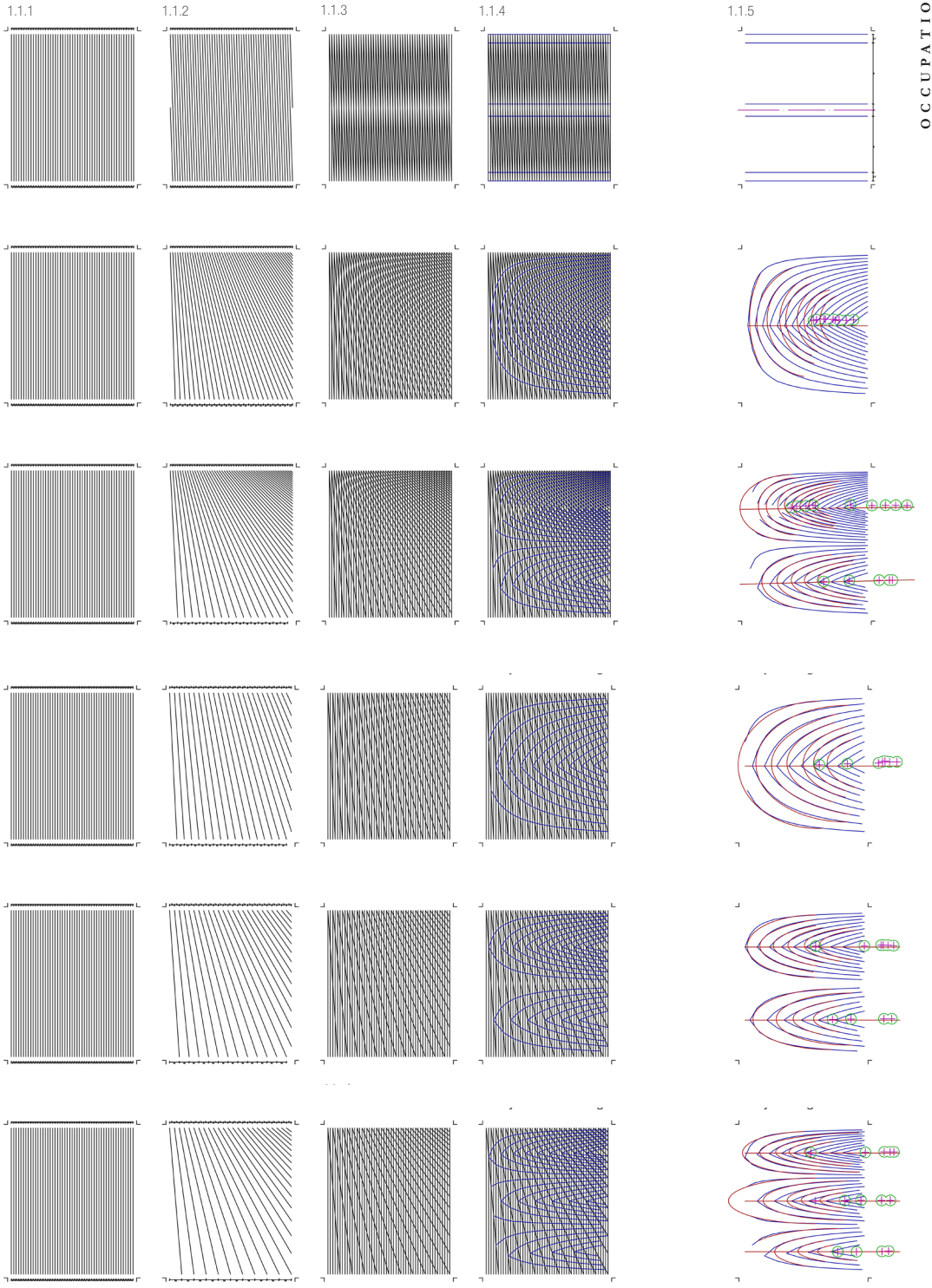




1.0.1

1.0.2

1.0 Photographs of final design model **1.0.1** Exterior views showing diagonal and orthogonal structural ties as trellis roof. The different geometries of the latent figures legible from the Moiré effect create different effects when coupled with the inhabitable contoured terrace decks derived from the analytical figure. **1.0.2** Interior view showing the *bakau* columns located to optimise the dual effects of the Moiré effected latent figures and the contoured terrace decks. **1.1** Analysis of Moiré effects: Latent figures & analytical figures **1.1.1** Generic **1.1.2** Pattern **1.1.3** Moiré: Generic + Pattern **1.1.4** Analysis of latent figure **1.1.5** Analytical figure **1.2** Contoured terrace deck plan showing the different uses allocated based on the attributes of each space. Attributes such as size, directionality, symmetry and suggested centres of the contours contribute to the character of each space and are a result of the analytical figures derived from the latent figures of the Moiré effect above. The spatial layout is a diagram negotiating between desires to optimise site parameters such as the tide, views and sun-path with the reflected latent figures of the roof plan above. **1.3** Roof plan or reflected trellis plan ordering the deck plan below. The latent figures provide the template for the analytical figures that are materialised as contoured terraces. **1.4** Analytical diagram of figurative translations showing sizes, directionalities, symmetries, radii and centres of the fishing facility.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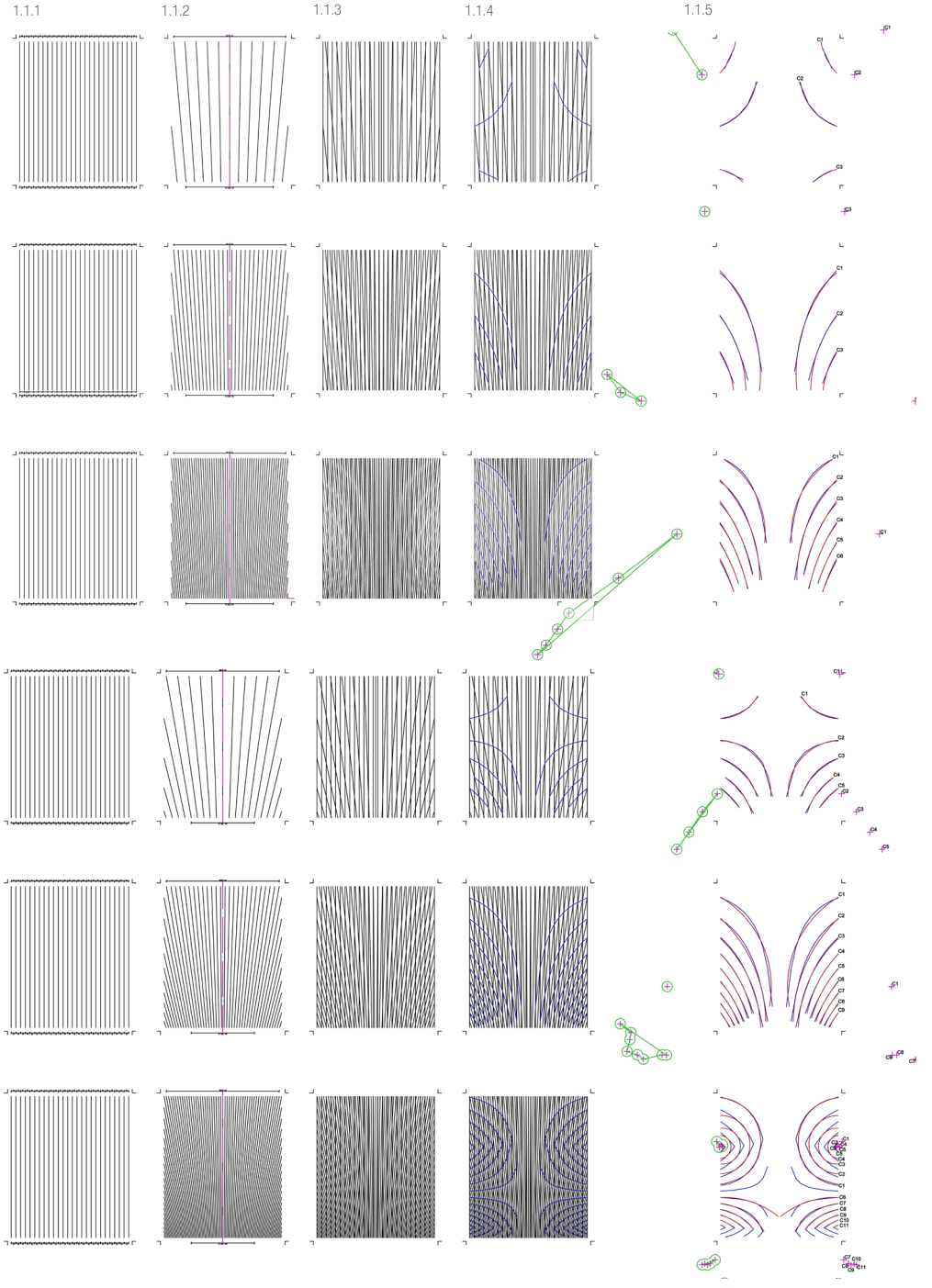
1.1.5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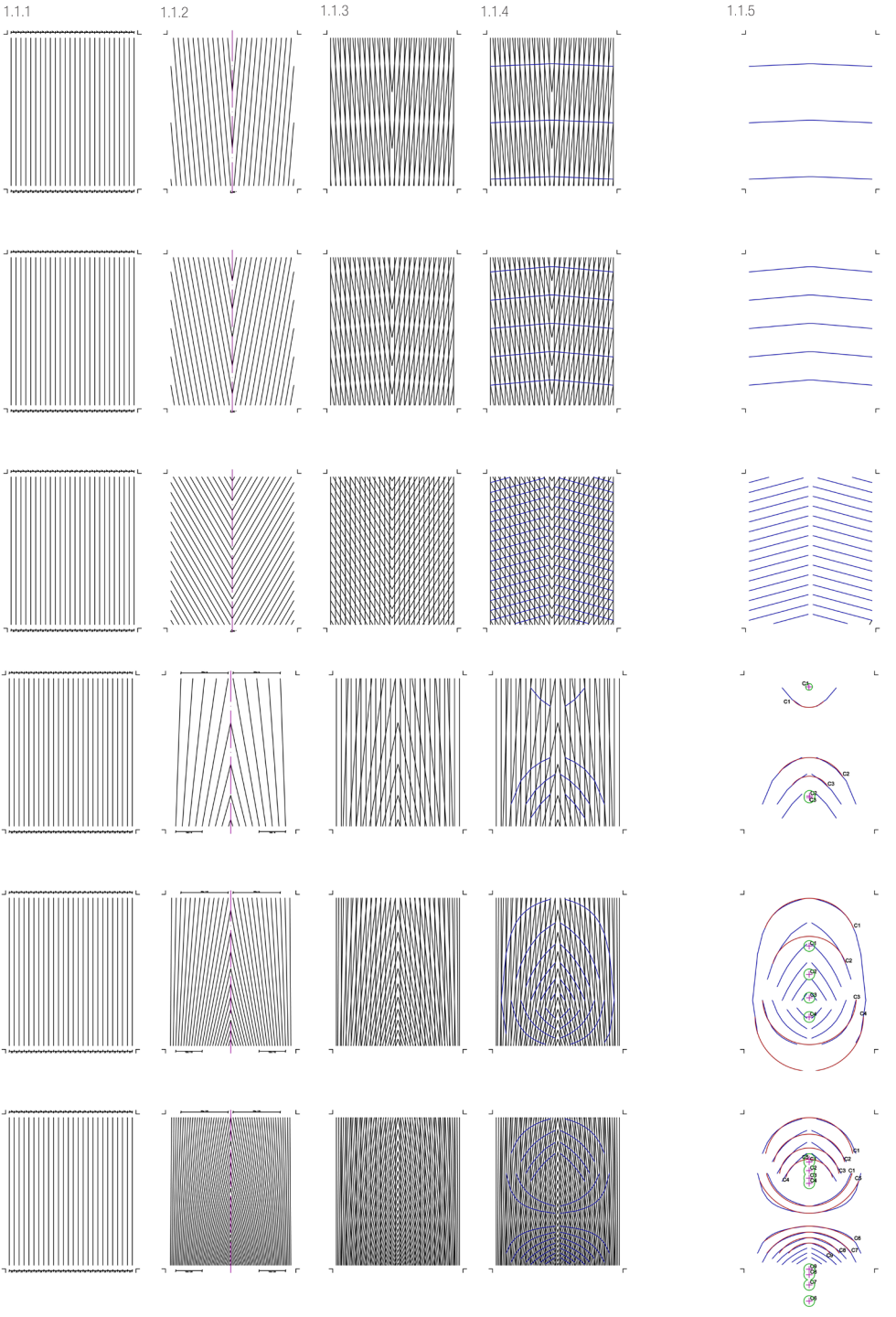
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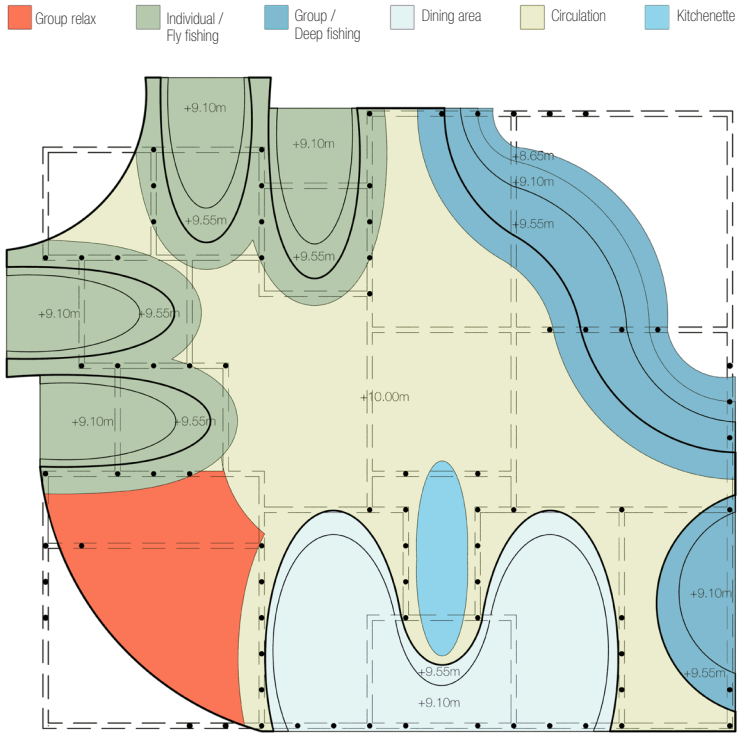
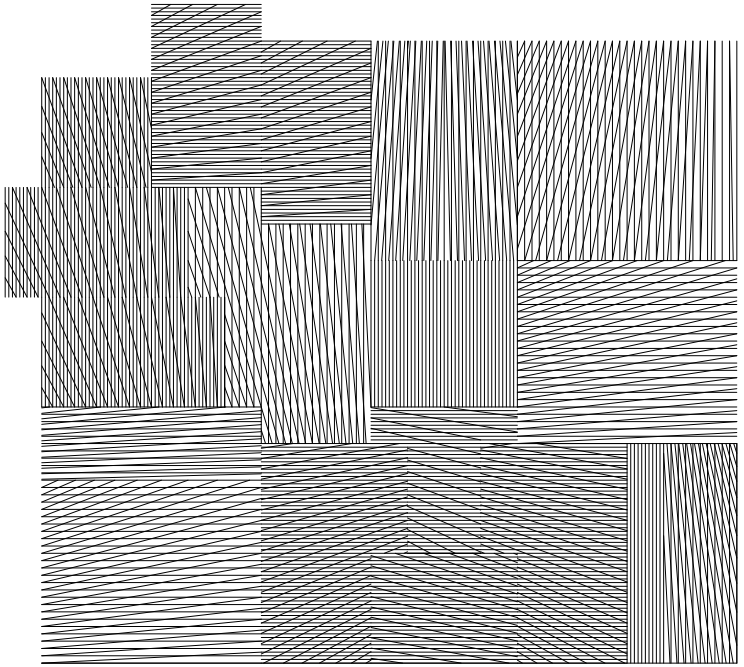

Group relax
Individual / Fly fishing
Group / Deep fishing
Dining area
Circulation
Kitchenette
+9.10m
+9.10m
+8.65m
+9.10m
+9.55m
+9.55m
+9.55m
+9.10m
+9.55m
+10.00m
+9.10m
+9.55m
+9.10m
+9.55m
+9.55m
+9.10m

1.2



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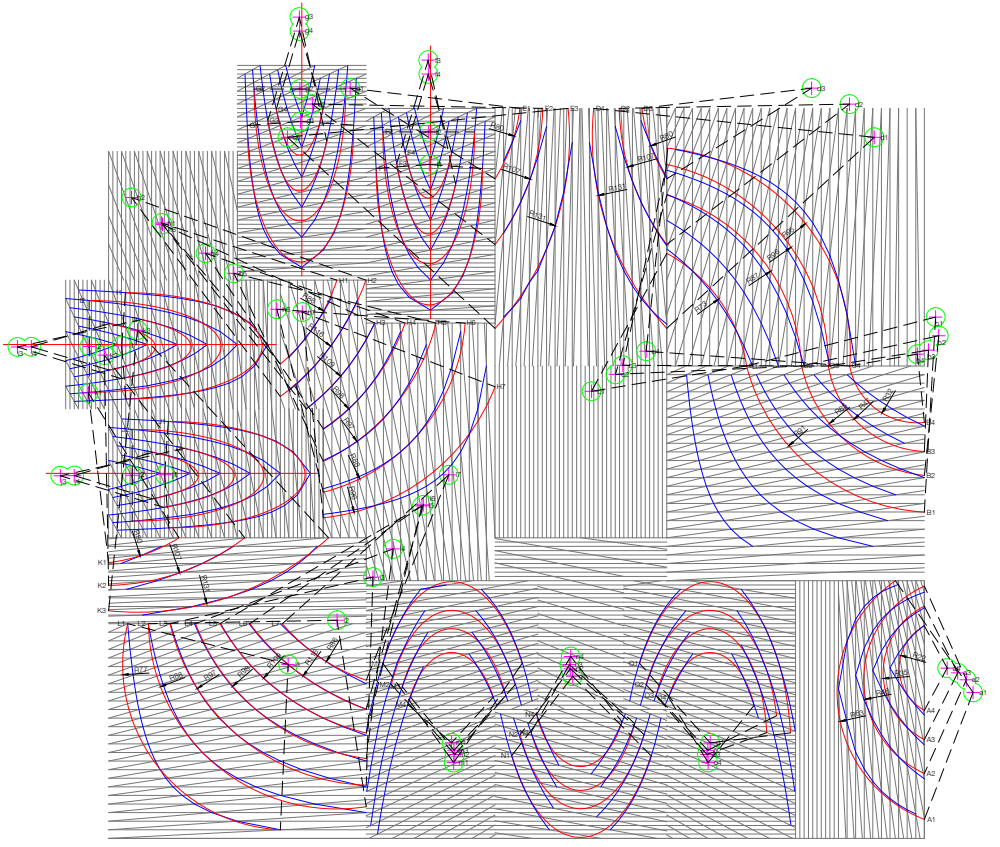

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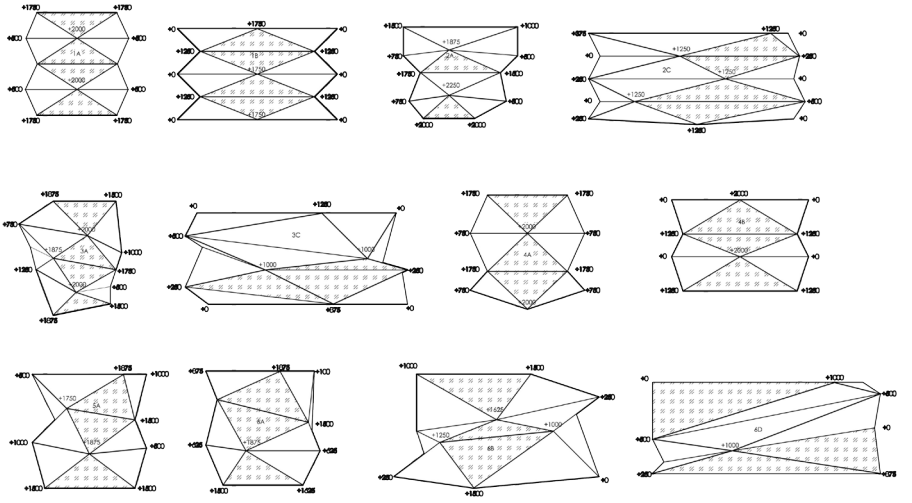

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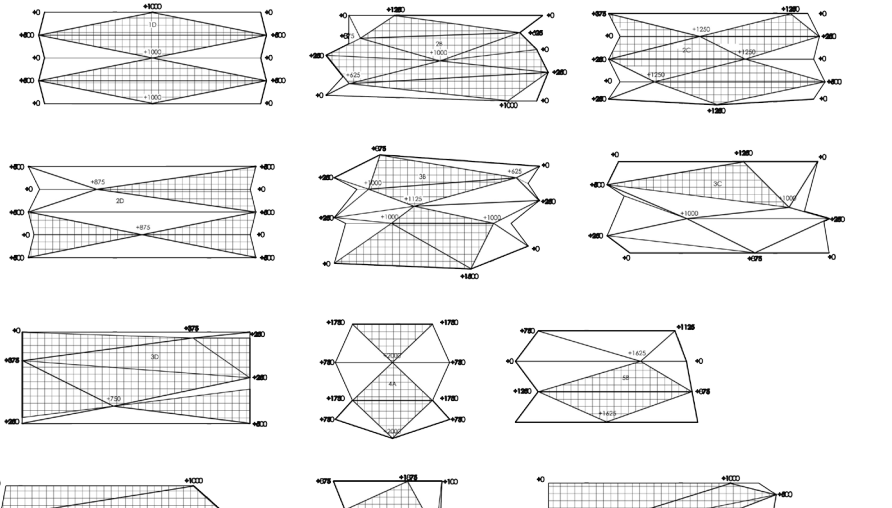
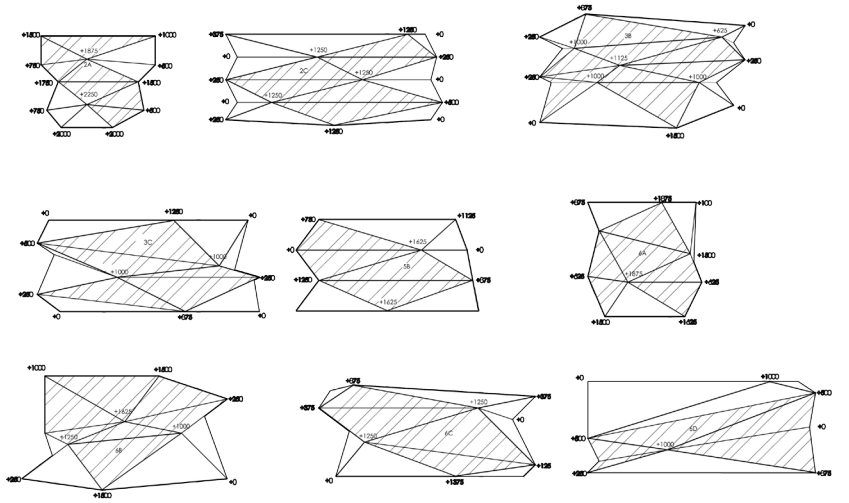


2.0.2

2.0 Modules categorised to potential use **2.0.1** Individual spaces **2.0.2** Communal spaces **2.0.3** Minor connectors **2.0.4** Main connectors **2.1** Analysis of module variations, patterns of folds **2.1.1** Fold pattern **2.1.2** Top view of folded surface **2.1.3** 3D view of folded surface **2.2** Plans, sections, and axonometric drawings: Individual and communal areas **2.2.1** Top view **2.2.2** Section **2.2.3** Axonometric view **2.3** Plan of final design indicating main and minor spatial circulations **2.4** Plan of final design indicating demarcations of communal and individual spaces **2.5** Plan **2.6** Photographs of final design model **2.7** Axonometric drawing of final design



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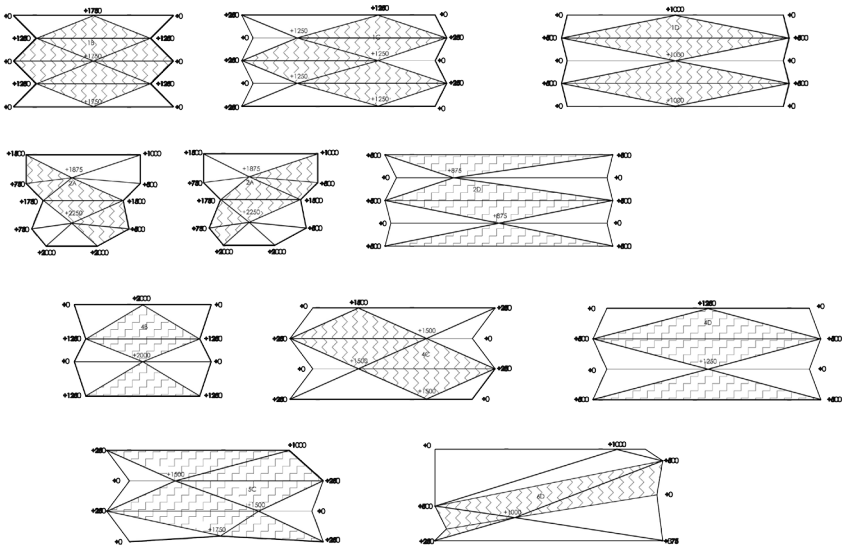


2.0.4

2.1.1

2.1.2

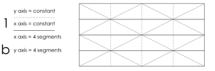
2.1.3

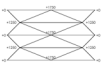
1a

y axis = constant
1 x axis = constant
x axis = 4 segments
a y axis = 4 segments

1b

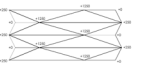
y axis = constant
1 x axis = constant
x axis = 4 segments
b y axis = 4 segments





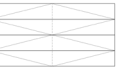
1c

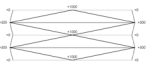
y axis = constant
1 x axis = constant
x axis = 4 segments
c y axis = 3 segments

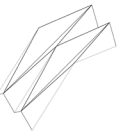


1d

y axis = constant
1 x axis = constant
x axis = 4 segments
d y axis = 2 segments





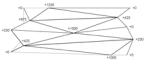


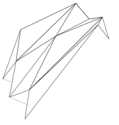
2a

y axis = angle varies
2 x axis = constant
x axis = 4 segments
a y axis = 4 segments

2b

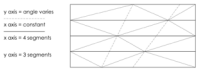
y axis = angle varies
2 x axis = constant
x axis = 4 segments
b y axis = 4 segments

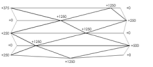




2c

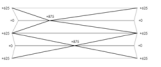
y axis = angle varies
2 x axis = constant
x axis = 4 segments
c y axis = 3 segments

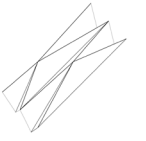




2d

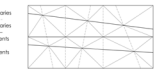
y axis = angle varies
2 x axis = constant
x axis = 4 segments
d y axis = 2 segments





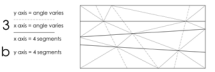
3a

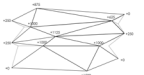
y axis = angle varies
3 x axis = angle varies
x axis = 4 segments
a y axis = 4 segments



3b

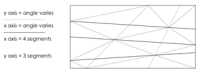
y axis = angle varies
3 x axis = angle varies
x axis = 4 segments
b y axis = 4 segments

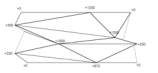




3c

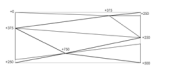
y axis = angle varies
3 x axis = angle varies
x axis = 4 segments
c y axis = 3 segments

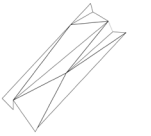




3d

y axis = angle varies
3 x axis = angle varies
x axis = 4 segments
d y axis = 2 segments



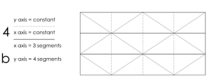


4a

y axis = constant
4 x axis = constant
x axis = 3 segments
a y axis = 4 segments

4b

y axis = constant
4 x axis = constant
x axis = 3 segments
b y axis = 4 segments

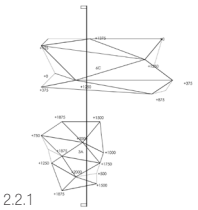


4c

y axis = constant
4 x axis = constant
x axis = 3 segments
c y axis = 3 segments

4d

y axis = constant
4 x axis = constant
x axis = 3 segments
d y axis = 2 segments



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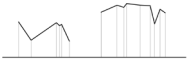

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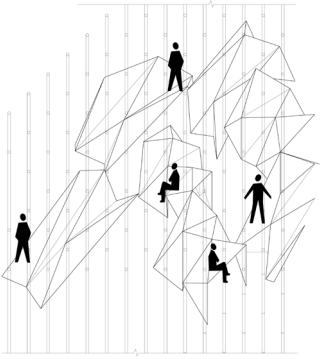

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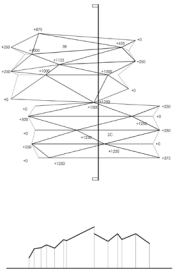

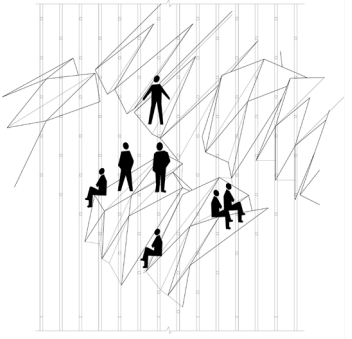

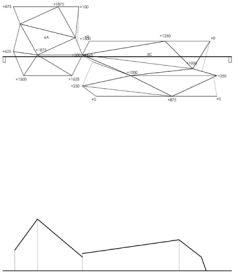

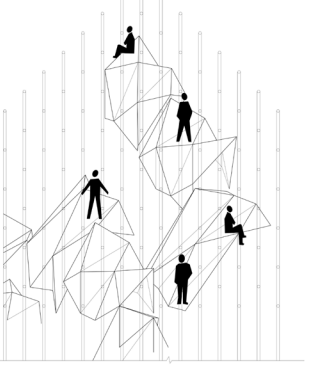

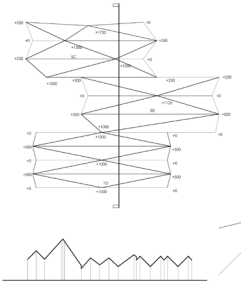

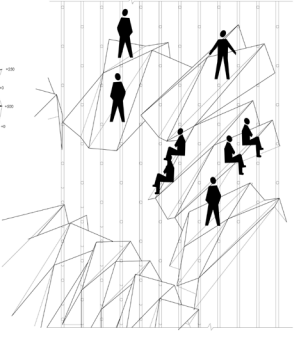

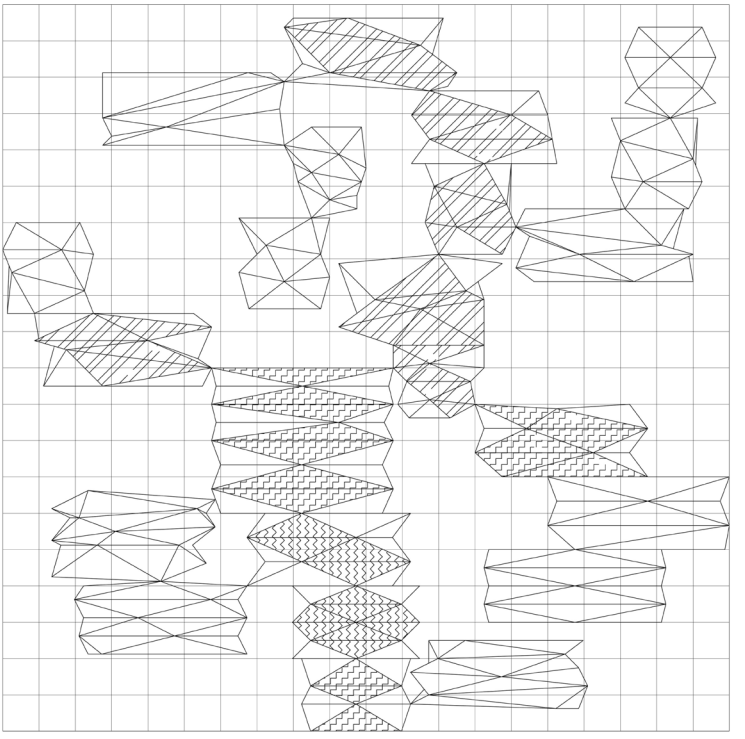

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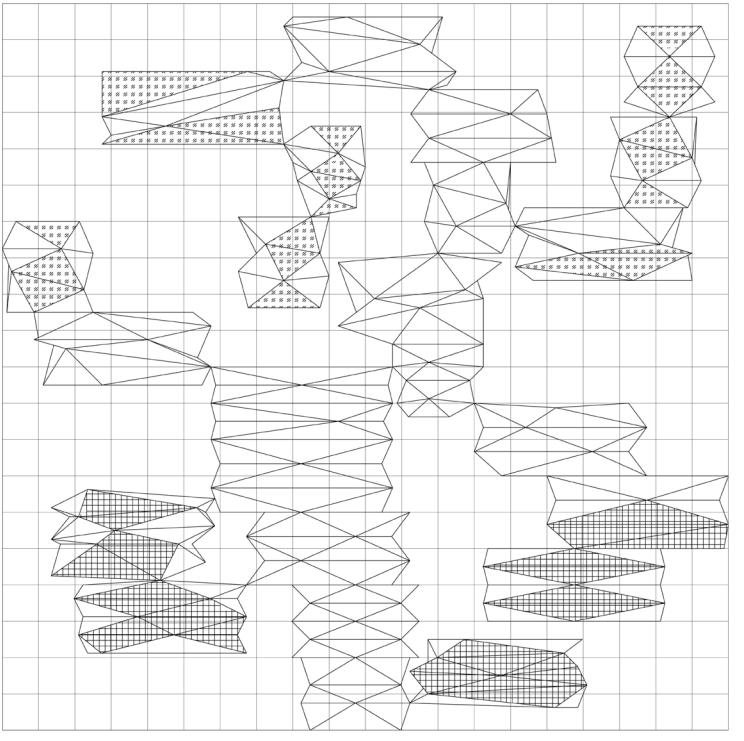

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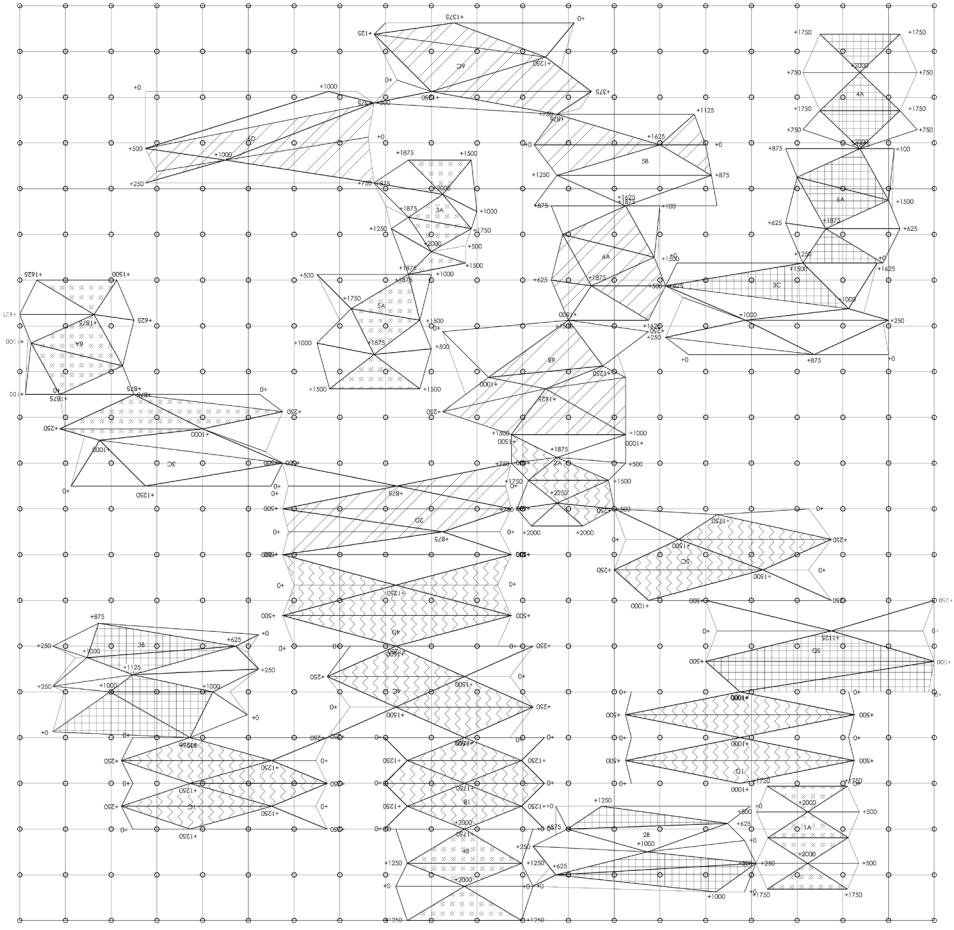

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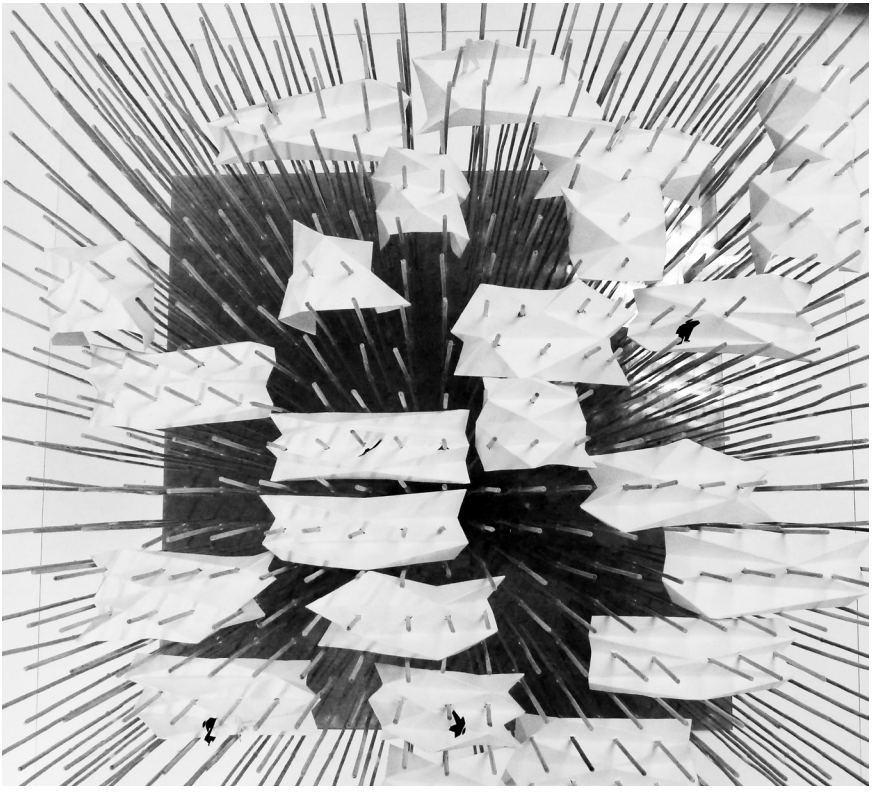

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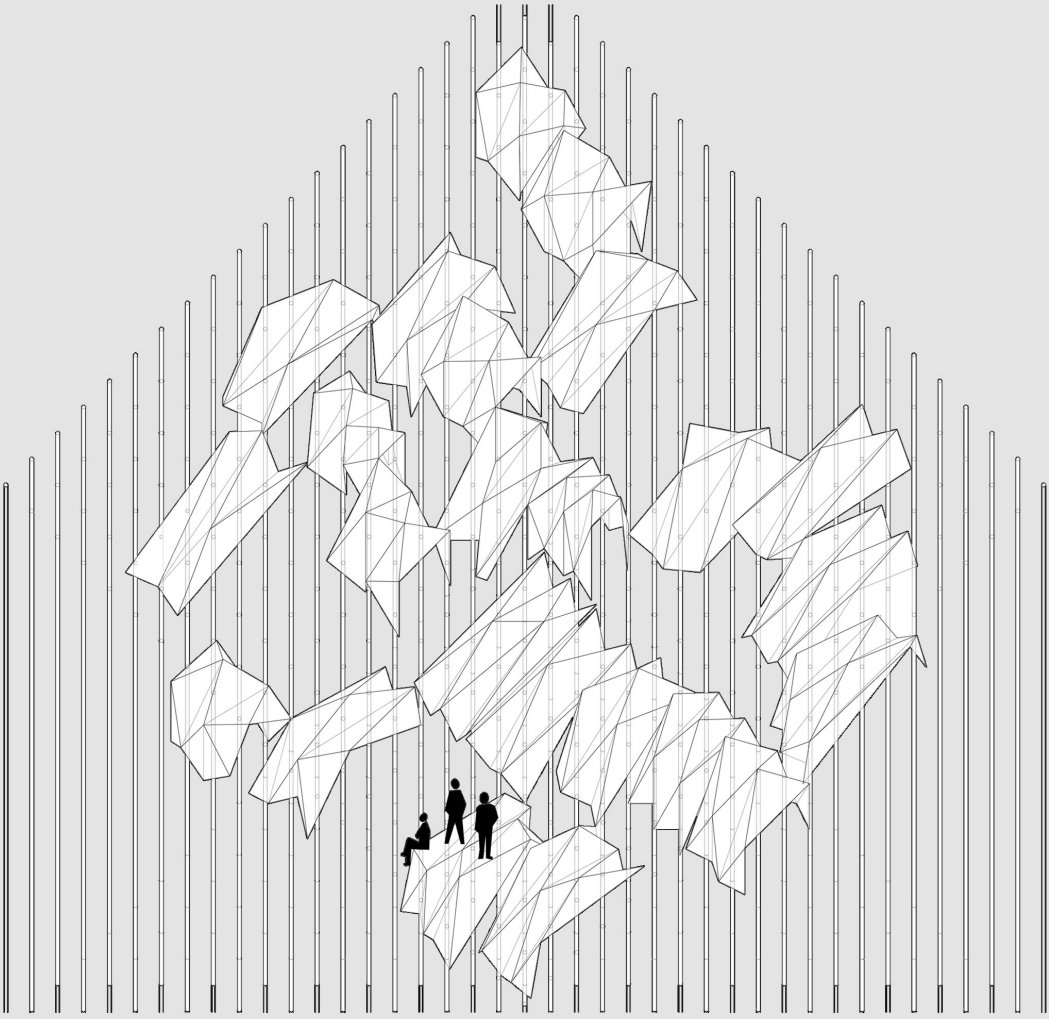
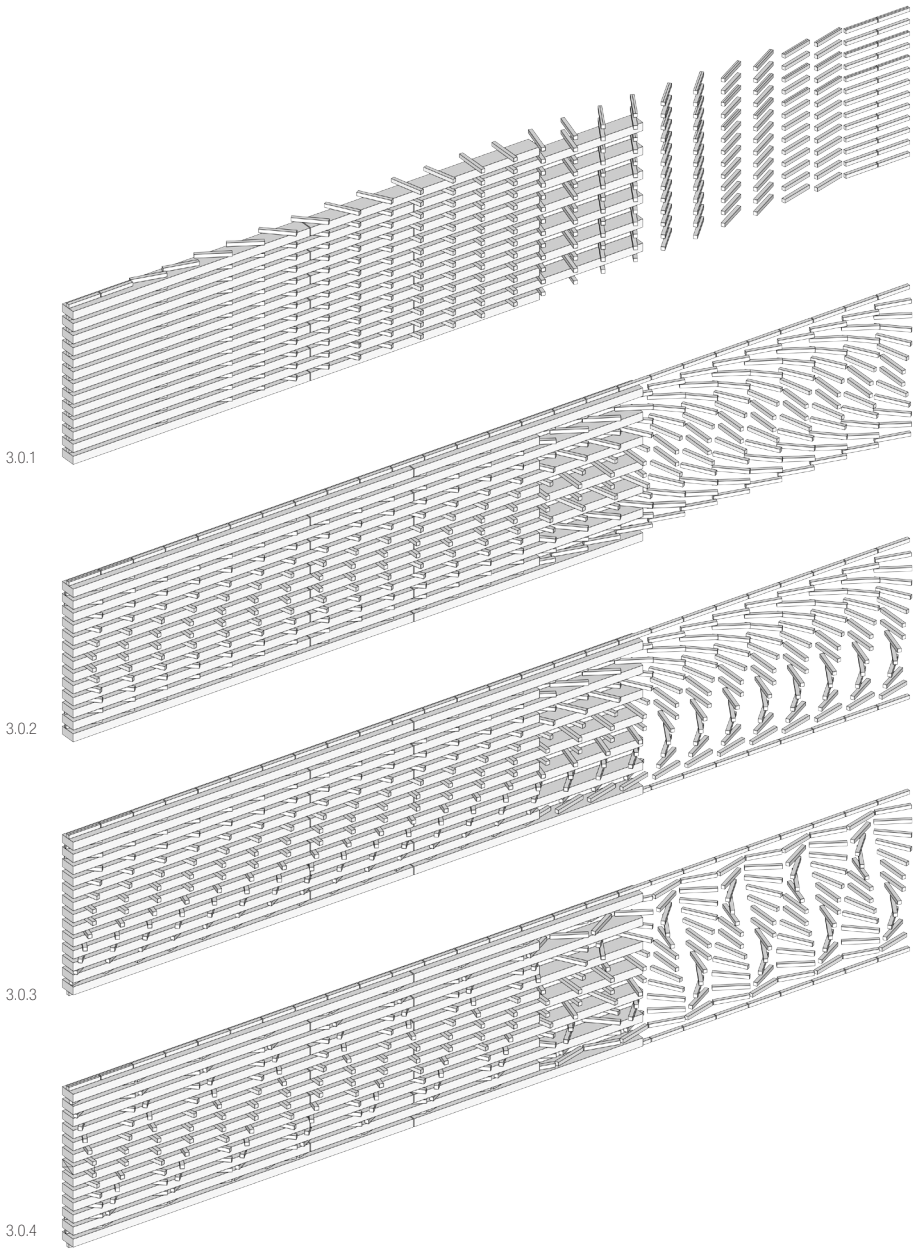
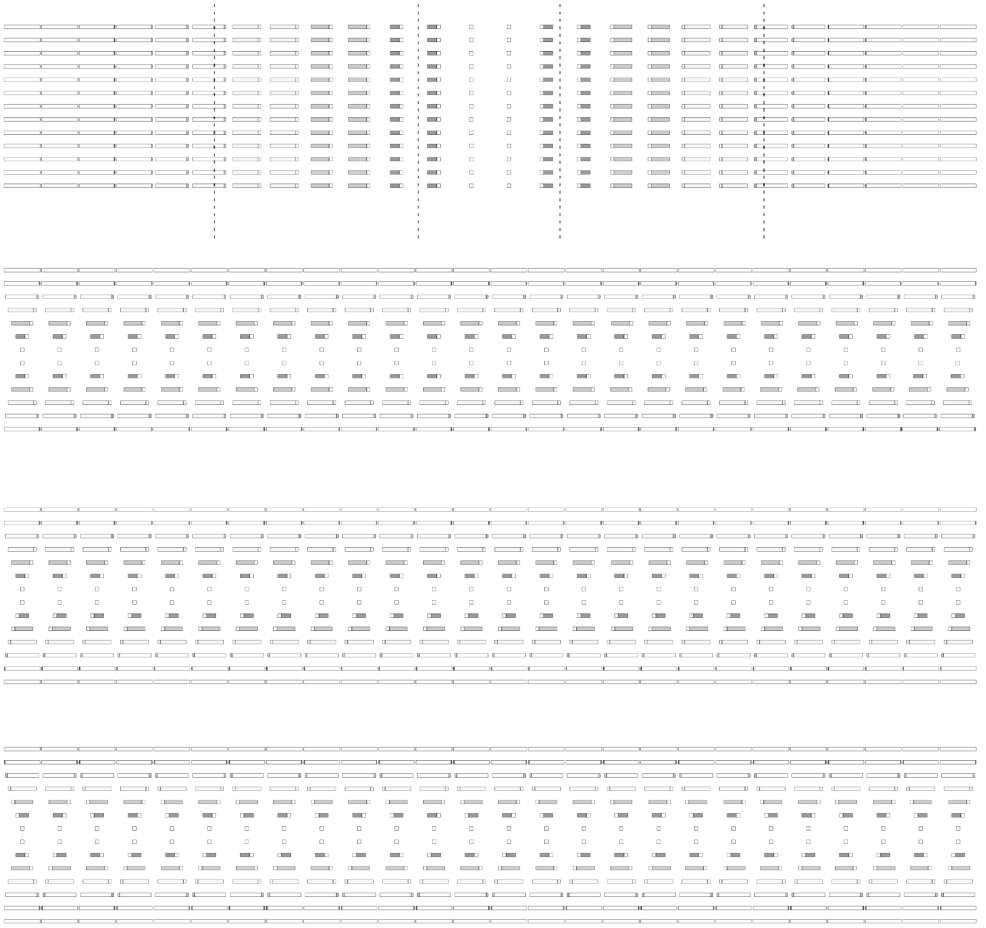




3.0 Analysis of stack variations: Isometric view **3.0.1** Variation 1 (Short beams are parallel to each other) **3.0.2** Variation 2 (Short beams are rotated 15° clockwise and then anti-clockwise about mid-point) **3.0.3** Variation 3 (Short beams are rotated 15° clockwise about mid-point) **3.0.4** Variation 4 (Short beams are rotated 15° anti-clockwise about mid-point) **3.1** Analysis of stack variations: Elevation **3.2** Analytical Drawings of Peter Zumthor's Swiss Sound Box Pavilion showing the different types of modules that were used **3.2.1** Isometric view **3.2.2** Elevation **3.2.3** Stack pattern(s)/direction(s) **3.3** 3D rendering of wall design **3.4** Section perspective



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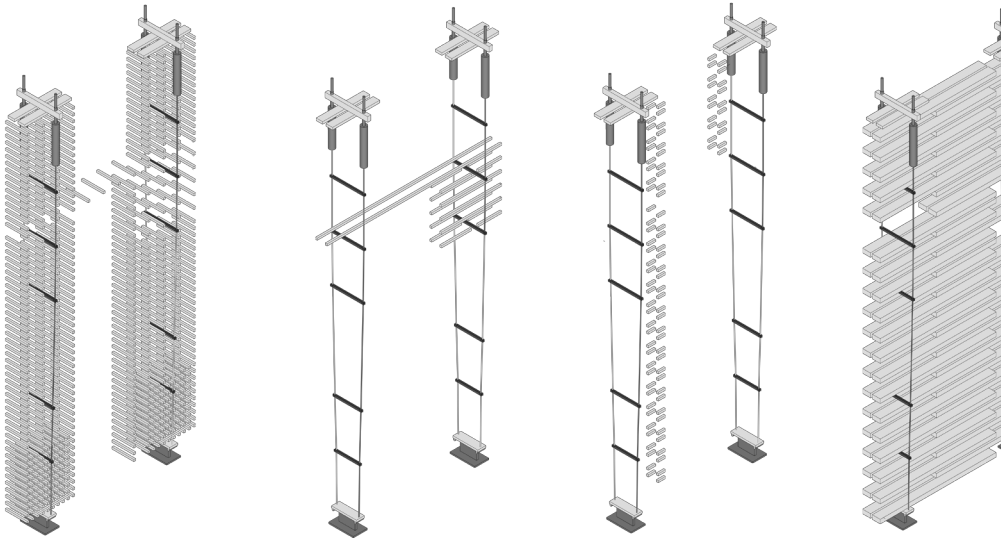

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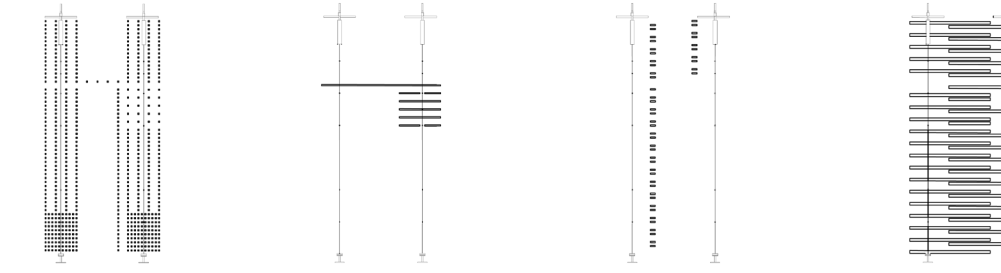

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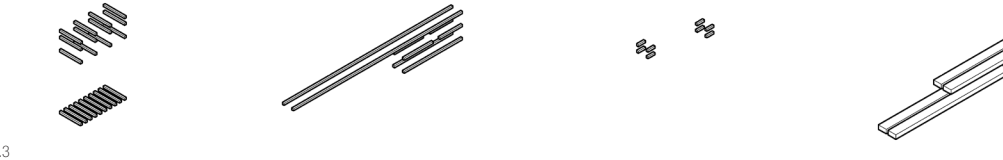

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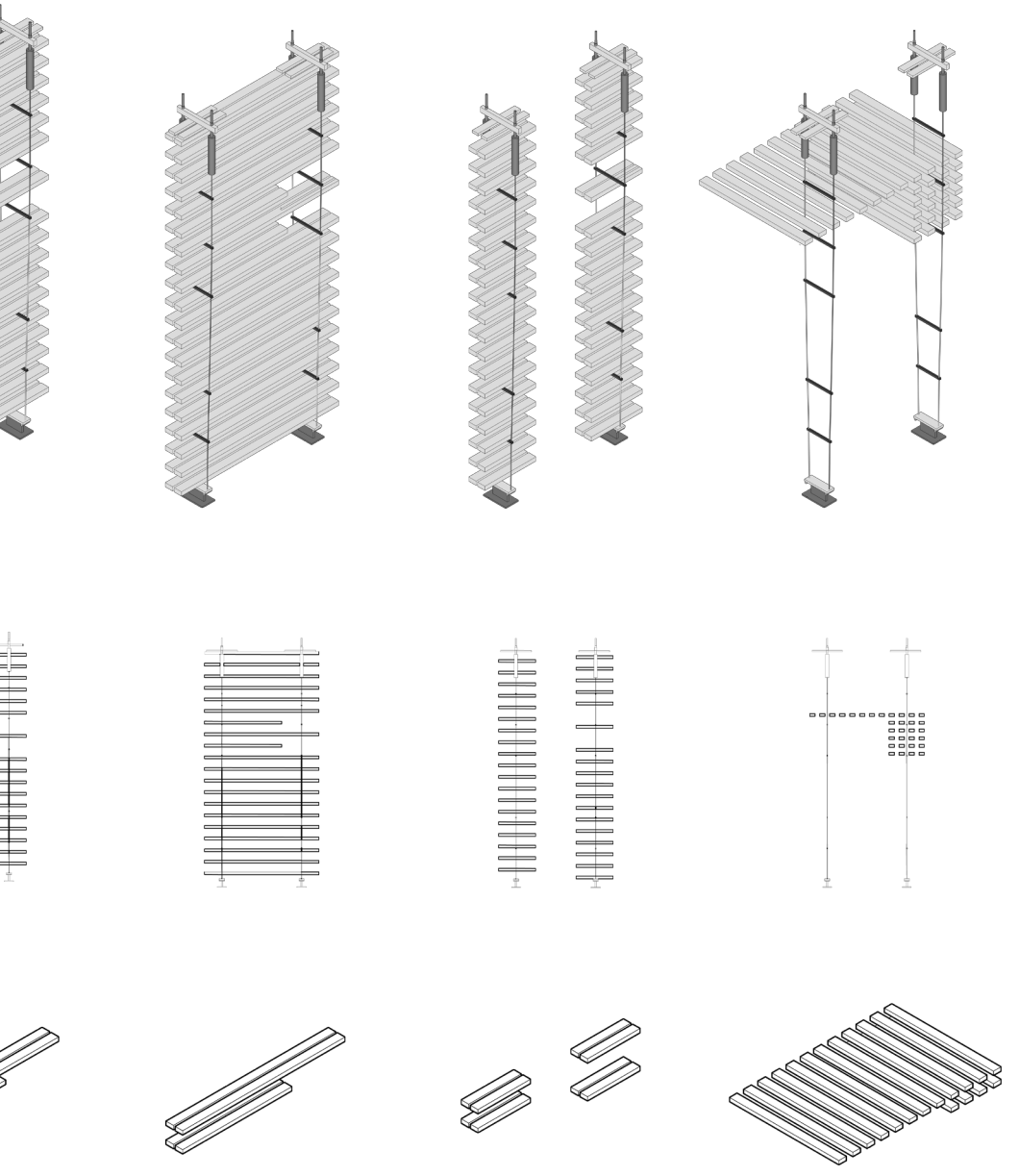

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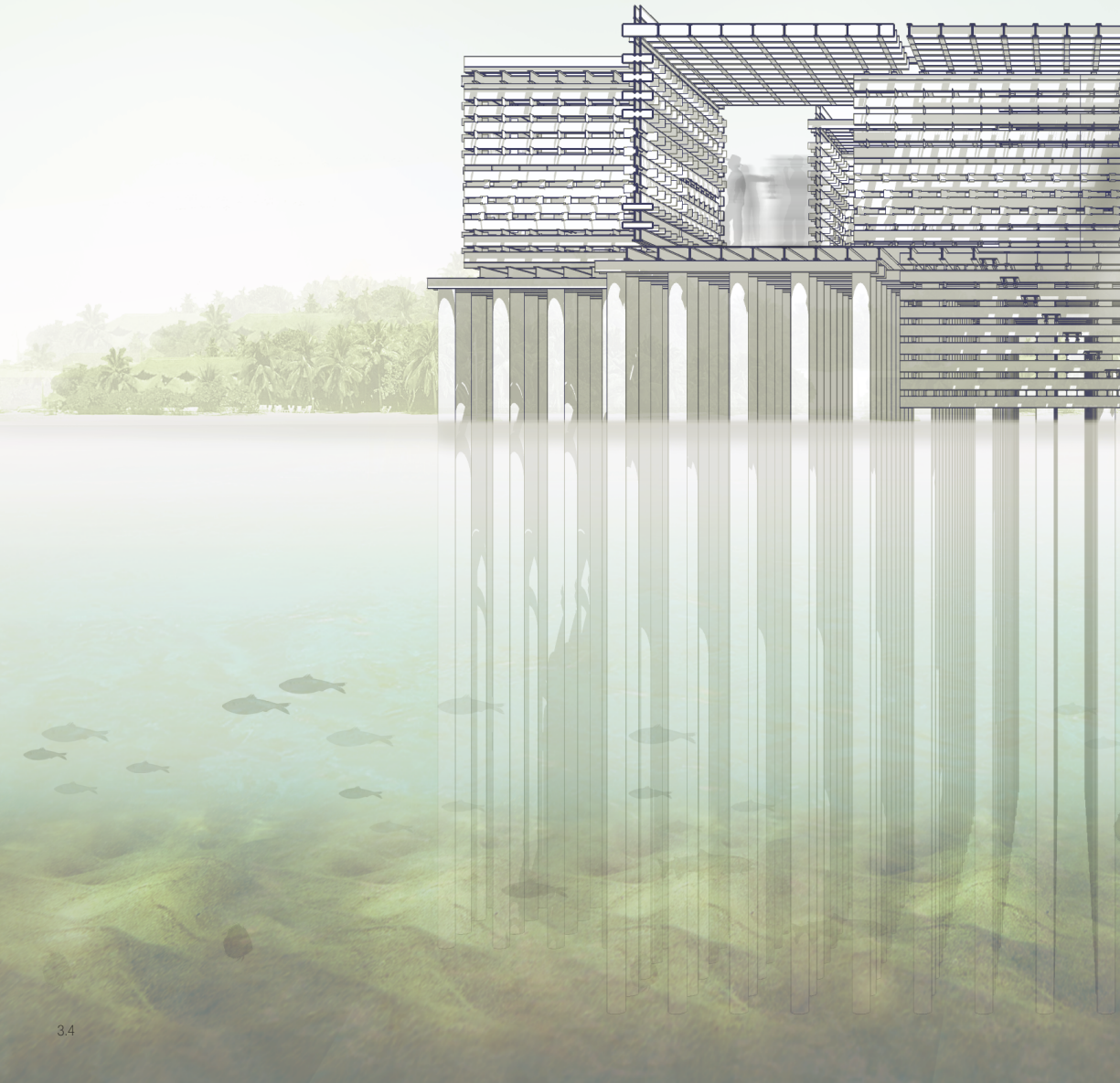
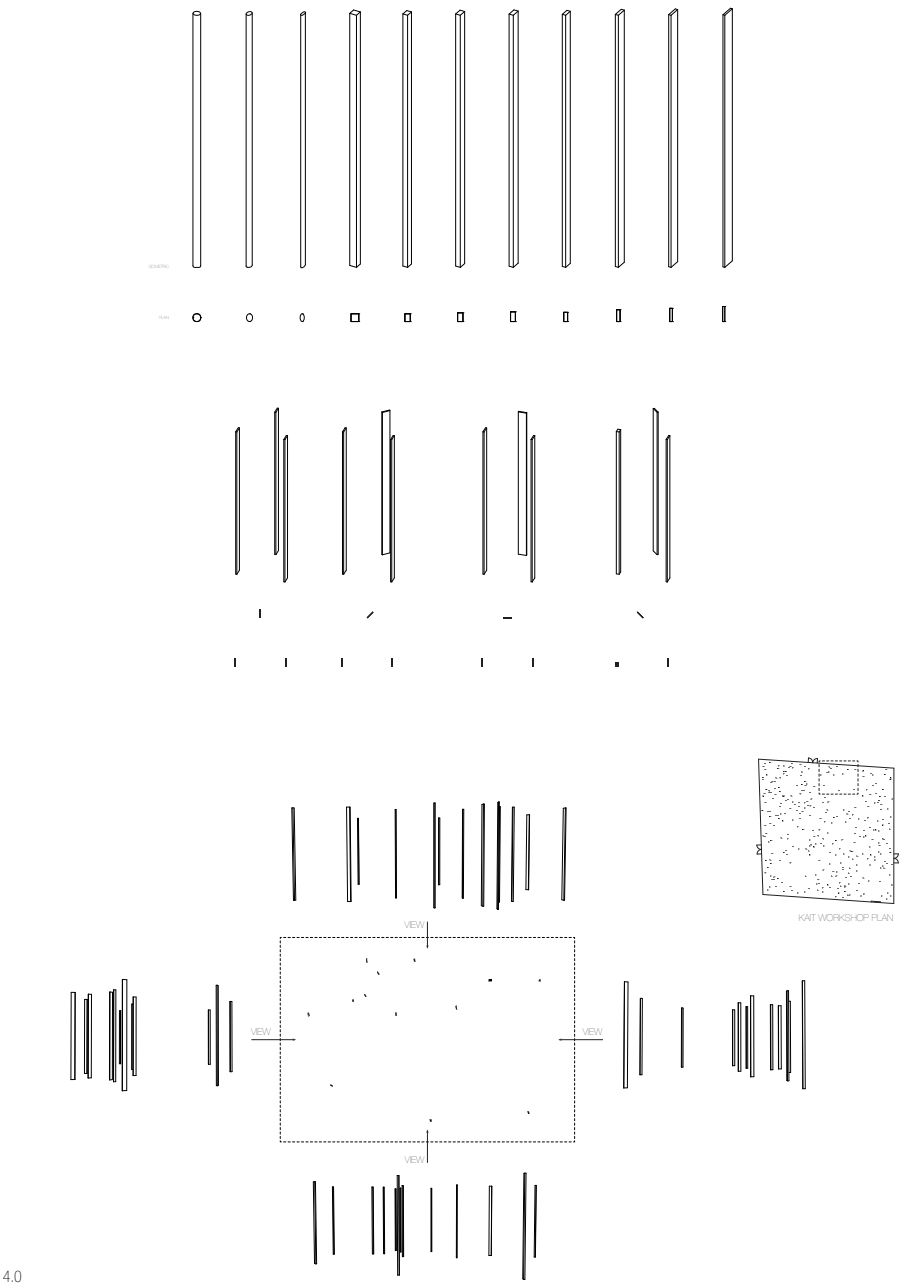
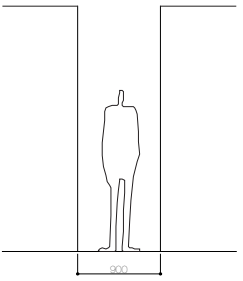




4.0-4.7 Analytical drawings of Junya Ishigami, Kait Workshop. **4.0** An investigation of column directionality in Junya Ishigami's Kait Workshop. Interior perspective drawings of a part of the workshop show distinct directionality due to column orientation and cluster density. **4.1** BCA guidelines call for a 900mm wide door as a minimum. Using this guideline to identify columns clustered too close together for comfortable circulation between, a diagram of column clusters is formed for further analysis. **4.2** Close-up of column and 900mm zone all-round. **4.3** Walkable circumferences **4.4** Column clusters **4.5** Analytical plan (Recontextualising column clusters: Cluster to cluster relations) Speculations about the spatial effect of column clusters with relation to resolved vectors. Clusters of parallel vectors work in tandem to lend greater directionality while clusters of perpendicular vectors suggest enclosures or more functional spaces. The number of parallel vectors in the actual circulation areas supports the hypothesis of directionality of columns and column clusters helping in wayfinding in the otherwise open plan space.



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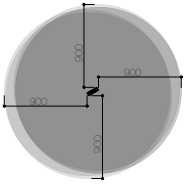

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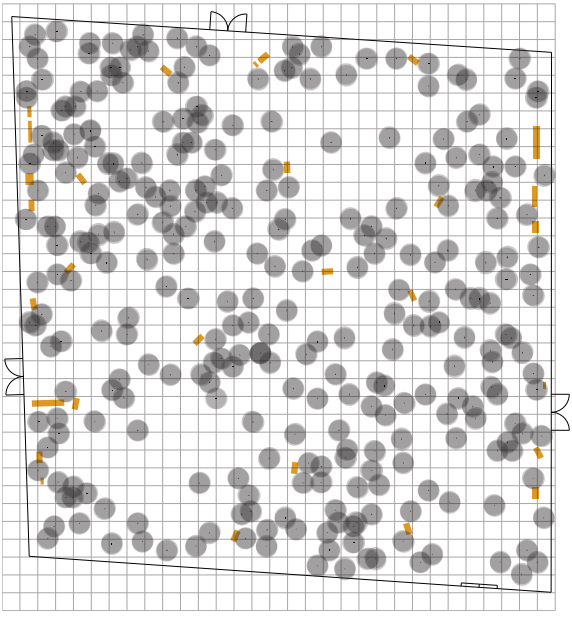

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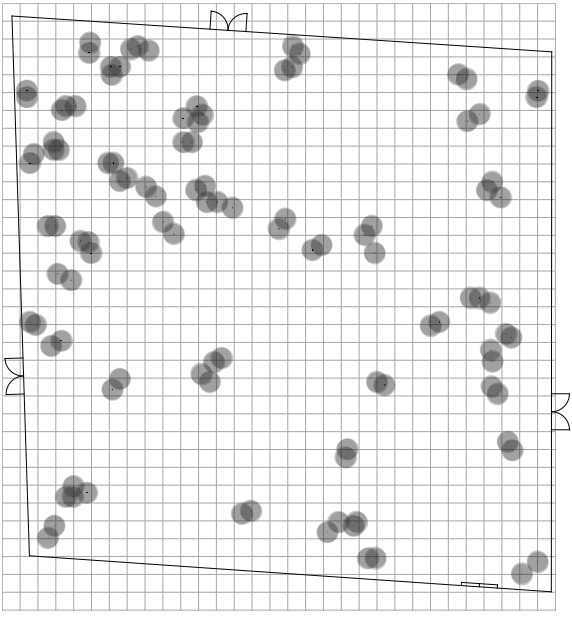
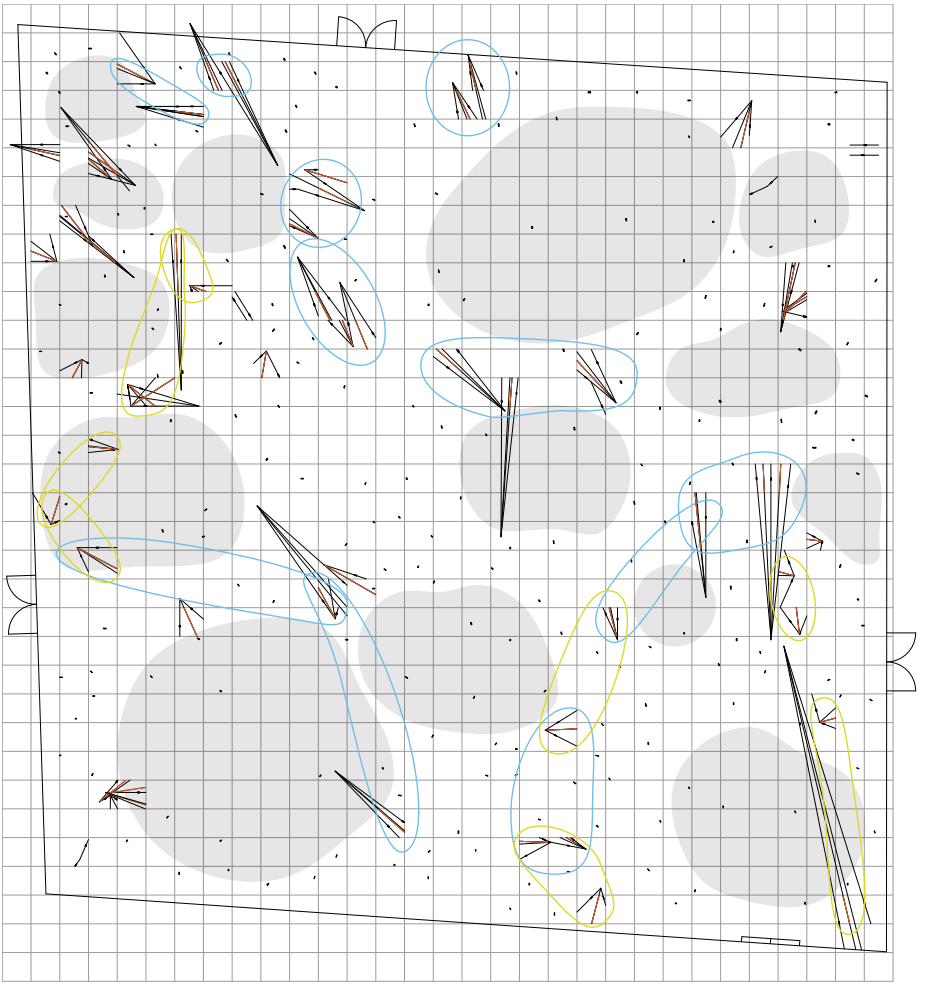


4.4

4.6 Analytical plan (Centralised + Tangential spaces): Remixing the individual columns in the analysis of spatial devices, the hypothesis of space demarcating column configurations is well supported. Two types of spatial delineations with different spatial attributes become apparent. **4.7** Directionality between columns: Vectors between slender columns but of differing proportions are proportionally resolved. Slender columns lend more directionality than round columns and hence have stronger directional vectors in the analyses. **4.8-4.15** Fishing facility proposal **4.8** Floor plan **4.9** Roof plan **4.10** Types of spaces **4.11** Circulation **4.12** Axonometric drawing of fishing facility proposal **4.13** Elevation drawing of fishing facility proposal **4.14** Vector diagram **4.15** Exploded axonometric drawing of fishing proposal. Soft boundaries around the different spaces are delineated by rooflights, deck openings and different column configurations. **4.15.1** Roof and rooflights **4.15.2** Columns **4.15.3** Deck with openings

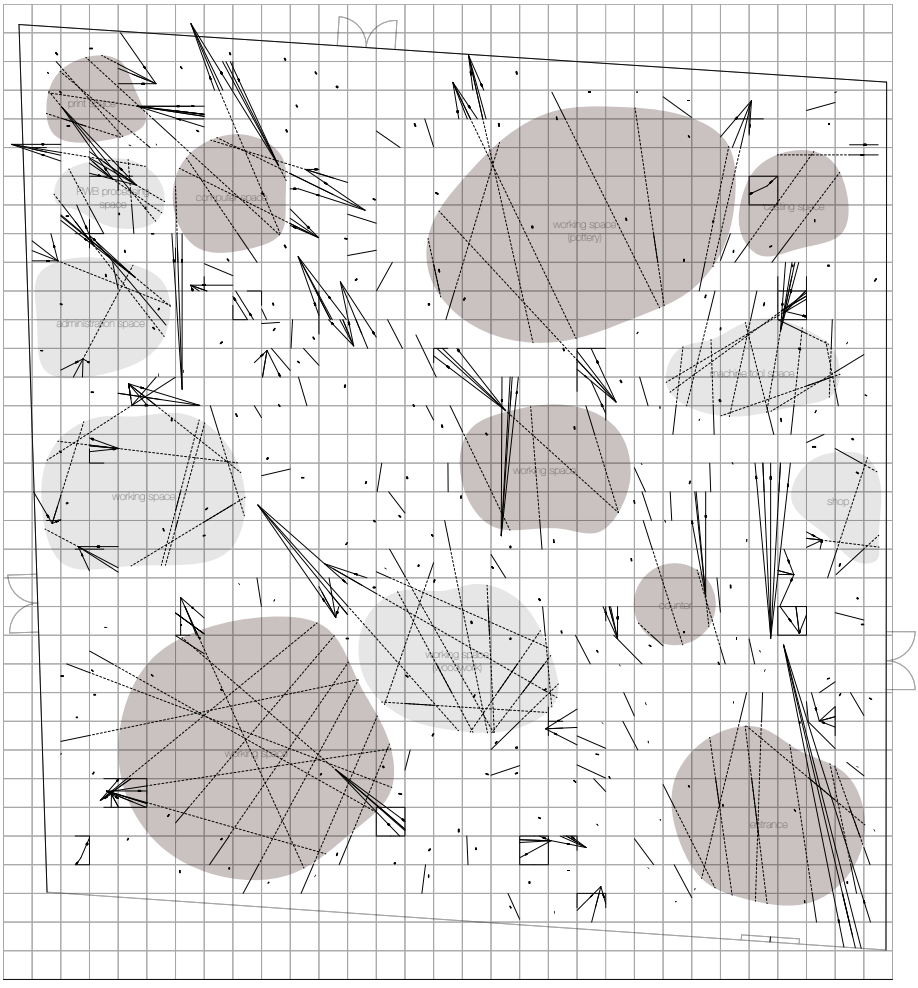


4.5

Parallel column cluster direction

Perpendicular column cluster direction

Vector direction of column clusters



4.6

Centralised enclosure

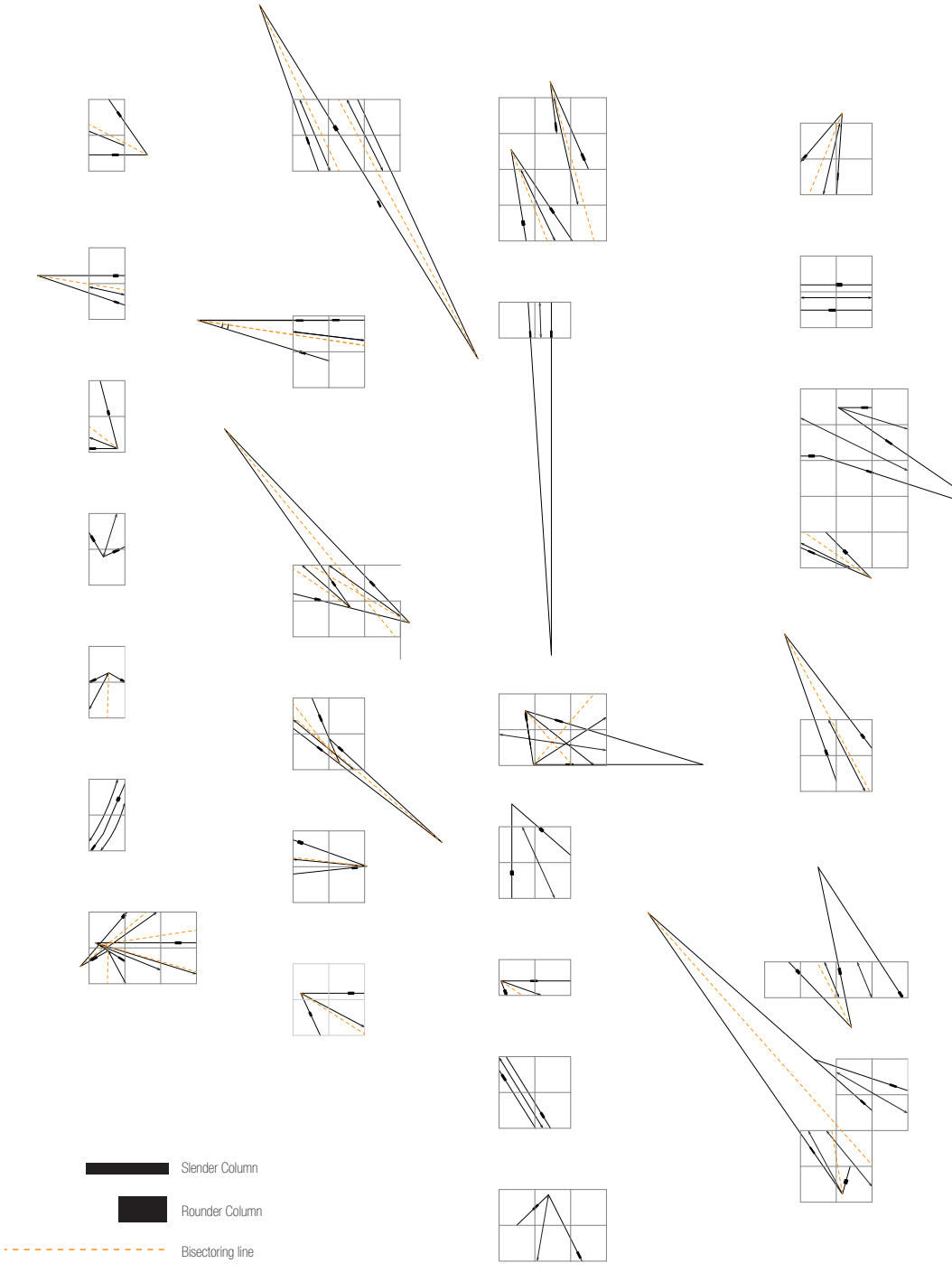
Tangential enclosure

Cluster column direction
Vector direction (between 2 adjacent columns)
Vector direction extension (between spaces)

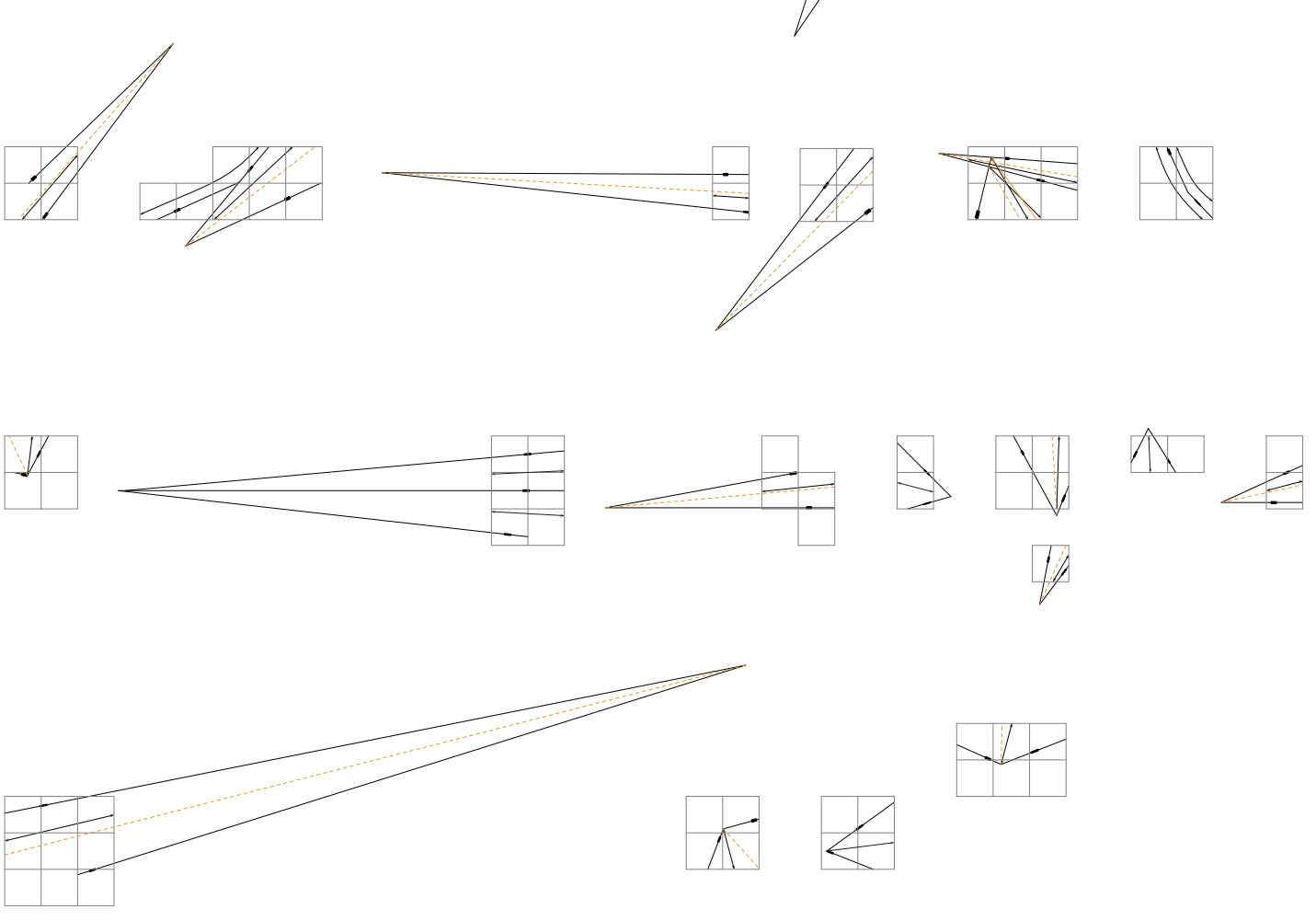
Public spaces

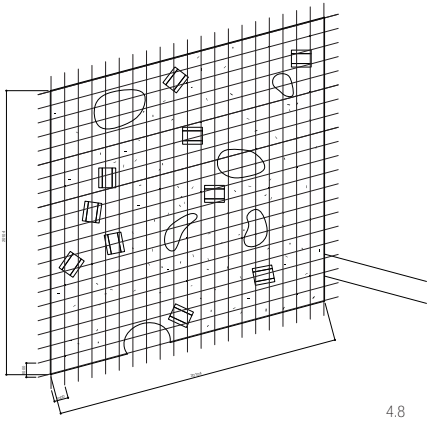
Private spaces

Column



4.7





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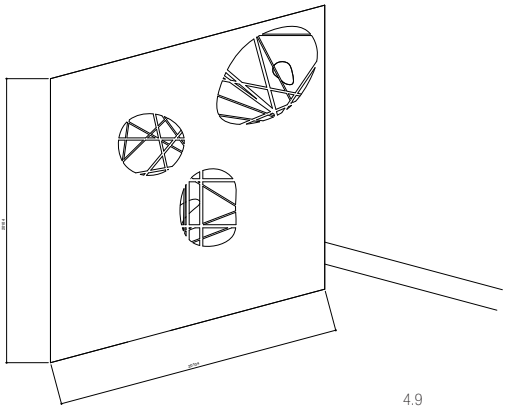
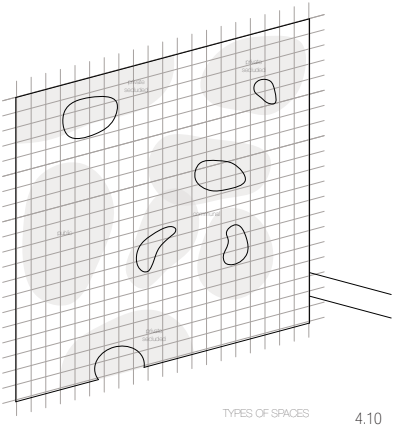
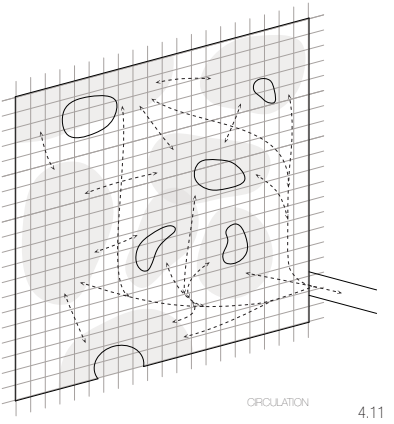


4.9



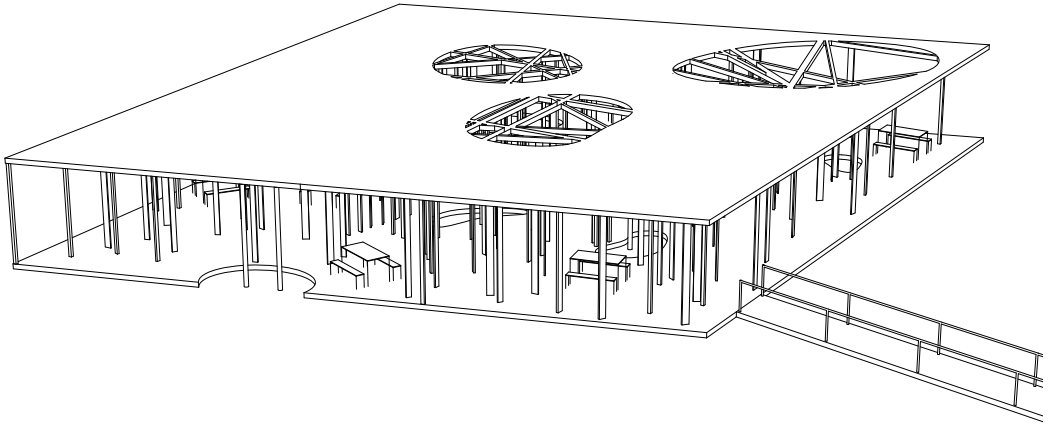
TYPES OF SPACES

4.10



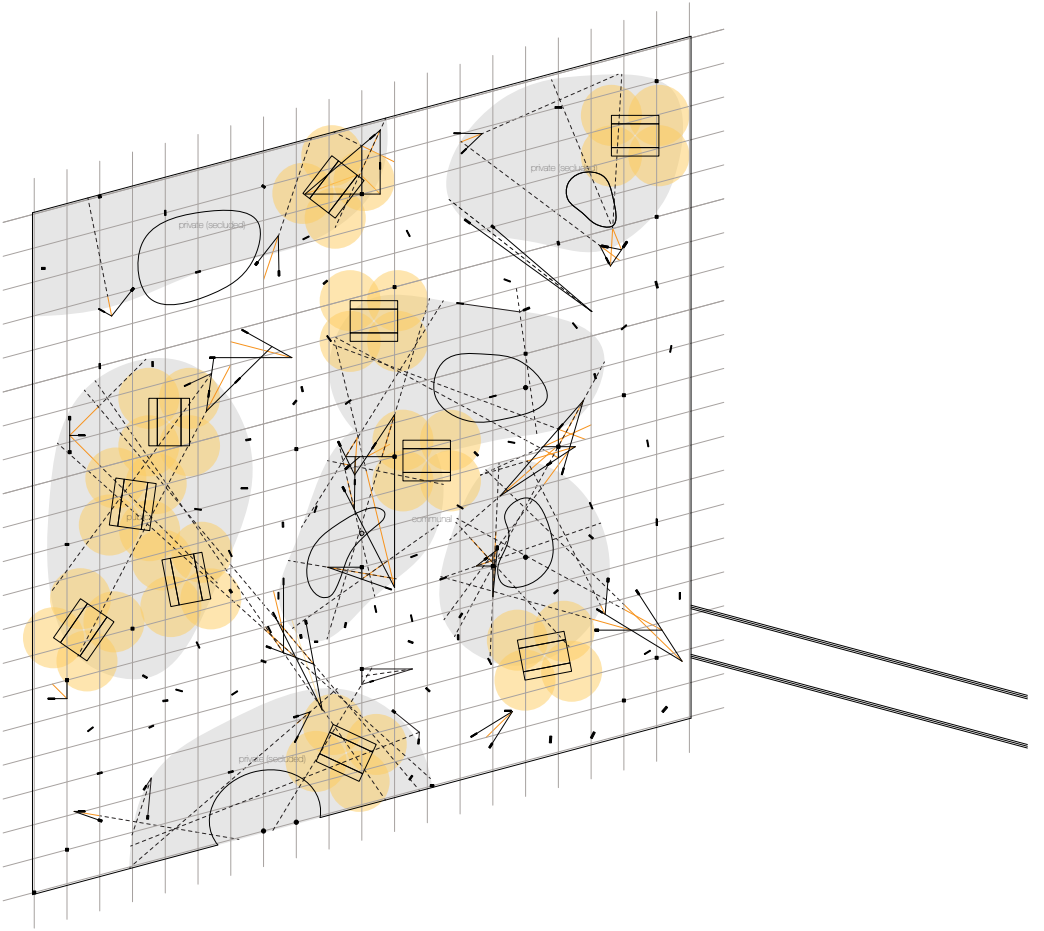
CIRCULATION

4.11

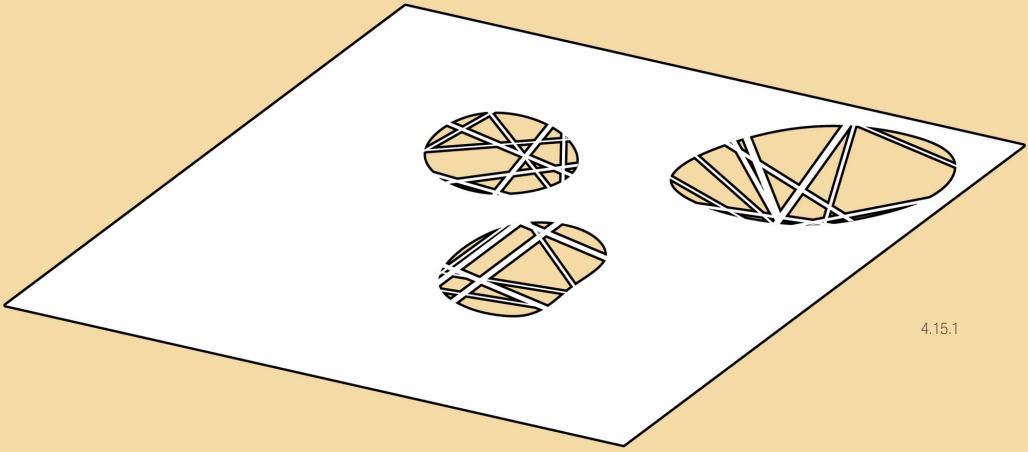


4.12

4.13


private (secluded)
private (secluded)
communal
private (secluded)

4.14



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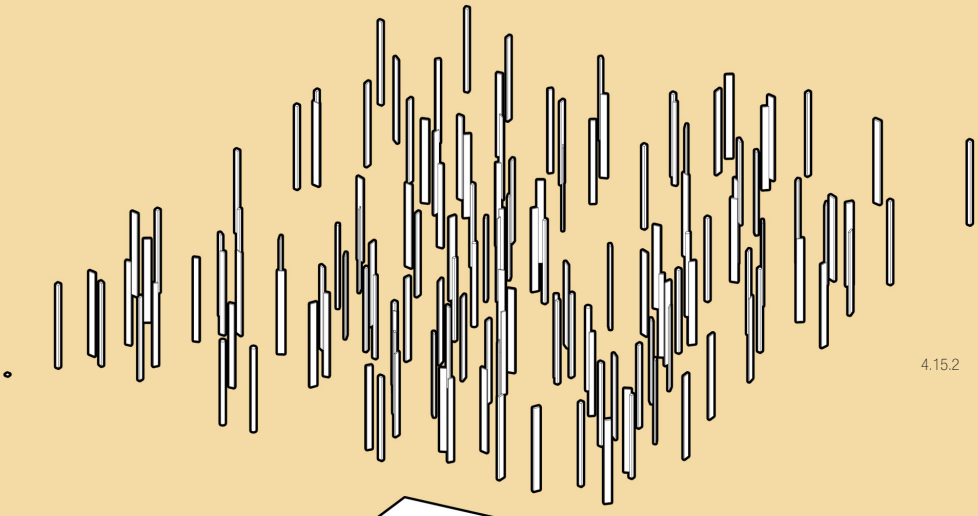

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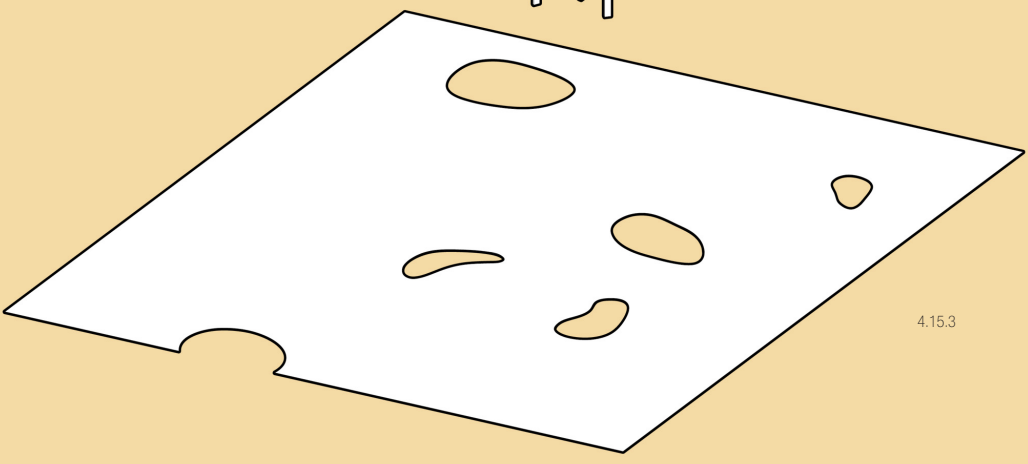

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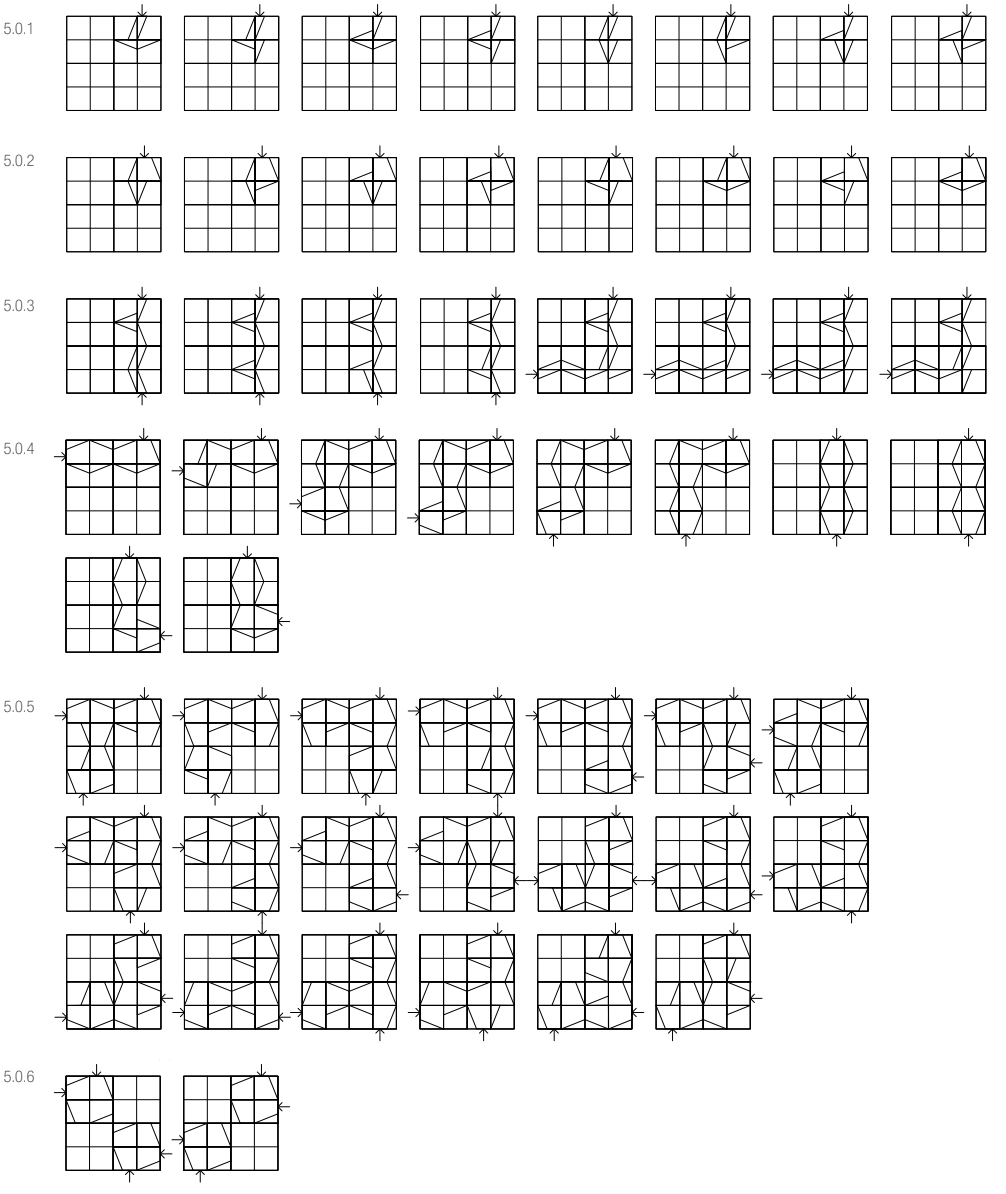
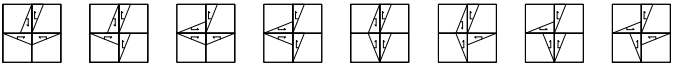


5.0 Permutations for 4000mm x 4000mm platforms **5.0.1** 1 narrow entrance (L1) **5.0.2** 1 broad entrance (L2) **5.0.3** 2 narrow entrances (L3) **5.0.4** 2 broad entrances (L4) **5.0.5** 3 broad entrances (L5) **5.0.6** 4 broad entrances (L6) **5.1** Permutations for 2000mm x 2000mm platforms **5.1.1** 1 narrow entrance (L1) **5.1.2** 1 broad entrance (L2) **5.1.3** 2 narrow entrances (L3) **5.1.4** 1 narrow entrance and 1 broad entrance (L4) **5.1.5** 2 broad entrances (L5) **5.1.6** 2 narrow entrance and 1 broad entrances (L6) **5.1.7** 1 narrow entrance and 2 broad entrances (L7) **5.1.8** 3 broad entrances (L8) **5.1.9** 1 narrow entrance and 3 broad entrances (L9) **5.1.10** 4 broad entrances (L10) **5.2** Fishing proposals (2000mm x 2000mm modules) (Route: from inclusive core to isolated peripherals) **5.3** Axonometric drawing of final design **5.4** Plan **5.5** Photograph of final design model

5.1.1



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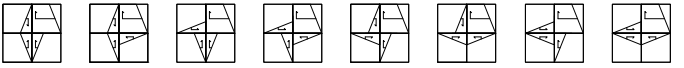

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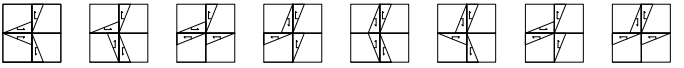

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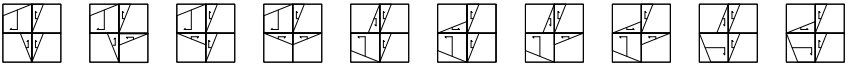

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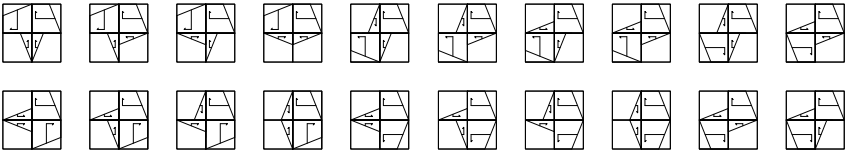

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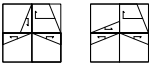

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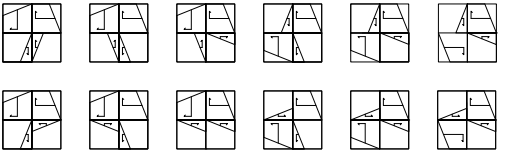

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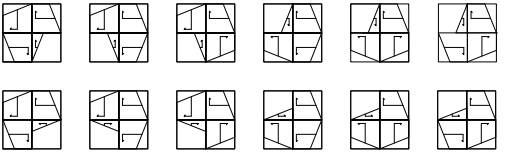

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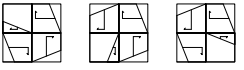


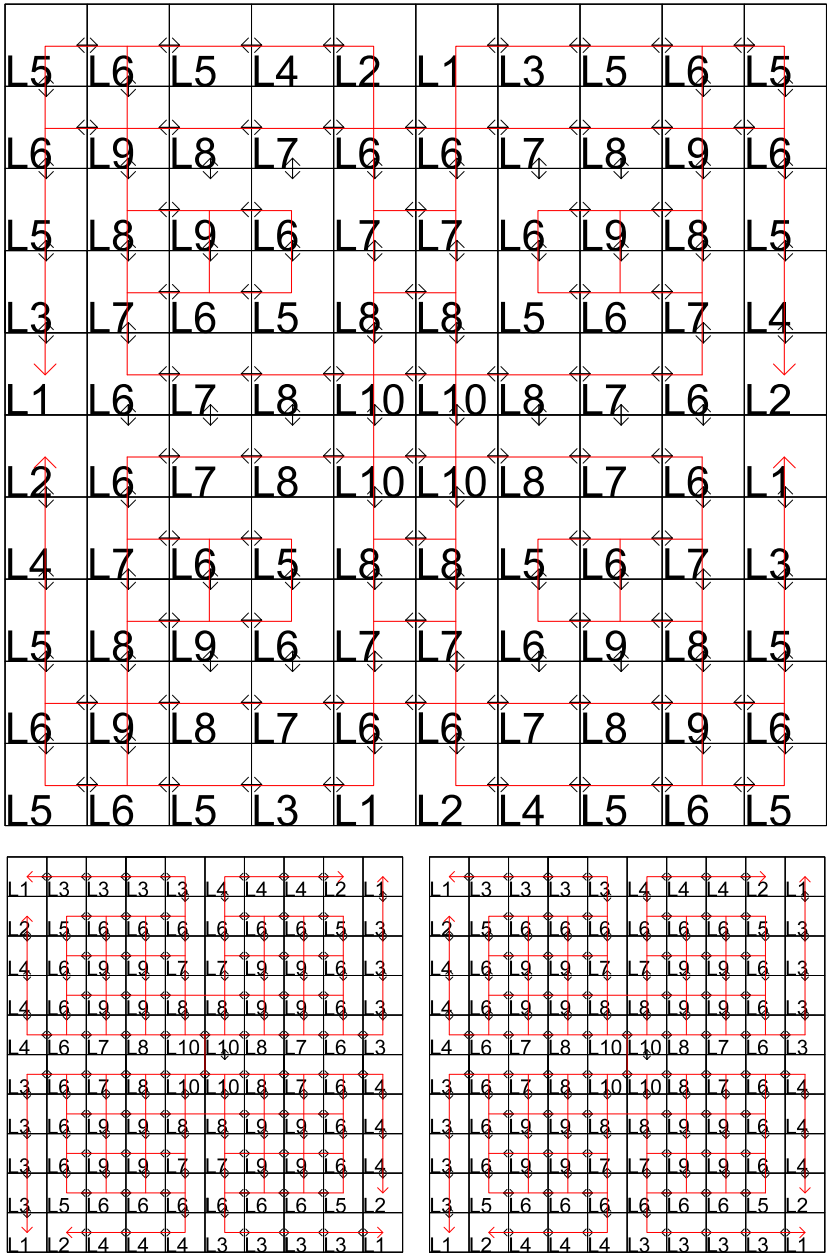
5.1.10

KEY

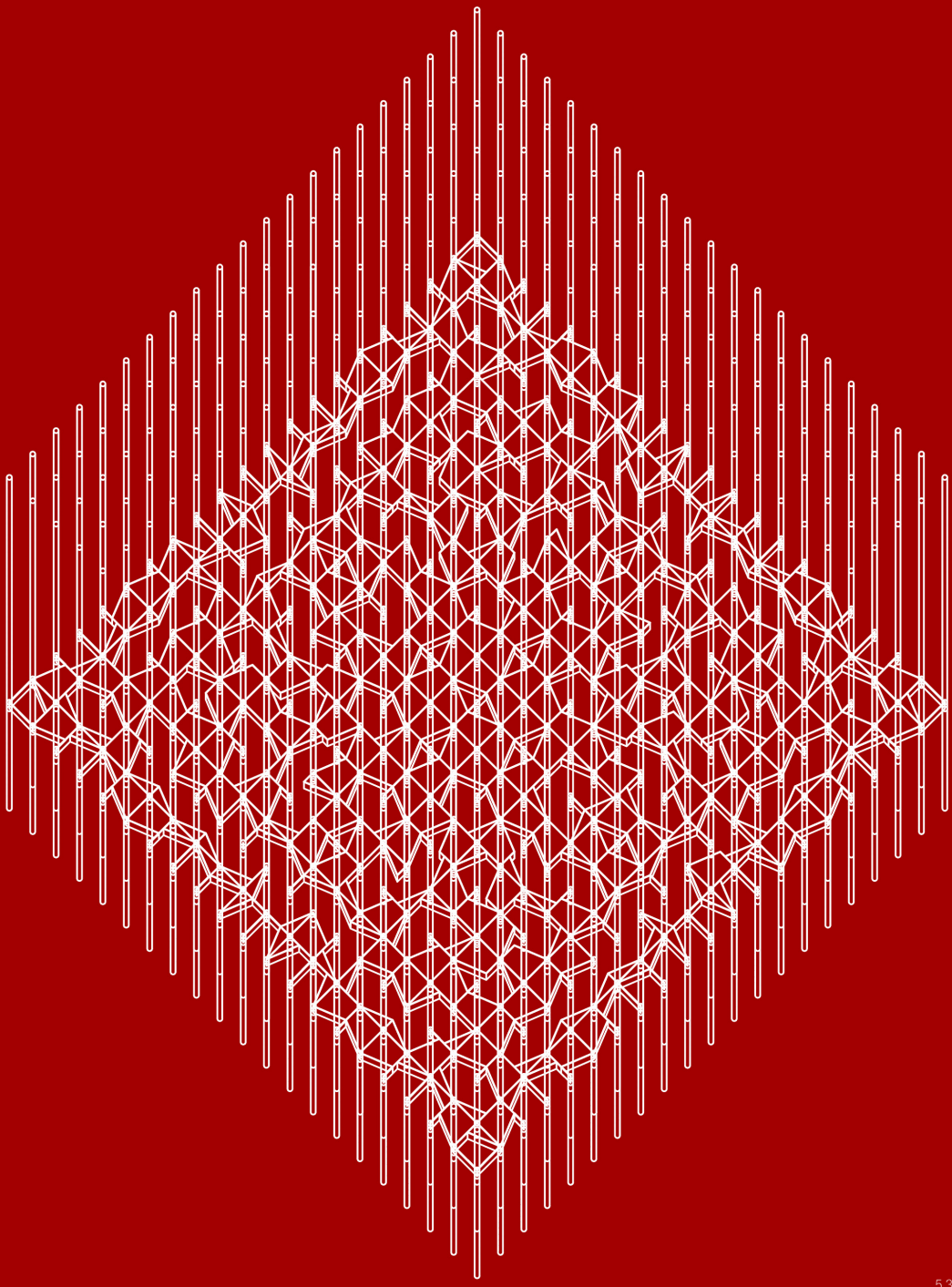
direction determined by vector in narrow platform

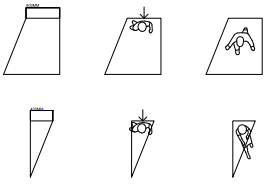
direction determined by vector in broad platform

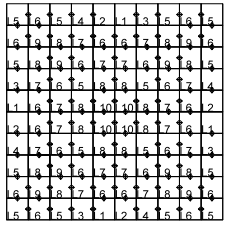
direction determined by resultant vector in platforms

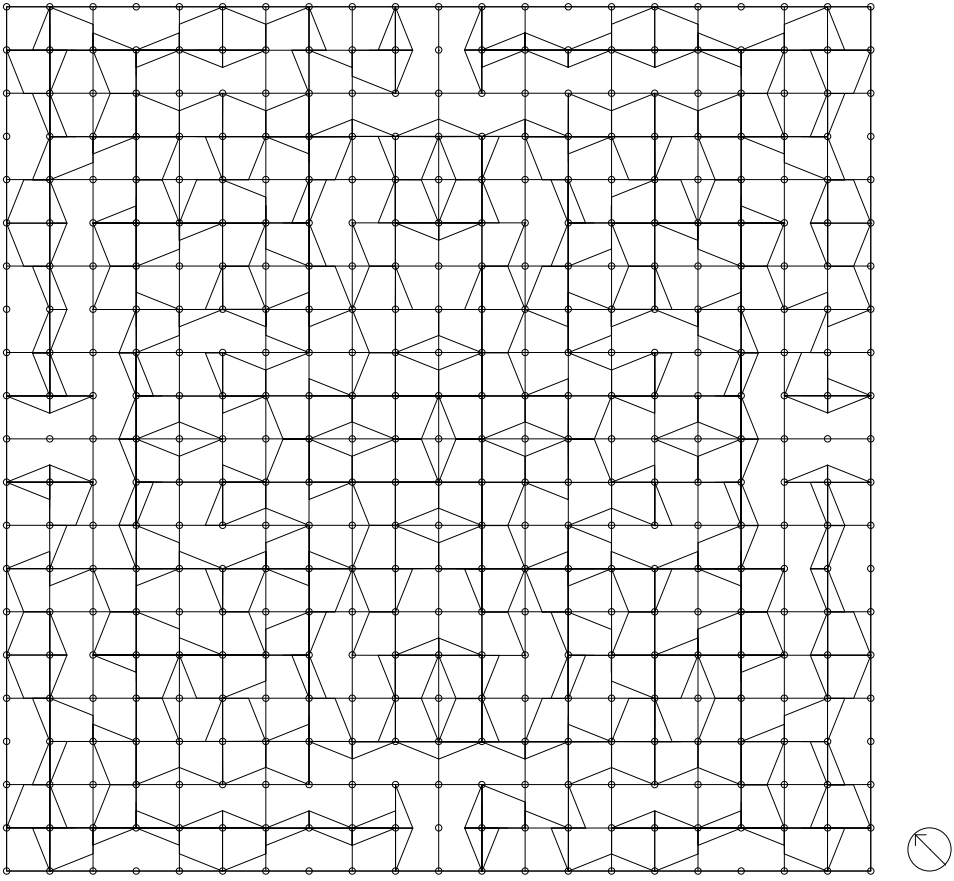

L5 L6 L5 L4 L2 L1 L3 L5 L6 L5
L6 L9 L8 L7 L6 L6 L7 L8 L9 L6
L5 L8 L9 L6 L7 L7 L6 L9 L8 L5
L3 L7 L6 L5 L8 L8 L5 L6 L7 L4
L1 L6 L7 L8 L10 L10 L8 L7 L6 L2
L2 L6 L7 L8 L10 L10 L8 L7 L6 L1
L4 L7 L6 L5 L8 L8 L5 L6 L7 L3
L5 L8 L9 L6 L7 L7 L6 L9 L8 L5
L6 L9 L8 L7 L6 L6 L7 L8 L9 L6
L5 L6 L5 L3 L1 L2 L4 L5 L6 L5

5.2



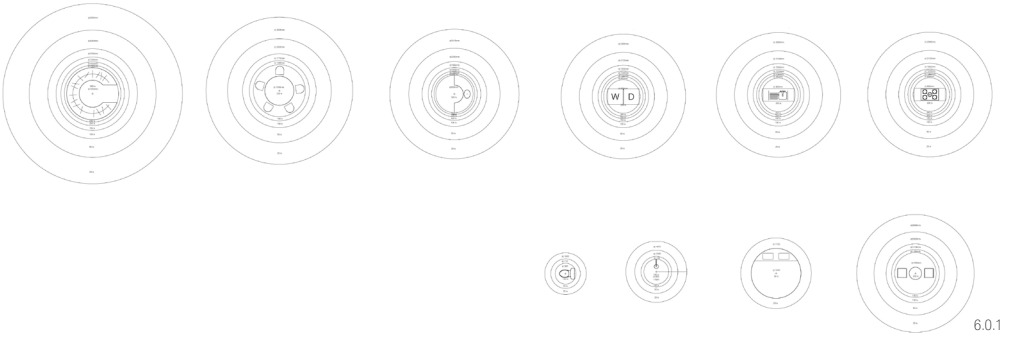




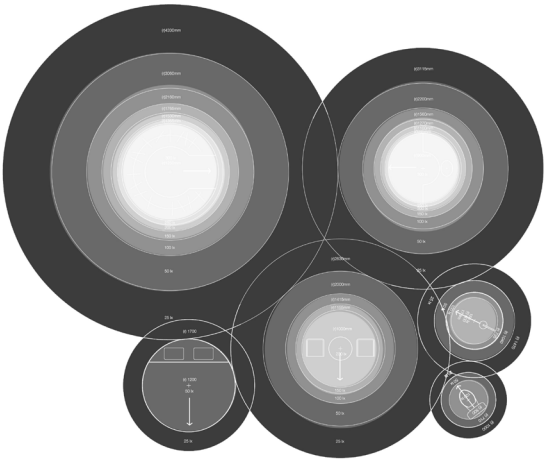


5.4

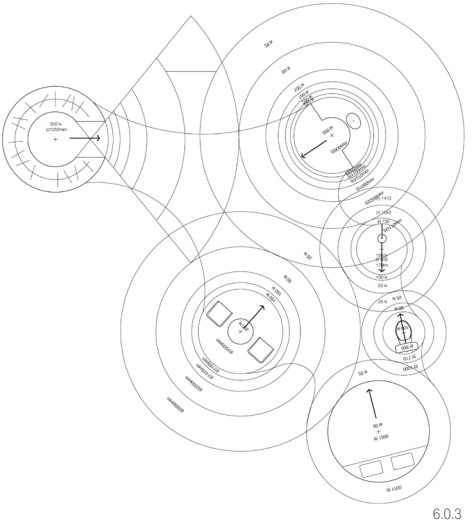
5.5



6.0.1



6.0.2



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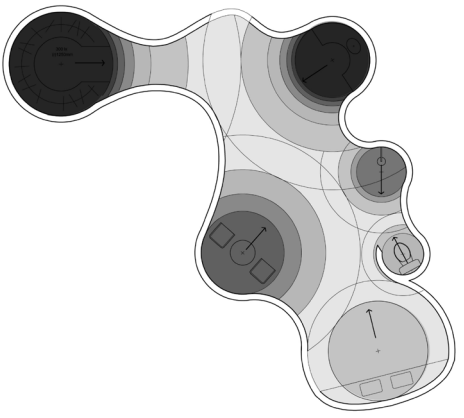
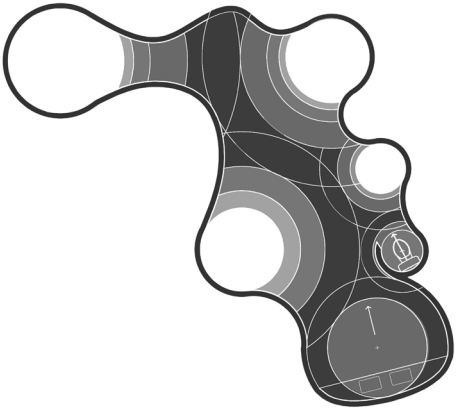
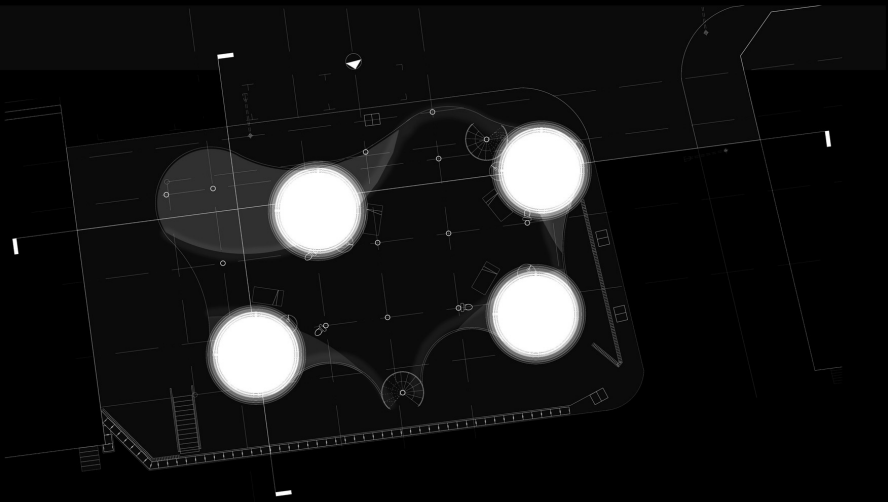


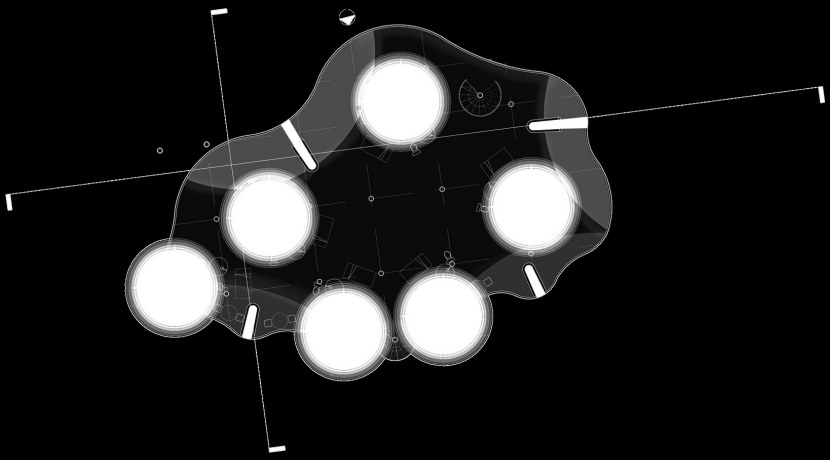
6.0.4

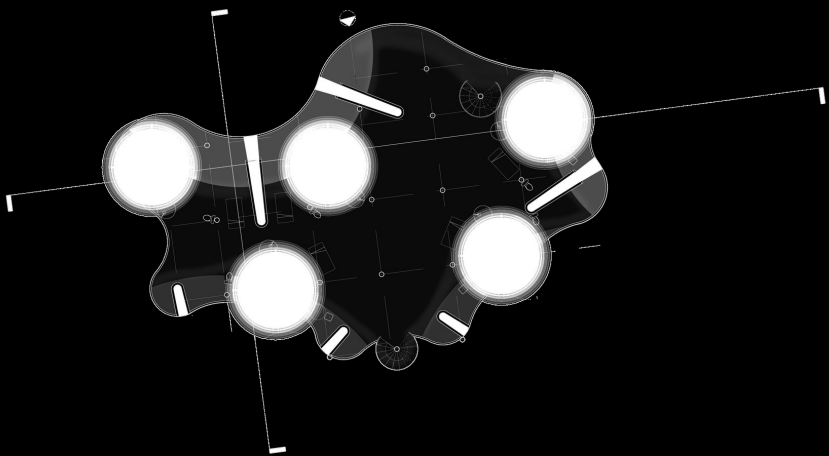


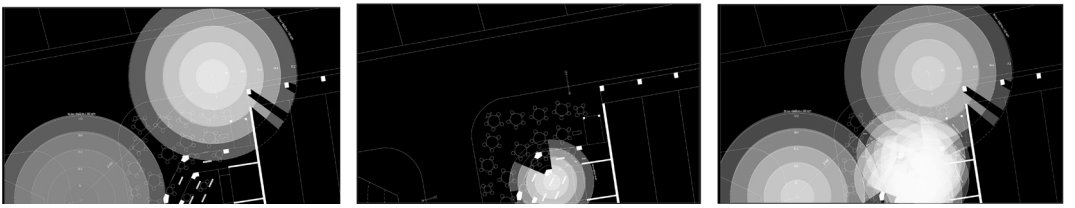
6.0.5

6.0 Descriptive drawings showing a decontextualisation of Inhabitation by reframing its components as tasks to be performed under different lighting levels, seen as a particular enabling ambient condition. **6.0.1** Understanding inhabitation components as distinct task areas and the minimum light levels (Lux) required for the performance of the tasks. **6.0.2** Early attempt at enacting thresholds at darker zones between task areas. **6.0.3** Enclosing particular task areas to form lantern-like funnels for the light cones. **6.0.4-6.0.5** Resulting lux levels in a single inhabitation unit. **6.1** Plans of final proposal of *Lux Spaces*: 16 single inhabitation spaces. Voids and sculpted enclosures harness light from surrounding sources around the site. Cones of light filtering through the multi-storey dwelling create varying levels of visibility and privacy. Task areas are located according to their required light levels and hence, proximity to the light sources. **6.2** Illustration of light sources around a coffeeshop near the site of the final proposal, a representative urban fragment in Geylang. **6.3** Photographs showing visibility levels around the street lamps and the flesh traders who use it tactically. **6.4** Illustration of the combined effects of the light spill from different sources around the coffeeshop. **6.5** Photographs of final design model





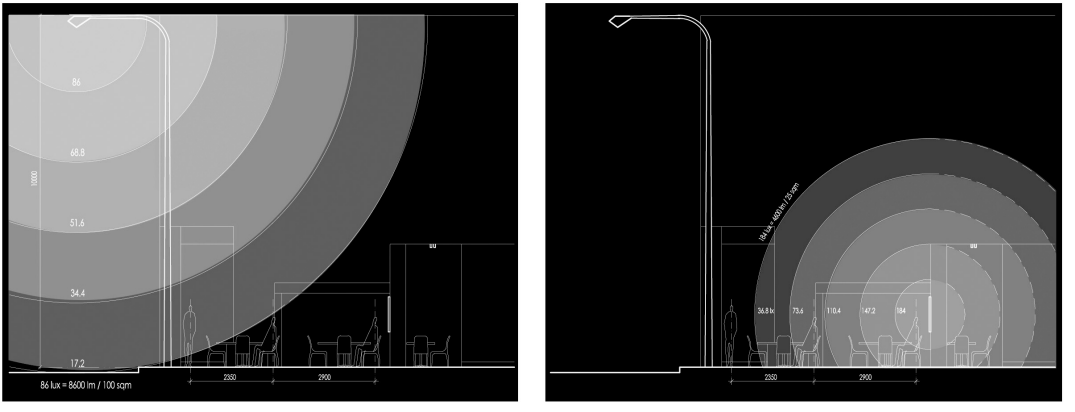




6.2


Photo: TNP

6.3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51.6
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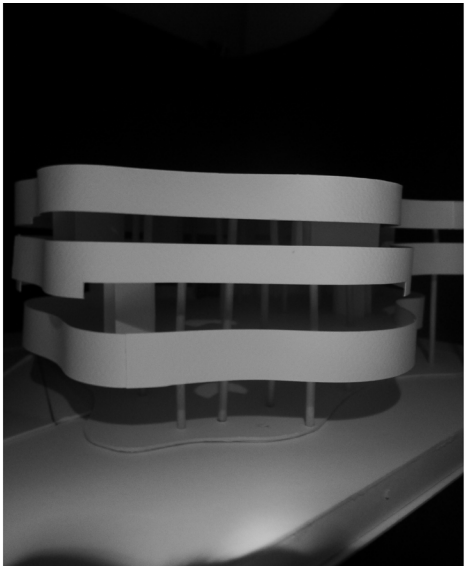
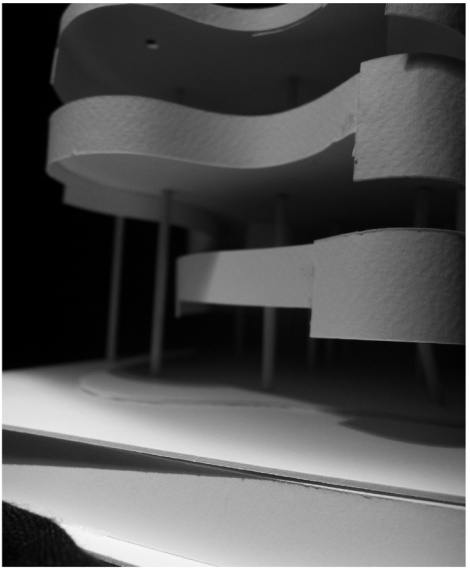
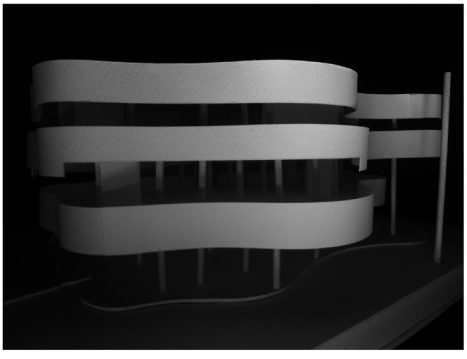
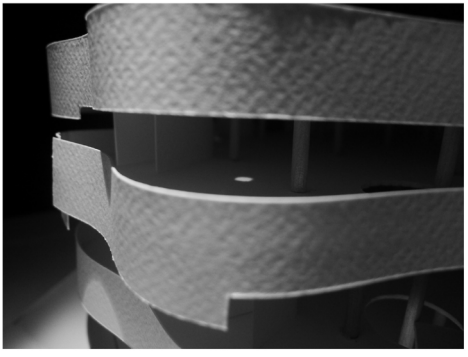
184

6.4

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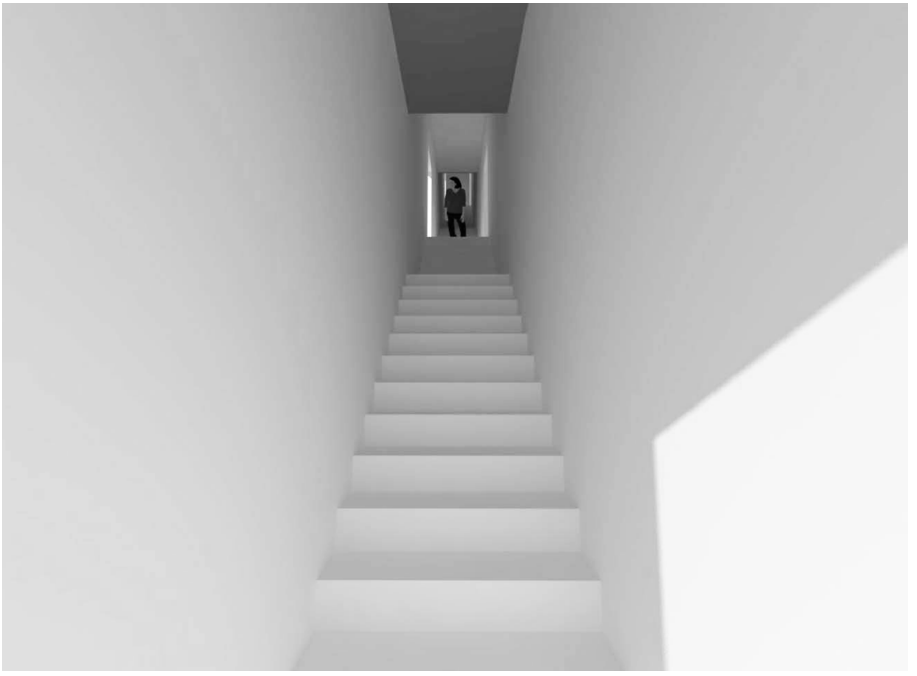
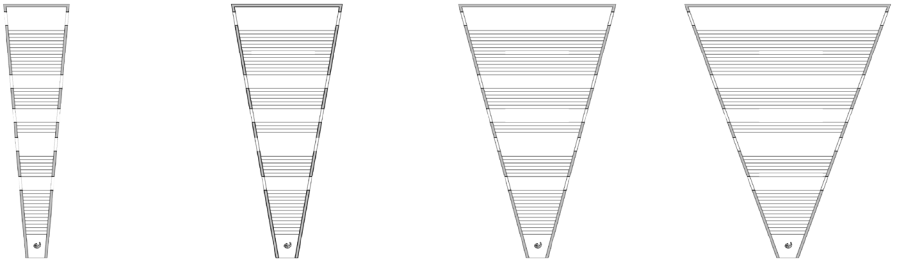


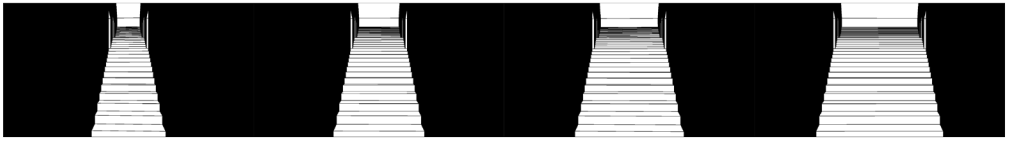
7.0

7.0 Rendering of the fragment of space that triggered the series of studies on staircase corridors. **7.1** Analysis of converging and diverging of the staircase corridors and their effects on the degree of directionality of the corridor to the person standing in front of the staircase. (Assumption: there are openings at the sides of the staircase corridor) **7.1.1** Degree of divergence of staircase **7.1.2** Perspective view of staircase **7.1.3** Degree of convergence of staircase **7.1.4** Perspective view of staircase **7.2** Analysis of how riser to tread proportion would affect the body proportion of the person standing on the staircase when viewed from a certain distance. **7.2.1** Section of staircase corridor **7.2.2** Perspective view of staircase **7.2.3** Ratio of height elongation **7.2.4** Section of staircase corridor **7.2.5** Perspective view of staircase **7.2.6** Ratio of height elongation **7.3** Ground floor plan of the Fashion Incubator at +2.9m showing the different stairs organising the interior spaces. Steep stairs lead to the entrances to the private areas within each live-work unit. **7.4** Plan of Fashion Incubator at +5.7m showing how steep steps form soft boundaries between public and private during retail hours and seasonal catwalk shows, while adjacent stairs could be closed off as an audience terrace. Runway-like stairs are used for catwalk shows or mannequin displays like shopfronts. **7.5** Section 1 of final design showing the different types of stairs linking and delineating the different spaces. **7.6** Section 2 of final design showing the relationship between the public space, the runway, shopfronts and the inhabitation spaces.



5 10 15 20

7.1.1



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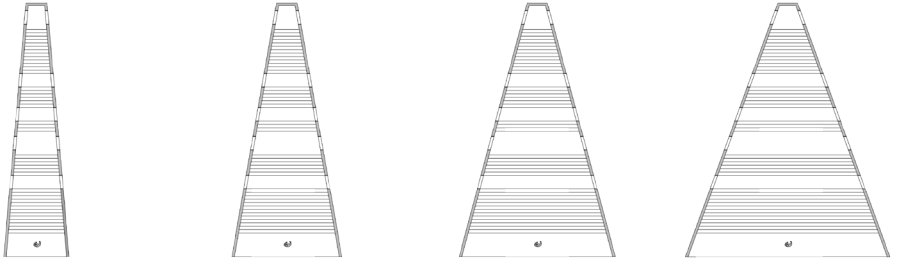

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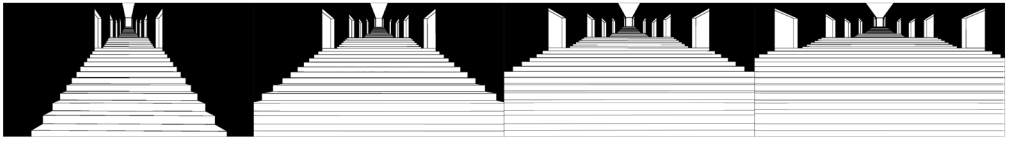

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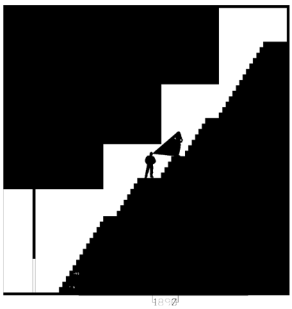
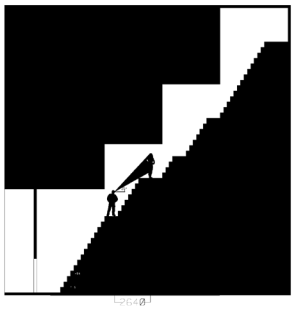
7.2.1



4 risers



7 risers

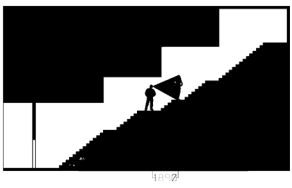
7.2.2

7.2.3

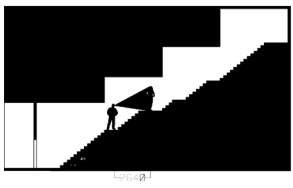
1.15

1.04

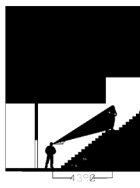
7.2.4



4 risers



7 risers



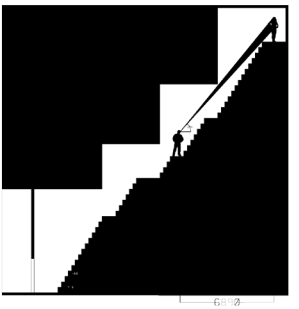
7.2.5

7.2.5

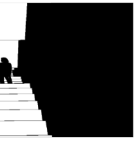
0.99

1.05

11 risers



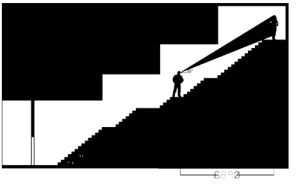
14 risers



0.99

0.96

11 risers



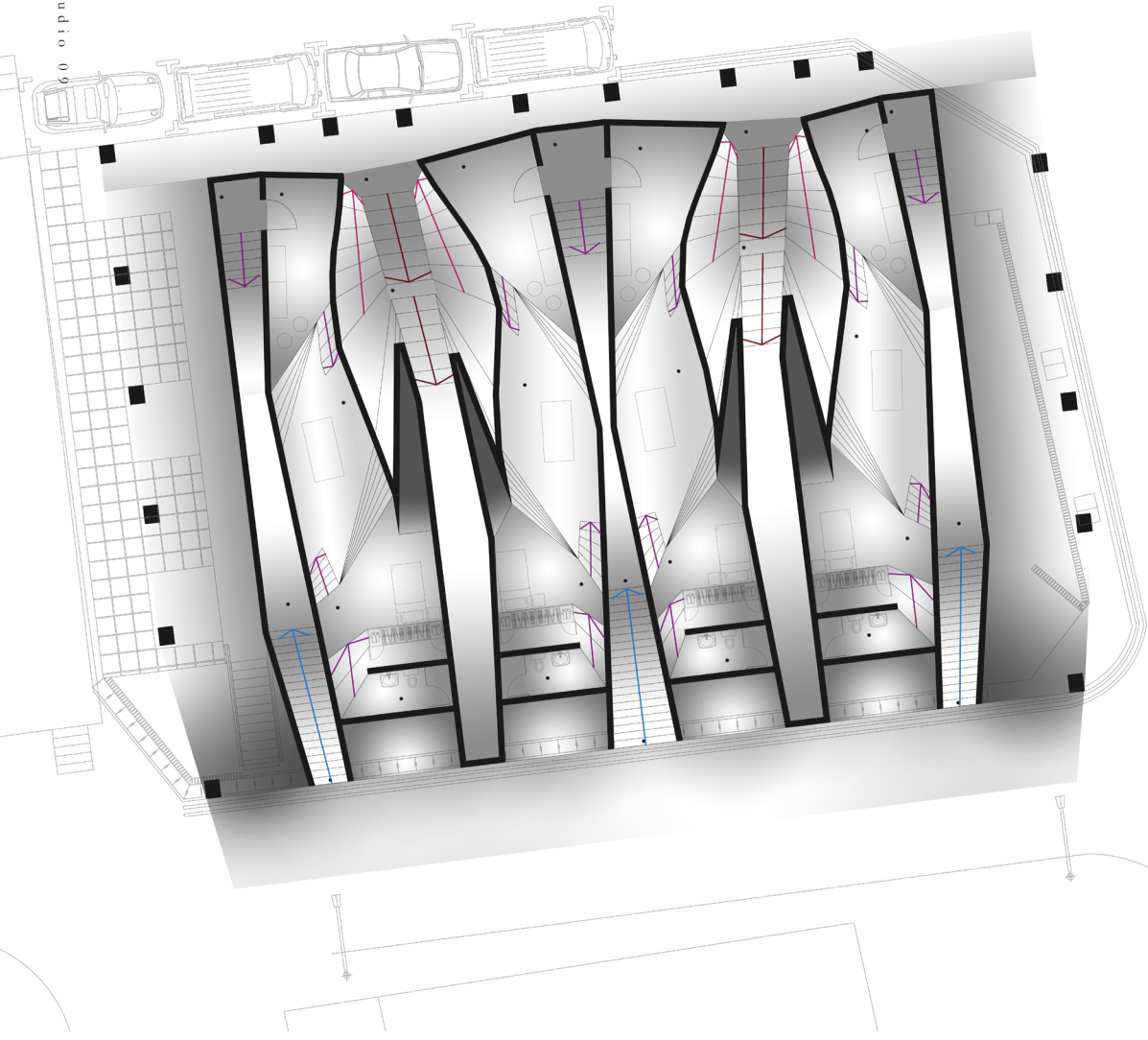
14 risers

-4 risers

1.08

1.04

0.76



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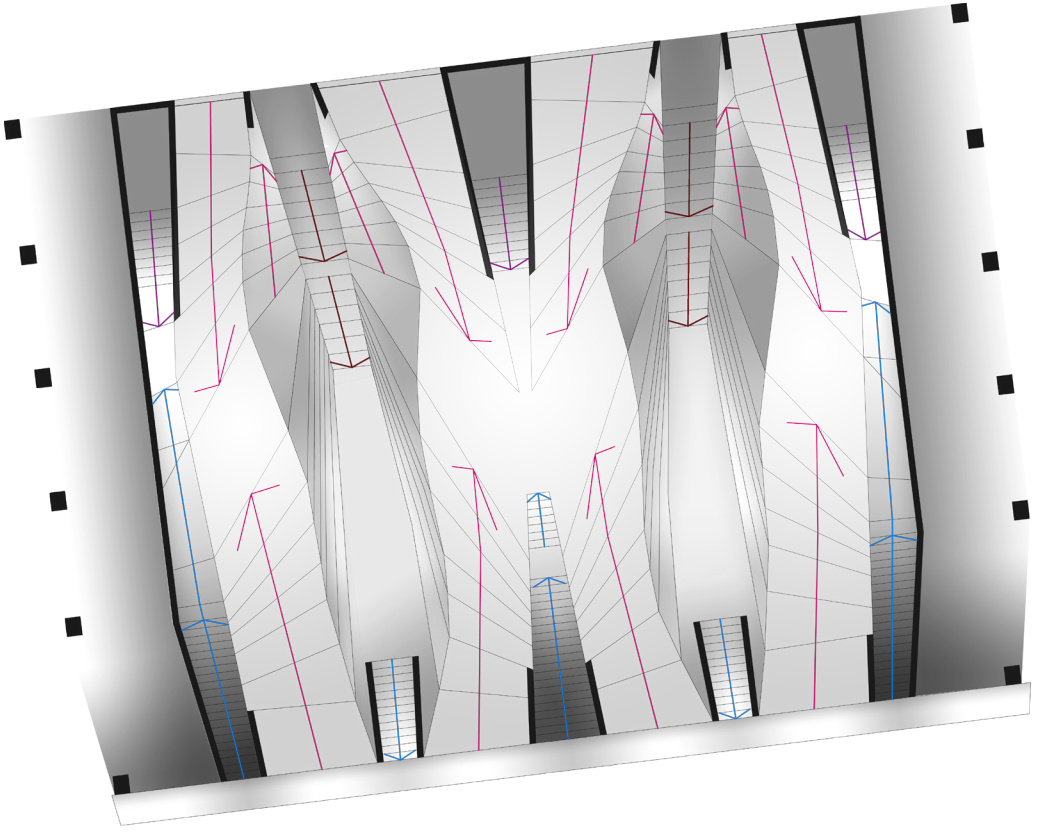


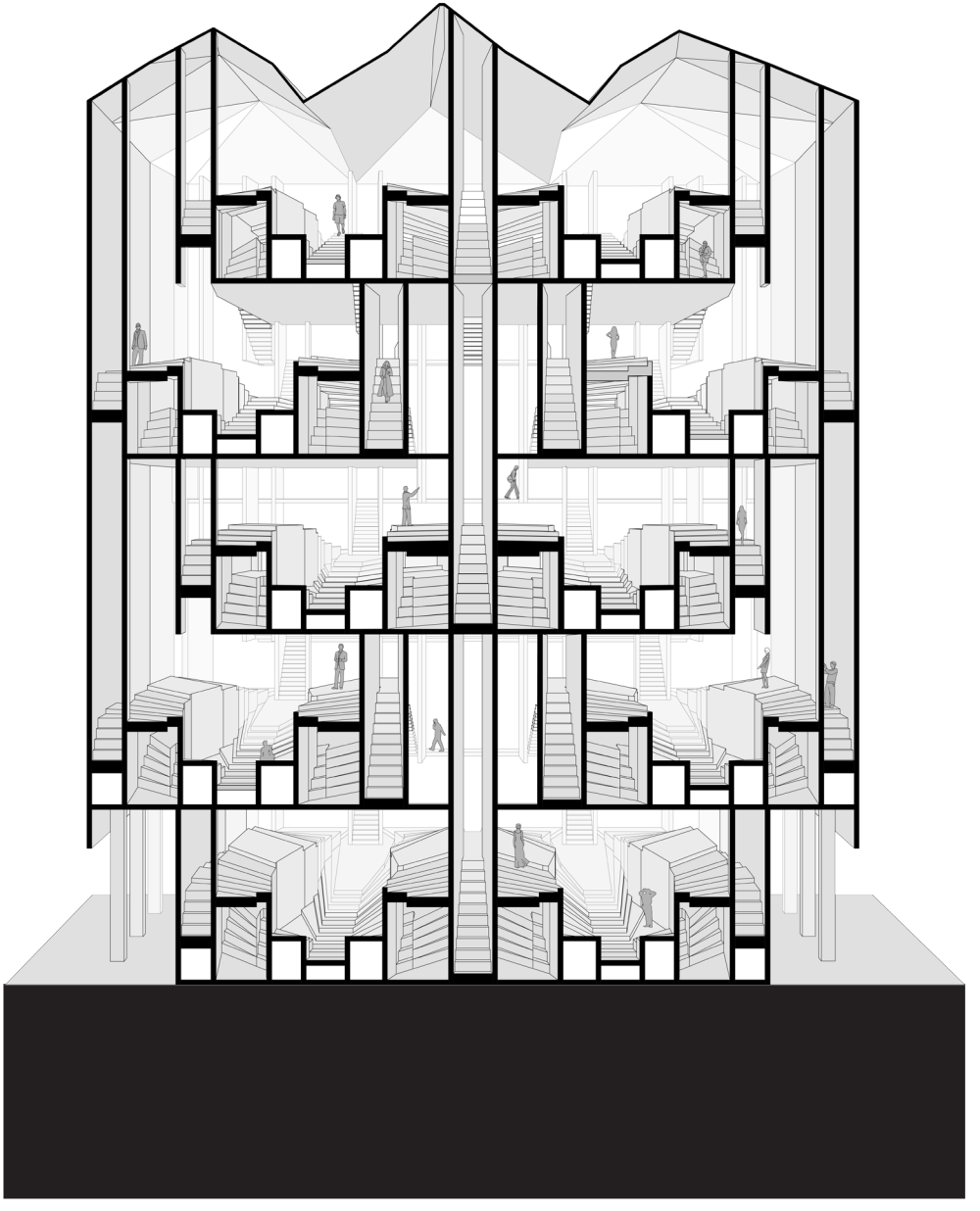
Staircase for directionality

Steep steps as boundary threshold

Staircase for temporary occupancy

Runway staircase as display area

7.4



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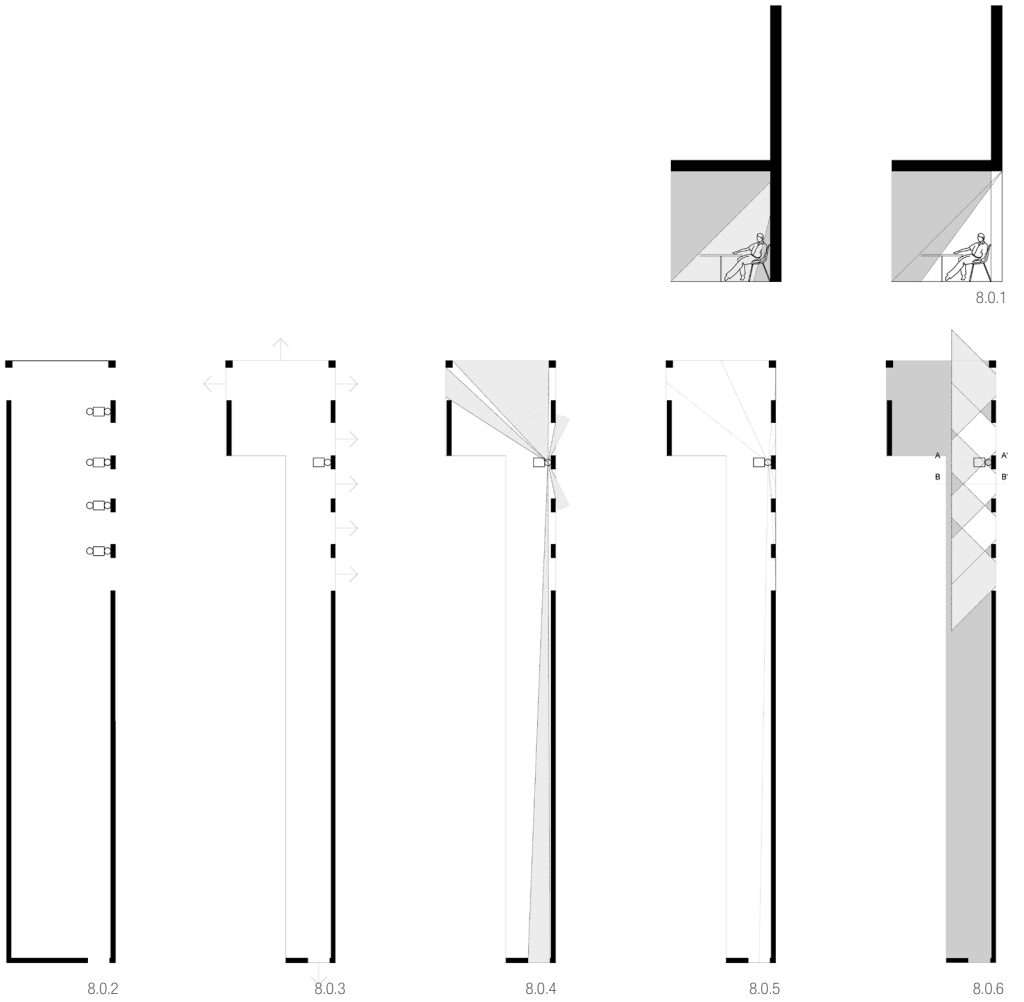
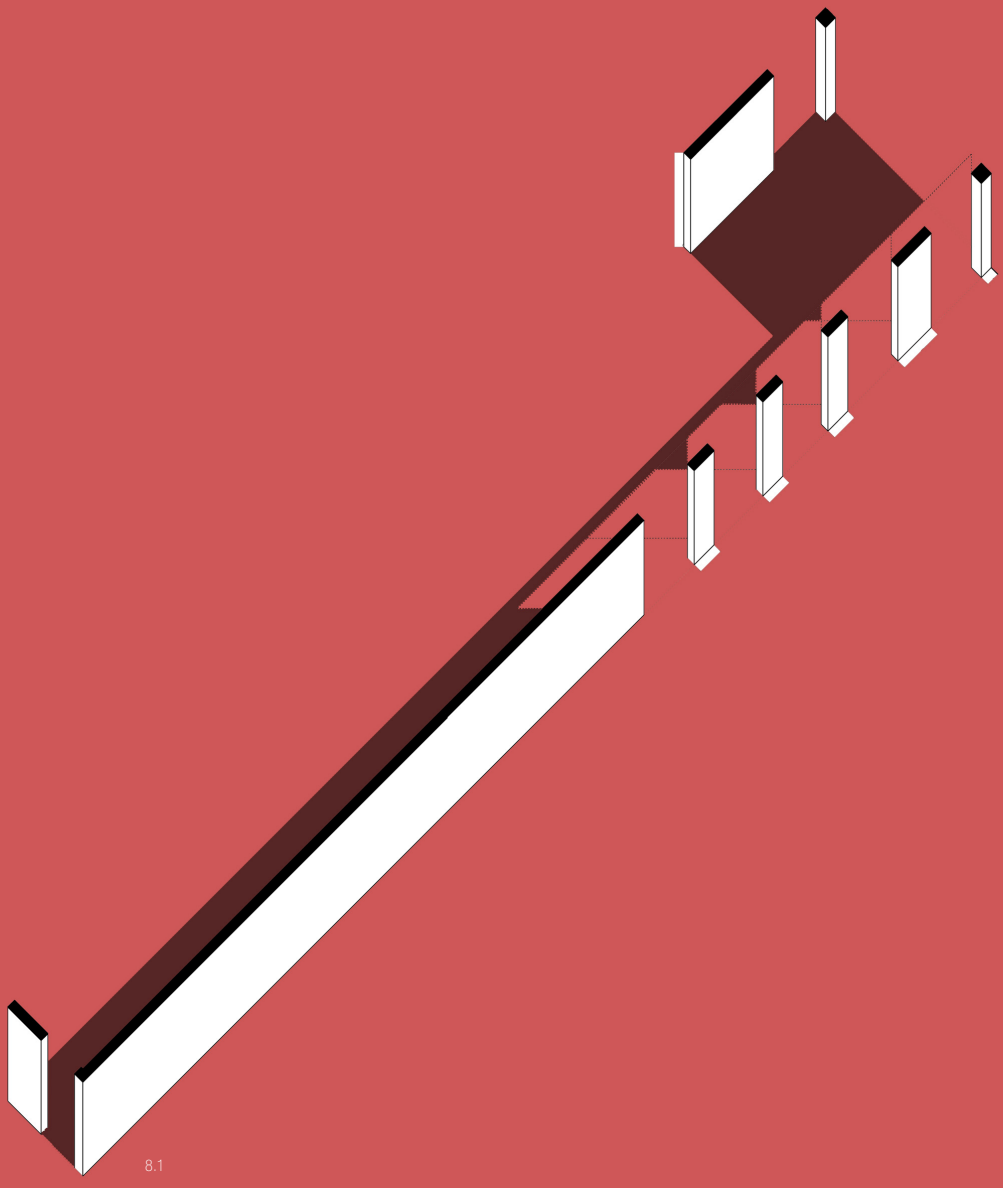
7.6



8.0.1 8.0.2 8.0.3 8.0.4 8.0.5 8.0.6

8.0 Analysis of the relationship between the seating area of an adjacent coffeeshop (Urban fragment), a dodgy fugitive character (Tribe) and his escape routes (The tactical use). **8.0.1** Section showing shadow effects of the column layout. **8.0.2** Plan of seating area in coffeeshop in shophouse adjacent to the site. **8.0.3** Concentration of exits on the east facade (Total of 8 exits). **8.0.4** Visibility of the chosen seat in the coffeeshop from the surrounding as a measure of the level of exposure or concealment there. **8.0.5** Distance to exits from the chosen seat. **8.0.6** Light and shade illustration **8.0.7** Light/shade **8.1** Axonometric drawing of light cast into east facade of building **8.2** Study of the anatomy of escape through escape scenes from movies **8.2.1** Screenshots from movie, Infernal Affairs, Andrew Lau & Alan Mak (Directors) **8.2.2** Screenshots from movie, Casino Royale, Martin Campbell (Director) **8.2.3** Screenshots from movie, Money No Enough, Tay Teck Lock (Director) **8.3** Analysis of escape: Relationship between line of sight to ending an escape through confusion **8.4** Escape routes **8.4.1** Site plan (Ground Floor) **8.4.2** Site plan (Second Floor) **8.5** Dwelling units **8.5.1** Ground floor plan **8.5.2** Second floor plan



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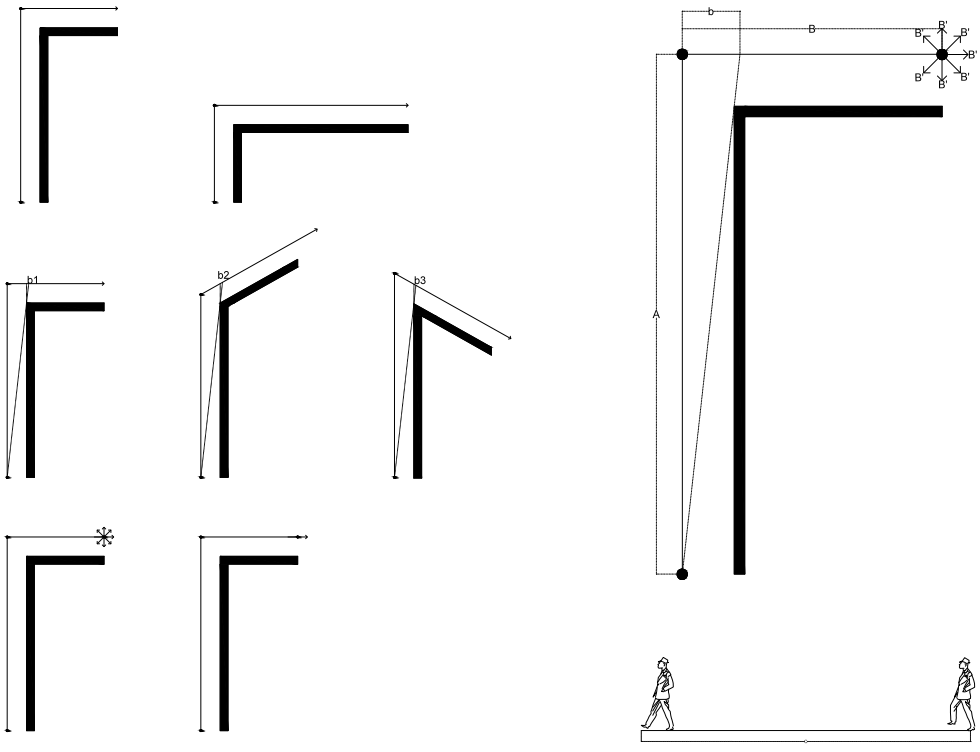

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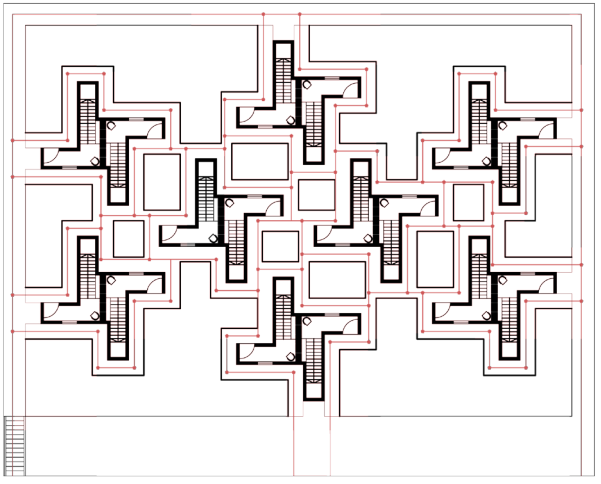

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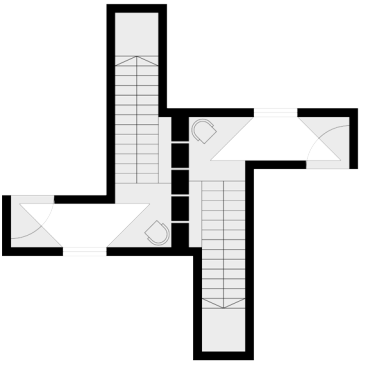

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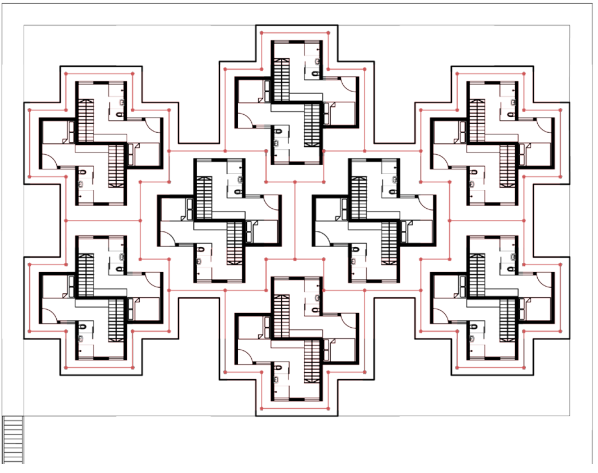

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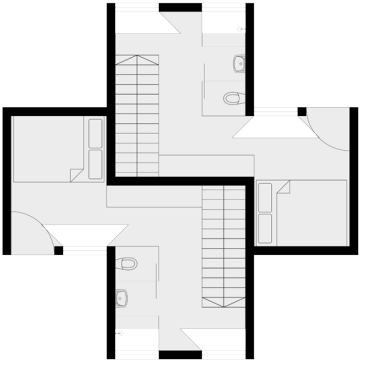

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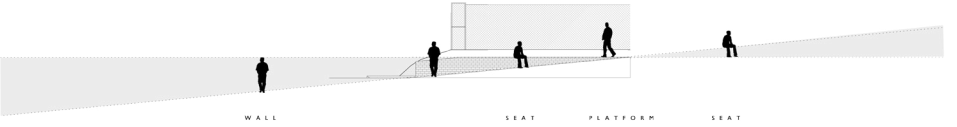
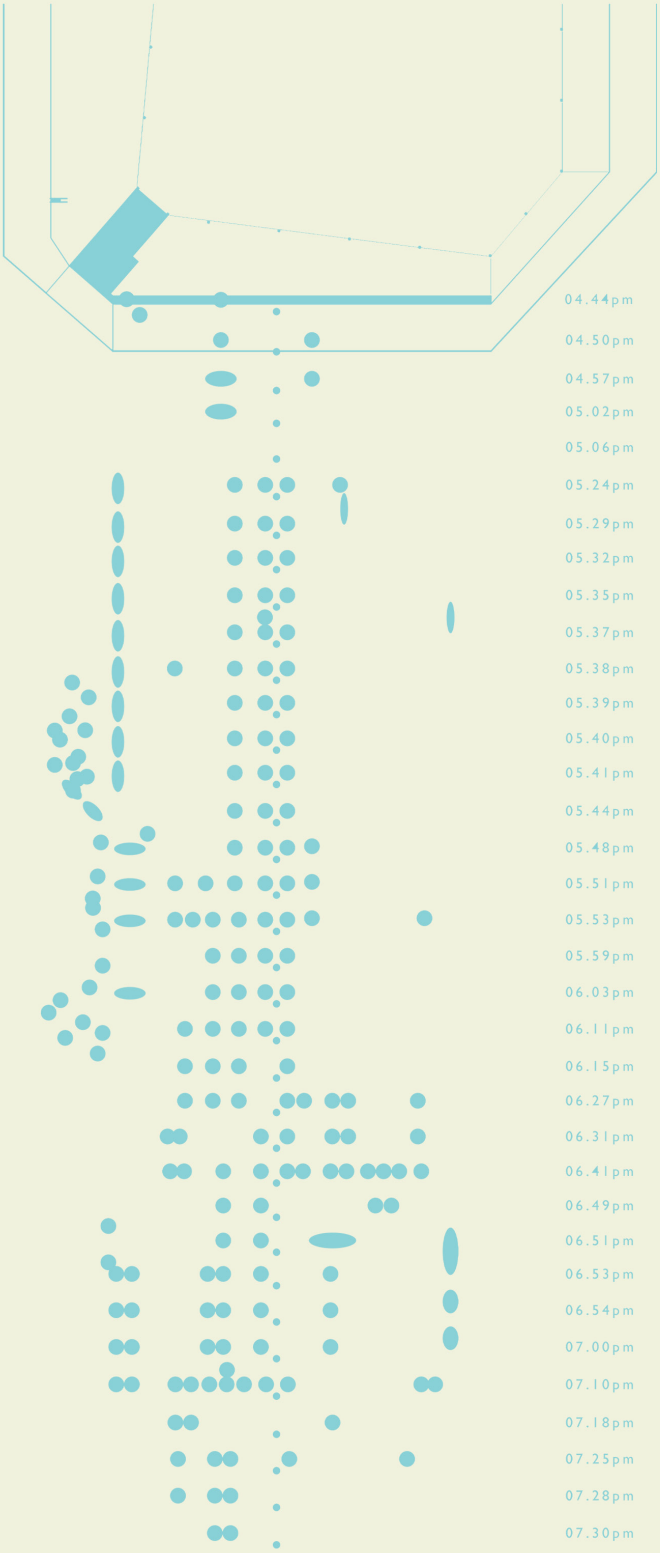


9.2

9.0 On-site observations of sitting postures on the sitwall at Geylang Lorong 14 **9.1** Section views **9.2** Extrapolation of slope: Platform, wall, roof **9.3** Mapping sitting positions from on-site observations (Observations were made from 4.44pm - 7.30pm. The shape of the dots denotes the nature of sitting/resting positions). The favourable sitting area is at the midpoint of the sitwall, whereby the height of the sitwall is within the optimal range for human seat height. The trees provide shade to the occupants at the sitwall which provide additional comfort to people sitting at the area. **9.4** Exploration: Unfolding perpendicular surfaces (Sloped surfaces 14.5 ° to horizontal) **9.5** Development of inhabitation modules **9.5.1** The inhabitation module started from a bare minimal volume that would suffice the occupancy of 1 person. **9.5.2** The idea of utilising sloped surfaces instead of vertical walls to increase the total usable surface area. **9.5.3** Combinations of the module in figure 9.5.2 with a continuous circulation between the modules. **9.6** 3D renderings of inhabitation proposal **9.6.1** Exterior view **9.6.2** Interior view **9.7** Isometric diagram of inhabitation design proposal **9.8** Main connecting ramps of inhabitation design proposal **9.9** Isometric view of floor plan **9.10** Inhabitation areas **9.11** Photographs of final design model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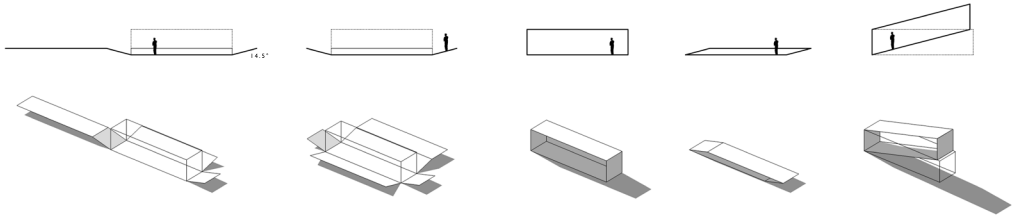

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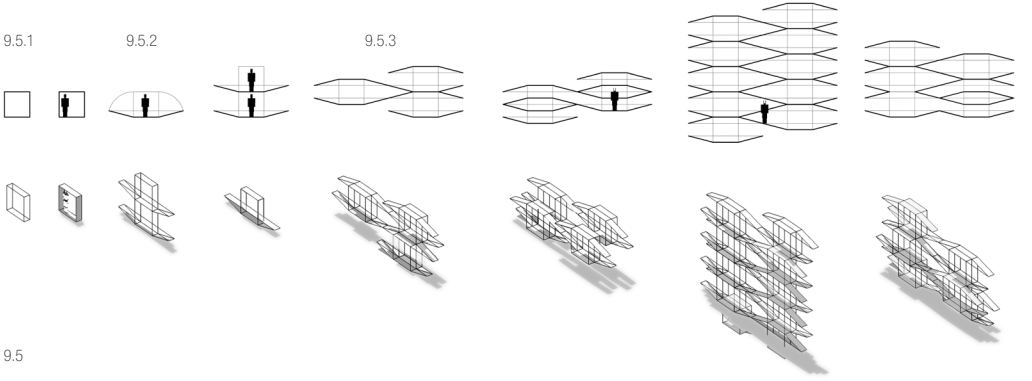

9.5.1 9.5.2 9.5.3

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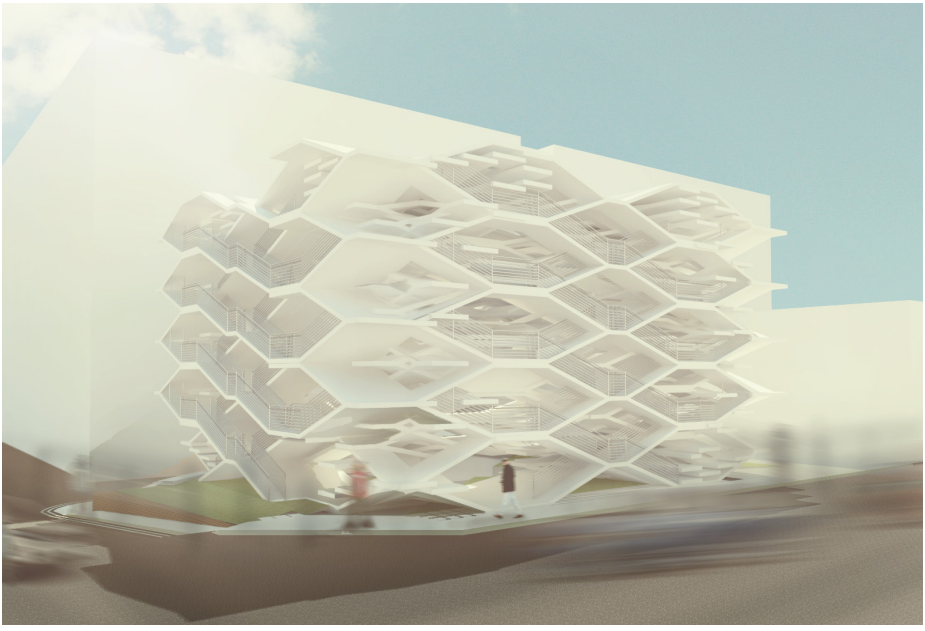

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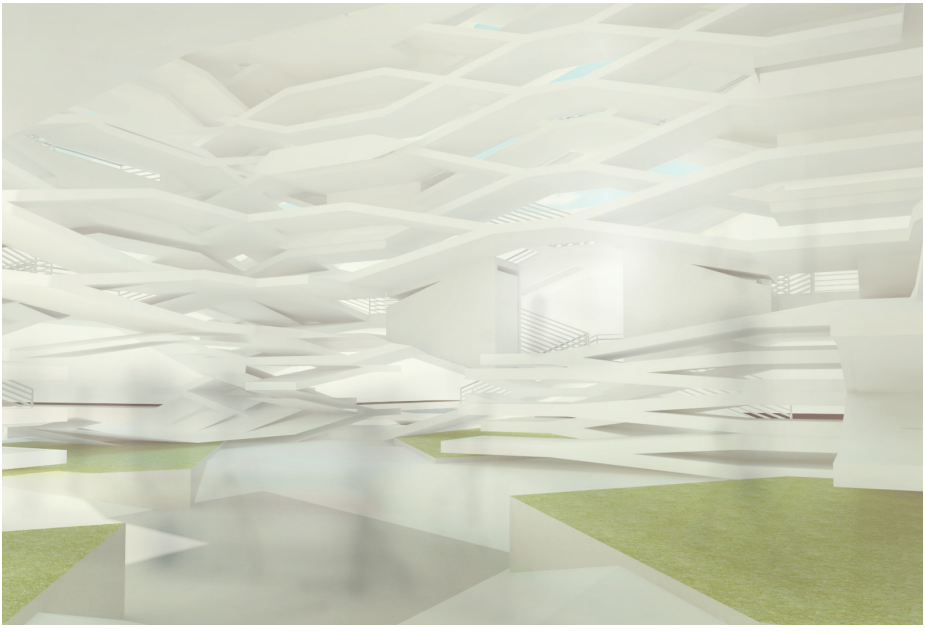

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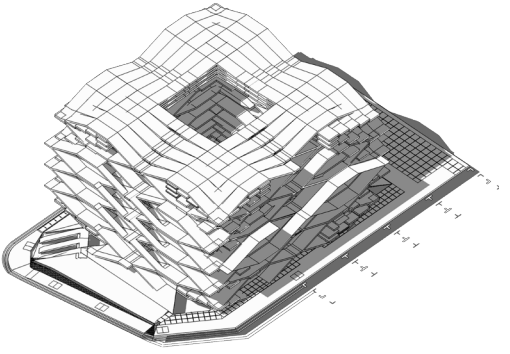

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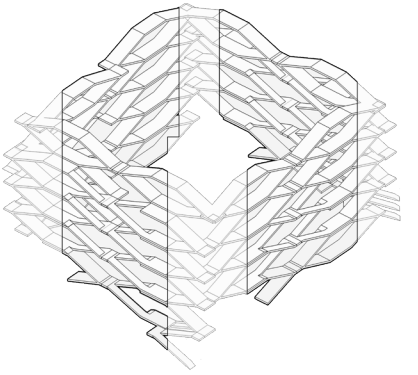

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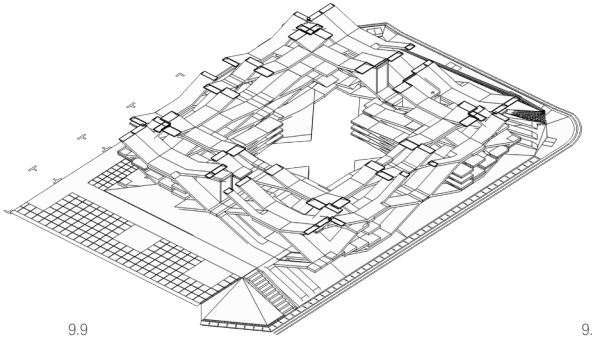

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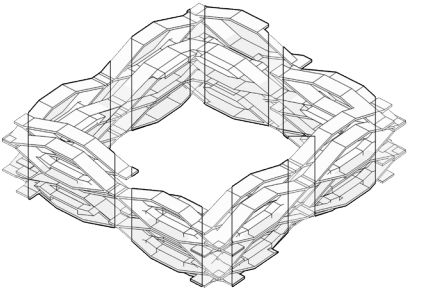

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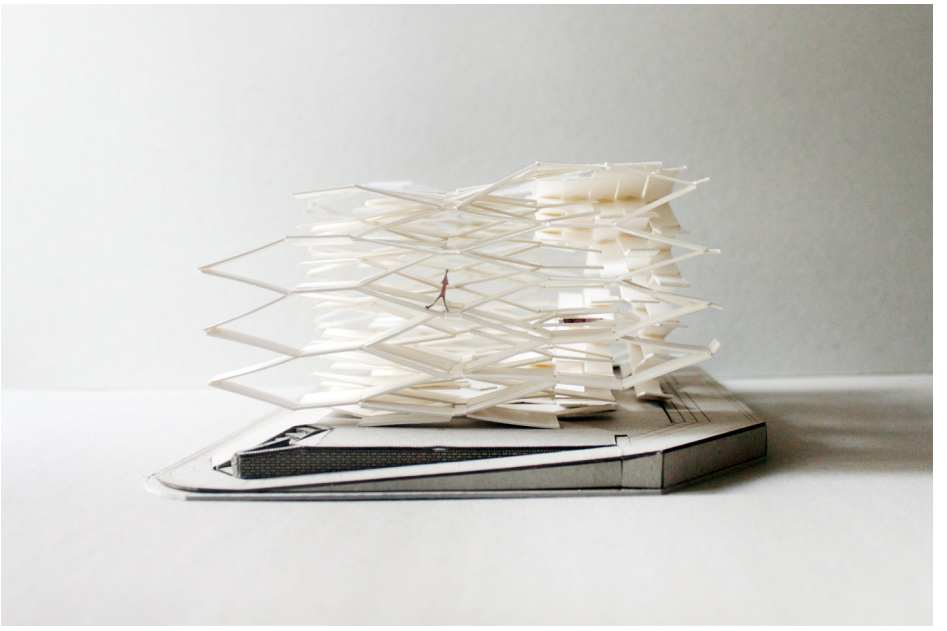
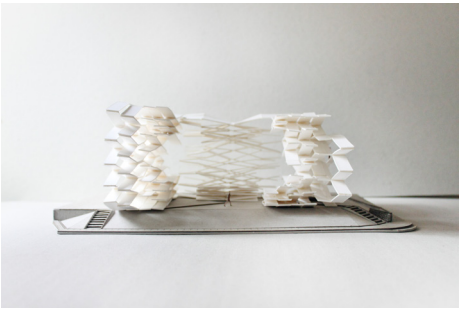
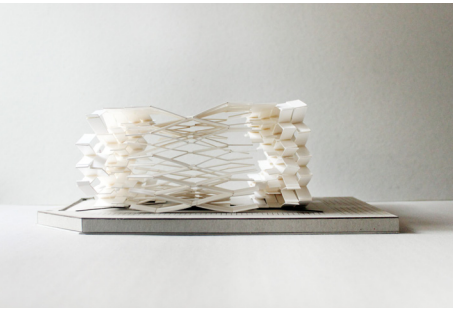






9.11

[Occupations]

Inhabitation Structures and Patterns

by Adrian Lai

Occupation takes centre-stage in this exhibition of recent student works. It is a timely reminder of the central premise of architectural design – that we design structures to be *occupied*. We feel an increasing urgency in reasserting this point when it should amount to stating the obvious. With the increase in different forms of media competing constantly for our attention, how we frame our task as architects requires a little soul searching.

Walter Benjamin and Marshall McLuhan provide useful observations and hypotheses for us to make sense of our situation.

McLuhan makes a compelling argument when surveying the effects of different media introduced through time. He argues that technological changes create new types of media which are essentially 'extensions of men', and these affect society not only by the content delivered, but also by the characteristics of the medium itself. [1]These structural changes, like the invention of the typewriter and printing press, make qualitative changes to how we learn, think and interact.

Architectural design is increasingly synonymous with digital media. Architectural drawings and visualisations have almost entirely transferred from manual to digital formats. These transfers in the communicative aspects of architectural design and production to the digital seem, however, to only have skimmed the surface in their effects on our practice. In our attempts to relate to built objects, we still tend to agree with Peter Zumthor's summation that many of these works are 'architectural one-liners'.[2] They serve as exemplars of McLuhan's hypothesis: the time lag necessary between technological changes and the structural changes they bring.

The lack of depth that Zumthor describes was already foretold by Walter Benjamin's sagely warnings about art in the age of mechanical reproduction. The work of art in this case is commonly understood to be the digitally created visualisation of design. The seductive image of smooth and seamless forms, and the fantasies of their realisation through some hitherto unknown advanced construction techniques, has come to be the most pervasive manifestation of such new tools. These images have come to represent the advent of this nascent revolution. The content, replicated at such a rate and quantity, has come to be misunderstood as the message.

As this confused state of affairs works its way down the architectural design food-chain, we have the opportunity to relocate ourselves in this continuum and choose how we participate. Where should we look for the structural changes and the effects that McLuhan talks about?

CAD, or Computer-Aided Design, has moved further up the design food-chain and has begun to make fundamental changes to how we conceptualise form, and even how we see architectural design. CAD-CAM, or the linking of manufacture directly to the CAD models is a further step in the direction of incorporating this new technology into construction, or the materialisation of the built environment. Pushing past the novelty of the forms and advancements in ways to materialise them, we look to another of Benjamin's observation of the simultaneous omnipotence and impotence of our art as we chart a course, that is to say, 'architecture has always represented the prototype of a work of art the reception of which is consummated by a collectivity in a state of distraction'.[3] We posit that architecture's message and medium remains rooted in the spatial and the material.

We therefore see before us a project to reframe our remit as architects: to shift our sights back towards where architecture affects and where it still has efficacy, to where architecture really comes alive.

To reframe the task at hand, we must shift the frame of reference back to questions of occupation. From the formal, structural and conceptual exercises that students of architecture train with, we focus on the experience of the formal, structural and conceptual when we ask what is relevant to the appreciation and use of the structures we design. In our bid to affect, we learn from past and present by describing and analysing; and thereafter, to project these lessons into what we design.

Our way into Vitruvian 'utility, stability and beauty' is via a deeper and more meaningful way of understanding form, space and order. We look to formulate ways of describing forms and its relations – necessarily annotating and registering – and in so doing, creating a platform to begin questioning and absorbing. By stretching these newfound tools to their limits we probe analytically to better understand the logic that bind them. We test our hypotheses and wonder at their potentials of being projectively cast into instrumentally structured forms, which should be occupied and enact specific use patterns, if not also, behaviours. From simple observations and simple desires, we look to building an arsenal to act beyond the superficial.

Phenomena and patterns are important to us and we have them under close scrutiny. We search not for props for yet another structure. We seek ways to unfold potentials within the fields in which we act – the sites we engage become crucibles for questioning and proffering answers to similar questions only architects can answer.

In *Structural Multiplicity* (Figs.4.0-4.15), Nobuko Iijima's project for a fishing facility off the St John's Island coast, she looks to understand how the forest of slender columns in Junya Ishigami's Kait Workshop creates ambiguous spatial boundaries while subtly suggesting directionality within the otherwise open plan space. Formulating ways to register and describe the inherent spatial and perceptual qualities of the structural configuration, she was able to speculate in her design proposal the possibility of projecting similar formal-behavioural relationships to suit the programme.

In her project, *Lux Spaces* (Figs.6.0-6.4), Cecilia Castro observed a fragment of the larger Geylang district as a microcosm of the peculiar nightlife there. Coffee-shop patrons adapt their seating patterns in the al fresco areas to the street and streetlight configuration. In doing so, they are near enough to see passing flesh traders clearly even at

the relatively lower ambient lighting levels. If these patrons sat at the better lit areas, they would not have the same recognition capabilities of the nightlife since their eyes would have naturally adapted to the higher lux levels in their immediate surroundings. This relationship between a specific material configuration and its particular use by a particular group of people formed the basis on which she then proposed a multi-storey dwelling built on the relationship between light levels, visual penetration and privacy. Harnessing the existing ambient lighting conditions around the site, she used light contours as privacy thresholds within and between the inhabitation units.

Similarly Marisa Kueh's survey of phenomena and patterns is summed up in her two projects *Visual Porosity* (Figs.3.0-3.4) and *Gradient versus Programme* (Figs.9.0-9.11). In *Gradient versus Programme*, she makes a simple observation of an on-site phenomena where the larger proportion of transient inhabitants of Geylang find refuge of varying durations on road- and shop-facing planter walls, kerbs and steps. She extrapolates her study to propose an amphitheatre of the everyday with a multi-level structure of occupiable ramps and bench-seats.

In registering patterns and getting to the bottom of observed phenomena, we look for meta-contexts in which to act. Never losing sight of the realm in which we hope to effect and to stimulate, we posit that material effects are better realised through resonance rather than consistency.

In Astley Png-Yap's project *Figurative Translations* (Figs.1.0-1.4), he instrumentalises the Moiré effect as a means to engage with architecture and structure. Understanding and relating the figural insinuations of these overlapping line patterns, there is conceptual immediacy in the translation of the patterned lines into structural and organisational forms. At roof level and serving as a trellis, the lines tie the structural grid of *bakau* piles together with the diagonals providing lateral stability. The resultant 'Moiré Figures' are then echoed as contours defining a variegated terraced deck for fishing like a reflected floor or ceiling plan that has undergone translation. The different Figures translate to contours of varying radii, consequently, defining different spaces for group and personal spots for fly- and jig-fishing (Figs.1.2-1.4).

In a different way, Pauline Tanzil's *Fashion Incubator* (Figs.7.0-7.6) looks to create aberrations by conversely reinforcing existing spatial and performative patterns for greater material effect. Analysing the manner in which some flesh traders occupy shophouse stairs like a runway or shop-front with suggestive hideouts tucked away behind these fronts, she sought to instrumentalise the relationship between urban fragment and its particular use through this group of occupants. Describing view angles which flatter the female form in analytical drawings she was then able to relate it to the directionality accorded by the different proportions of these runway-stairs (Figs.7.1-7.2). In so doing, a project for work-live units for fashion designers complete with show and retail runways emerged. To embed the project spatially and experientially in its immediate context, Pauline adapted the rhythmic party wall-shophouse urban morphology to her proposal. Within a block held together by strips of these runway-stair fragments, she echoes the dimensional rhythm of the shophouse division but stands out by replacing party-wall-to-stair divisions with runway-stair connectors between units.

Our task finds greater clarity when we locate our search for architecture's relevance in Benjamin's observation of 'distracted attention.' We need to unearth deep structures to order; to speculate on the possibilities of new forms to affect modes of occupation; to situate the role of the material in an increasingly pervasive virtual realm. Architecture's relevance will neither reside in chasing increasingly elusive novelty nor fade quietly to passive nonchalence. To project a future for our built structures in the lives of its eventual occupants, we learn to look anew.

In Cecilia Castro's *Folded Landscapes* (Figs.2.0-2.7), an early fascination with stiffness accorded to folded steel plates led her on an adventure into fields, landscapes and other suggestive forms for gathering and dispersing. The cross pollination of a forested landscape or rock outcrops by the sea for fishing soothed her initial reticence to using forms not ascribed an a priori use. Surveying these forms for directionality, usable horizontal and vertical surface areas, and their utilitarian possibilities, an undulating landscape for fishing manifested itself.

Sharry Wang's *Fishing Platforms* (Figs.5.0-5.5) proposed a variety of platform modules suggestive of differing methods of occupation to fit the 1m x 1m *kelong* grid, and to fill each square so as to offer rigidity to the entire 20m x 20m structure. Stringing these platforms in different combinations, she leads each fisherman from personal to communal spaces, and back, along their route from rest, to interaction, and to fish. In doing so, her proposal created distinct sequences open to interpretation yet familiar to the visiting fishing enthusiasts.

In *Lost* (Figs.8.0-8.5), Sharry Wang followed her imagination of vice in Geylang to examine the anatomy of a chase and derived a spatial-temporal escape mechanism. By pushing a fictitious narrative opportunistically, a project and narrative emerged, serving as a framework for a disciplined and restrained articulation of a 16-person dwelling.

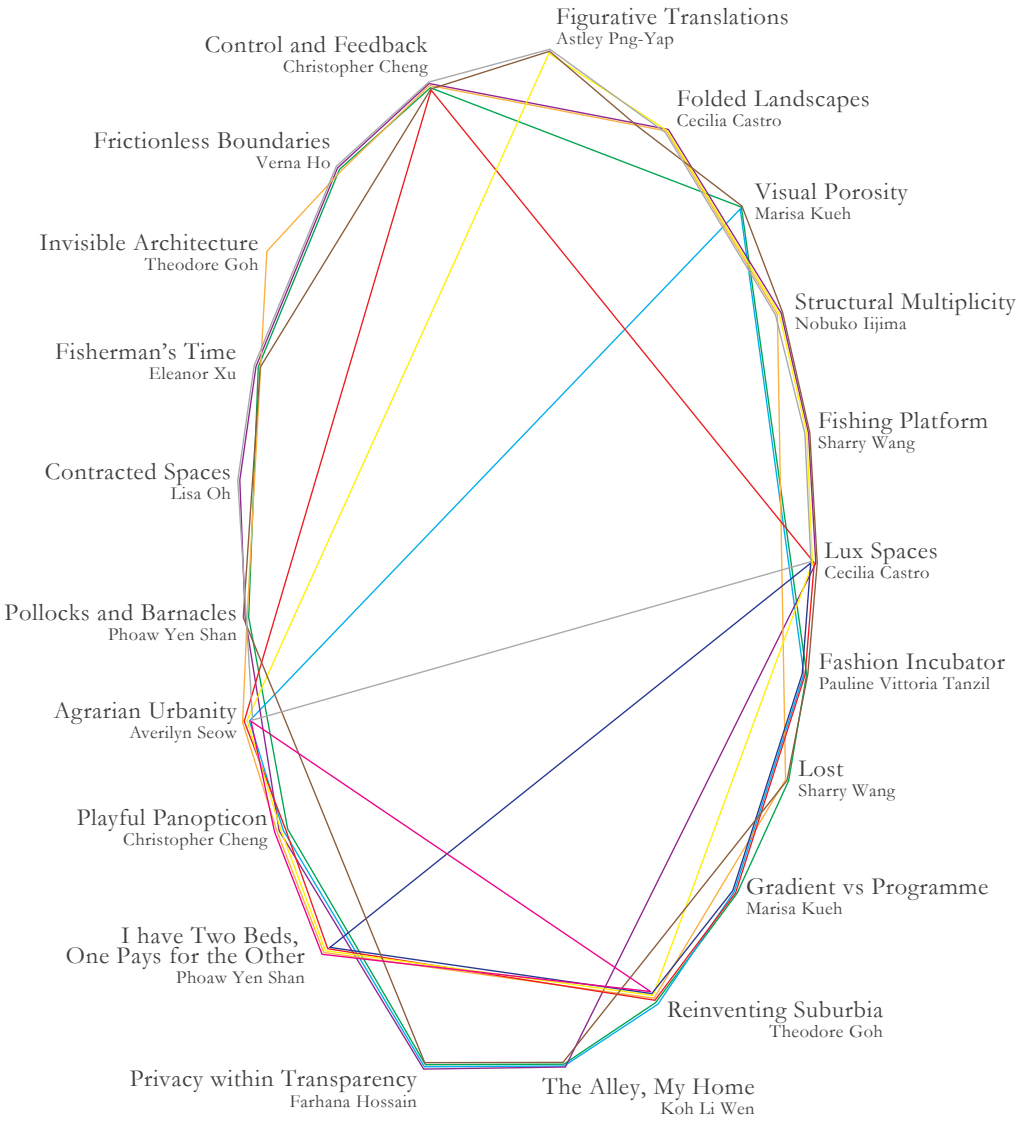
Pre-occupying ourselves with the need to continually define the relevance of architecture situates us in atmospheres, civilisations and cultures. It inevitably leads us back to an examination of how we inhabit, how we occupy. We look to learn anew as architects must learn – from personal experience and from keen observation – to shorten a lifetime of learning, to get under the skin of the world around us so that we may understand how to shape the buildings that, in turn, shape us. We seek a return to architecture's central Occupation.

[1] Marshall McLuhan, *Understanding Media: The Extensions of Man* (Cambridge, Massachusetts: MIT Press, 1994, c.1964).

[2] This was transcribed from the Summer Lecture given by Peter Zumthor at the Royal Academy in 2007 when he discussed his work in relation to atmospheres.

[3] Walter Benjamin and Hannah Arendt (Editor), 'Art in the Age of Mechanical Reproduction', in *Illuminations* (New York: Schocken Books, 1969).

MAP of (Pre)occupations



Modular integrity Site contestation Lyrical imagery Instrumental ambiguous forms Performative materialisations
Social rhetoric Flexible configuration Typological variations Hyper-contextualisation Qualitative spatial definition

An Exegesis of Studio-based Inquiry

by Dr Lilian Chee

"You think philosophy is difficult enough, but I can tell you it is nothing to the difficulty of being a good architect."

- Ludwig Wittgenstein

What knowledge can studio-based inquiry reveal that may not be revealed by other modes of inquiry? How is such knowledge acquired, and expressed? While these questions are never explicitly articulated in the architecture studio setting, they remain central to the mechanics of architectural education. This essay will attempt to engage these queries.

More than inspired dreaming, the mainstay of studio-based inquiry is material thinking, that is, architectural ideas arise in, and through, sustained and reflexive handling of materials, methods, tools and techniques – ink, graphite, paper, cardboard, wood, paint, glue, computer-modeling software, freehand drawing, drafted lines, and old-fashioned model making. The knowledge which comes through a deep understanding for these modalities and their processes is what Barbara Bolt calls 'tacit knowledge', a knowing which is 'neither merely perceptual nor rational' but grounded in its own logic and modes of seeing.[1] Bolt argues that 'the new' emerges through our handling of the world, via the discipline's specific modes of expression, these acting as levers to gain a new kind of 'sight': 'Martin Heidegger terms the kind of "sight", through which we come to know how to draw, to paint, to dance or to write, circumspection. For Heidegger, it is through circumspection that the "new" emerges. In this way artists gain access to the world, in what Emmanuel Levinas terms, an "original and originary way". "Originary" is a term rarely used, but one that seems particularly pertinent to practice-led research. It is a way of understanding that derives from, or originates in and of the thing in question. In this case, the "thing" in question is practice. *It is understanding that originates in and through practice*'.[2]

In architecture's case, it is through drawings, models and their exegeses (analytic discourse and writing, for example, this essay) that the emergent idea is given substance, or following Bolt and Heidegger, that the idea originates. At the same time, Paul Carter emphasises that 'material thinking' is a lot more complex than the mastering of techniques and tools. It must involve invention.[3] The wit of invention is fundamental and particular to studio-based inquiry but oft-times discredited as an idiosyncratic trait rather than an intellectual act. As Carter points out: '… applied disciplines, (such as) architecture and design, find they can describe what they do on condition that they leave out invention. Because of "the lack of credibility given to the vital processes of design and creativity … scholarship and research in these fields, where it does occur, is 'about' them, rather than 'of' them"'.[4]

Here, Carter highlights something key to studio-based inquiry. When architecture is discussed or written, it is discussed on the basis of what it is, as a finite object, rather than the sum of its possibilities, or of the trajectories pursued and those left behind. It means that if we engage the premises of material thinking, its tacit knowledge, 'sight' and circumspect 'logic' will affect, and fundamentally alter, the way we think about architecture, manifest its possibilities, conduct research, discuss, and write it. It means that the kinds of hesitations and non-linear routes taken in the act of design should find their way into the final work, albeit in how and what we choose to draw, construct, or discuss: 'Hesitate comes from the Latin *haesitare,* meaning to stick fast, to stammer. It is a momentary holding back in doubt, a difficulty in doing or making something. In our age of aggressive digital imaging and atrociously hasty construction, hesitation must be brought back into architects' drawings to make them truly heuristic devices'.[5]

Instead of being papered and smoothened over, the *difficulty* of making a choice should drive the inventive action of design. This is akin to Heideggerian circumspection, or what Thomas de Quincey calls 'third apprehension', which de Quincey argues, constitutes the very basis of intellectual discourse, '… all reasoning carried out discursively is mediate, that is *discurrendo* – by running about to the right and the left, paying the separate notices together, and thence mediately deriving some third apprehension'.[6]

Design, like intellectual reasoning, is also subject to the non-linear structures of thought and action. It requires a 'third apprehension', or an instinct. And this kind of circumspect instinct is, in its own way, comparable to intellectual work – by its weighing of possibilities and potentials, and its capacity to argue for a course of action not yet discernible to the mind nor visible to the eye. Yet, studio-based inquiry cannot operate like intellectual discourse, which preferably adopts a distant and objective perspective. Studio-based inquiry is an embodied discourse. This means the practitioner is positioned within the field of his or her research. The architecture student or architect is thus proximate to his or her subject – the site, the client, the programme, or the form of intervention. There is emotional investment. Arguably, without such investment, no worthwhile design process may be sustained. In this sense, architecture is inescapably fleshy, bound as it were, to the lived body.

The architectural concern here is not with an abstract sense of the body but what is anthropocentric, that is, 'what it means to be "embodied" and to live in our animated and metamorphic existences as the concrete, extroverted, and spirited subjects we all objectively are'.[7] While architecture has always been concerned with the human body, this body has also been reduced to the barest minimum, if not sometimes amputated of its specificities. As an architect laments, 'I think it's one of the things that is part of the criticism about the way that architects are trained – they don't have a complex body in mind when they're designing'.[8]

Occupations rehearses various modes of inhabitation, subject-to-subject/object engagements, usage, habits, rituals, pursuits, obsessions, and routines, structured around the configurations of architectural space. The term 'occupations' is immediately visceral, temporal, and territorial. It deals with particular subjects – in this instance, the architecture student and his/her object of investigation. It delineates patterns of conduct, reciprocation, the production of space, and that of architecture.

The pages following this essay see projects from second year architecture students who were given the task of expressing a complex 'subject' within an architectural space. Each exercise, whether dealing with geometric abstraction, anthropomorphic manipulation or programmatic arrangement, was geared towards an exploration of architecture's capacity to imagine, create and suggest modes of occupation – temporary or permanent, obvious or elusive, legitimised or contested – pertinent to the students' elected subjects of inquiry. The notion of 'subject' needs some unpicking here. 'Subject' encompasses many dimensions. It refers primarily to the 'client' or occupant of which the space is designed for. It references this occupant's physical and bodily needs, but also considers states of mind, emotions, and socio-political issues woven around this figure. Depending on whether one is dealing with a leisure fisherman, a blue-collar foreign labourer, a white-collar expatriate worker or a streetwalker, the parameters for design shift dramatically with these distinctly different 'fleshy' subjects. At each point, architecture must respond to its occupant.[9]

Can one ever design for a specific subject? The answer would be negative only if we assume that all design is ultimately objective, and for the 'greater good'. In fact, design is always subject-specific, even if this 'subject' is not explicitly articulated. At the same time, the question subsumes the inherently partial nature of the designer's engagement with his/her subject. For as much as the ensuing architecture accommodates the subject, it also reveals something very precise about the designer's relationship with this subject. How does the design process embed, and express, such a relationship? How does the designer make productive his/her hesitation towards the subject such that these difficulties shape the design process, and become fundamental to the design's genetic code?

The first set of projects by Cheng, Ho, Goh, Xu, Oh and Phoaw (Figs.10.0-15.7) explore the expressions of structure and occupied space in a series of off-shore fishing platforms or *kelong*. Each student began by working through the ordering principles of a chosen artwork, transforming these into an architectural order particular to their individual readings of the space and activity in question – a fishing facility located just outside rapidly urbanising Singapore, to provide for the introverted and solitary act of fishing. The artworks were pre-selected to conform to the site's outward atmosphere – the sea as a 'field' of sameness but inherently varied and complex.

Cheng's control and feedback system of mobile steel frames and floating drums (Figs.10.0-10.6) allowed for the *kelong* to be altered both by the predictable six-hourly tidal variations, as well as the less predictable wave movements. Various spaces, activities and views expand, or contract, depending on the time of day, the tides and the moods of the sea. The effect is poetic and precise, engineered yet spontaneous.

In contrast, Ho, Xu and Oh's structures (Figs.11.0-11.3,13.0-13.3,14.0-14.4) use the artwork as a means of defining what it means to fish alone in the open sea. The patterns in the artwork are transformed, through the imposition of the lone human body, resulting in atypical but calibrated spaces for fishing and resting. In these schemes, the focus is on how a strict formal manipulation through repetitive yet varied modules may reciprocally suggest new ways of inhabitation – for example, challenging the programmatic divisions of rest and activity, or the specificity of an architectural element such as a column or a step which may become structure, storage and space at the same time.

Goh and Phoaw's schemes (Figs.12.0-12.7,15.0-15.7) straddle the formalistic interpretation of the artwork and the vicissitudes of the site, with equal attention being paid towards the structural invention of the *kelong* as occupied space. In both, there is obvious aesthetic fidelity to the artwork. Goh's nod to Ad Reinhardt's composition (Fig.12.0-12.7) results in a series of spatial cores holding the occupational functions of fishing and resting, but in themselves reliant on a hidden web of structural supports extending deep and far into the sea bed. The imagery of Goh's structure may be influenced by the sea's infinite and mysterious depths as is Phoaw's whimsically titled *Pollocks and Barnacles* (Figs.15.0-15.7). In the latter, the structure is mirrored at the interface of sea and sky, the upper section to be inhabited by the fisherman and the lower by aquatic barnacles. This structure is imagined as being slowly transformed through use and growth, organic processes which change the architecture through different forms of 'encrustation'. The resultant architecture is a network of labyrinthine, filigree and solid structures, some essential, others redundant, but the latter becoming progressively essential as these are occupied by their respective inhabitants in ways not completely determined by the designer.

Located within the neighbourhood of the present exhibition, the next series of projects explores the intricacies of living in the complex cosmopolitan setting of Geylang, arguably Singapore's last few remaining enclaves. Liberated from the strict urbanised patterns prevalent in other parts of the island state, intense commerce, vibrant culture and not-yet-gentrified inhabitation, are still found in Geylang. The students were asked to identify, or introduce, 'the foreigner' within this cacophonic context. The second set of projects by Seow, Cheng, Phoaw, Hossain, Koh and Goh (Figs.16.0-21.5) investigate difficulties of assimilation, avoidance, negotiation, and exclusion between different subjects living in this area, and how architecture can, or cannot, engage such complexities.

Seow's project (Figs.16.0-16.3) creates space for the Filipina white-collar single woman worker. Translating the typological patterns of the Filipina house, it proposes a communal space centred on cooking and gardening. The single-storey architecture has a roofscape completely given over to a community garden planted with food crops. Though unassuming, the architecture is radical in its openly agrarian disposition, which outwardly challenges Geylang's unyieldingly hard urban fabric. The blue-collar construction worker, a member of a rapidly expanding community in Singapore, is the subject of both Hossain and Koh's schemes (Figs.19.0-19.3, 20.0-20.2). Drawing on habitual patterns of usage and rituals, such as the use of alleyways for socialisation, and the perception of openness between individual spaces, each scheme defines a legitimised space for the foreign construction worker while also opening the city to this marginalised group.

Phoaw's observation of Geylang led to a rethinking of housing for its streetwalkers (Figs.18.0-18.9). Cognisant of the subject's complex ethical concerns, the project strives to improve the inhabitants' quality of life, and to return some control, normalcy and integrity to this oppressed and over-compromised group of city dwellers. It transforms the shophouse typology into a large-house format, to be shared between occupants in a sort of cooperative living mode. The basic spaces are calculated to the barest minimum dimensions for each occupant, and then consolidated within a shared arrangement so that there is a large expanse of space, otherwise unaffordable to the individual occupant. While the overall architectural form is extremely simple and controlled, tectonic expression and careful spatial manipulation offer varying levels of privacy conducive to living and retreat, away from prying eyes.

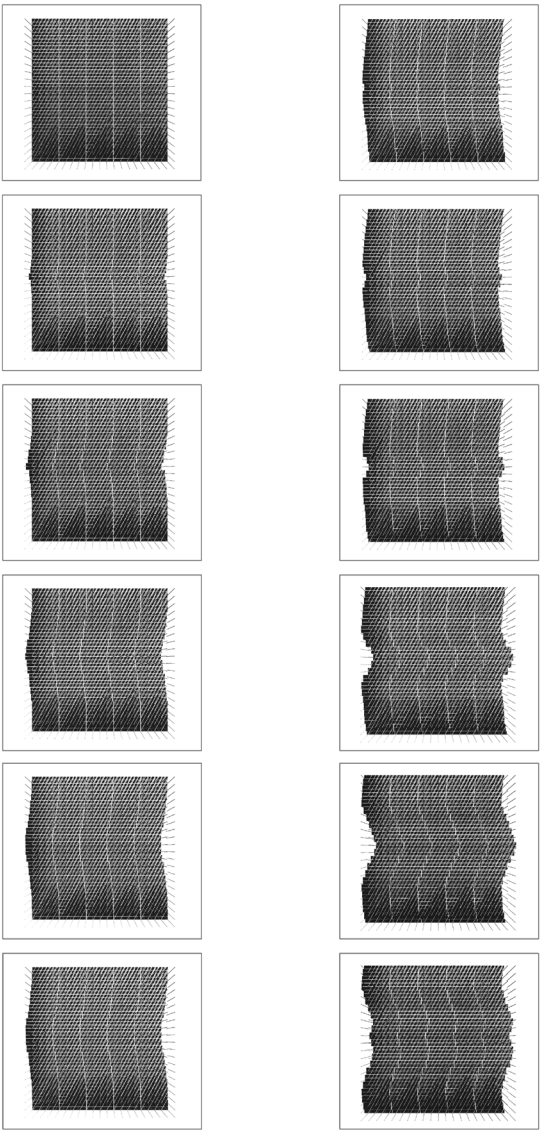
In comparison, Cheng's low-cost housing for 'Study Mothers' (陪读妈妈) and their children (Figs.17.0-17.6) thrive on the lack of privacy as its design generator. The term 'Study Mothers' refers to a group of mothers who migrate to another country for the sake of their children's education. Often, these mothers struggle to support themselves and their children, choosing to take on types of work lower than their qualifications. This results in uneven working hours and inconsistent family time. The scheme builds positively on such parameters. Its spaces are modeled around the psychology of play, fundamental to a child's learning, while also ensuring constant surveillance by available mothers who care for the cooperative's children on a rota basis. Mothers are given space to congregate and socialise and children take advantage of the different functional spaces which double up as 'play' structures.

Goh's 'Reinventing Suburbia' (Figs.21.0-21.5) contests the perception of Geylang as an alienating and unsafe place to live. The design is for a student hostel. It caters for the foreign teenage student who is studying in Singapore, living alone, and living away from home for the first time. The project models the spatial tensions of a suburban landscape in order to provide a semblance of safety and enclosure within an essentially hostile urban environment. Using a 'suburban kit of parts' and the methods of counter-surveillance, the design also reveals a hidden side of Geylang, which is more accommodating and less inimical than what is commonly perceived.

To a certain extent, these limited studio-based inquiries test what architecture can, or cannot, do. The jury is still out on this. Nevertheless, practice-based research generates 'personally situated knowledge and new ways of modeling and externalizing such knowledge while at the same time, revealing philosophical, social and cultural contexts for the critical intervention and application of knowledge outcomes'.[10] In this way, the studio-based inquiry, free from the economic pressures of professional architectural practice, distinguishes itself and its purpose. In the end, architecture must remain elusive, maintain its ideals, encompass complexity, be delightful, useful, sturdy, but above all, be occupiable.

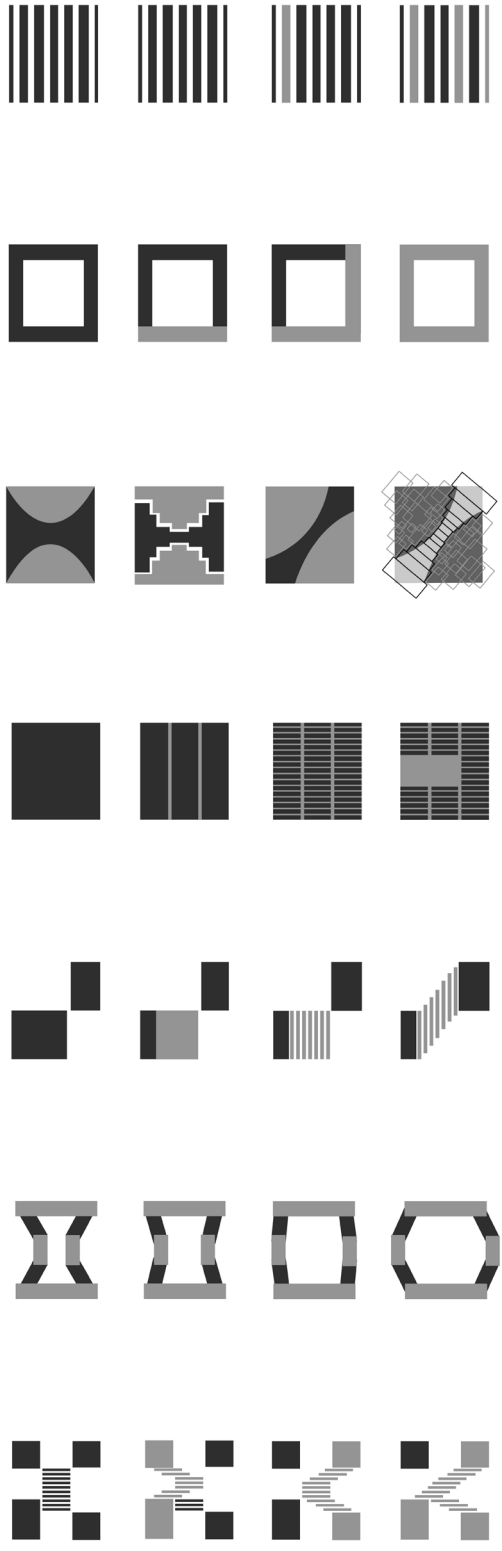
'The tracing that architects do on the flatlands of drawing paper, what has it to do with the act of building? What makes these flat sheets relate with what we finally call architecture? Nothing: different matter, different dimensions, other substances and materials, Do we label architecture the stones, the bricks or the inks on the paper? Conceivably, neither the stones nor the inks are architecture. Rather something that escapes us: beautifully vague traces of factures that we can only grab through drawing daily tracings of lines'.[11]

[1] Barbara Bolt, 'The Magic is in the Handling', in *Practice as Research: Approaches to Creative Arts Enquiry*, eds. Estelle Barrett and Barbara Bolt (London: IB Tauris, 2010), p.31.
[2] Ibid., p.30. Emphasis mine.
[3] Paul Carter, *Material Thinking: The Theory and Practice of Creative Research* (Melbourne: Melbourne University Press, 2004), p.7.
[4] Catherine Bull, 'Dilemmas for creative staff in a research active faculty', in *Innovations: Arts-Media-Design Symposium*, Number 2, 24-26 May 2002, Victorian College of the Arts, Melbourne, p.1, cited in Ibid., p.8.
[5] Marco Frascari, *Eleven Exercises in the Art of Architectural Drawing: Slow Food for the Architect's Imagination* (New York: Routledge, 2011), p.68.
[6] Thomas de Quincey, *Select Essays*, ed. A. Masson (Edinburgh: A. & C. Black, 1888), p.137, cited by Carter, Material Thinking, p.5.
[7] Vivian Sobchack, *Carnal Thoughts: Embodiment and Moving Image Culture* (Berkeley: University of California Press, 2004), p.1.
[8] Frascari, *Eleven Exercises*, p.80.
[9] See Jonathan Hill, *Occupying Architecture: Between the Architect and the User* (London: Routledge 1998).
[10] Estelle Barrett, 'Introduction', in *Practice as Research*, p.2.
[11] Frascari, *Eleven Exercises*, p.60.



10.0

10.0 Study of wave-form pattern based on Bridget Riley's *Cataract*. Diagrams illustrate the transformation from a linear arrangement of frame modules to an offset arrangement of modules that mimic the wave-form pattern. **10.1** A series of diagrams illustrating the process of structural morphology **10.2** Chart of structure's plan transformation based on natural and human interferences. The structural form of the building attempts to control kinetic displacement through oscillation provided by incoming wave and user movements; thus creating a physical reflection of external kinetic feedback. **10.3** Axonometric projection of a possible configuration. Framed spaces within the structure are consequential of the kinetic feedback from the user and external environment. Displacement of frame modules provide a real time spatial feedback within the structure. **10.4** Model of structure. **10.5** Close-up photograph of structure. **10.6** Photo collage of structure on site, indicating the location of the structure relative to adjacent St. John's Island.



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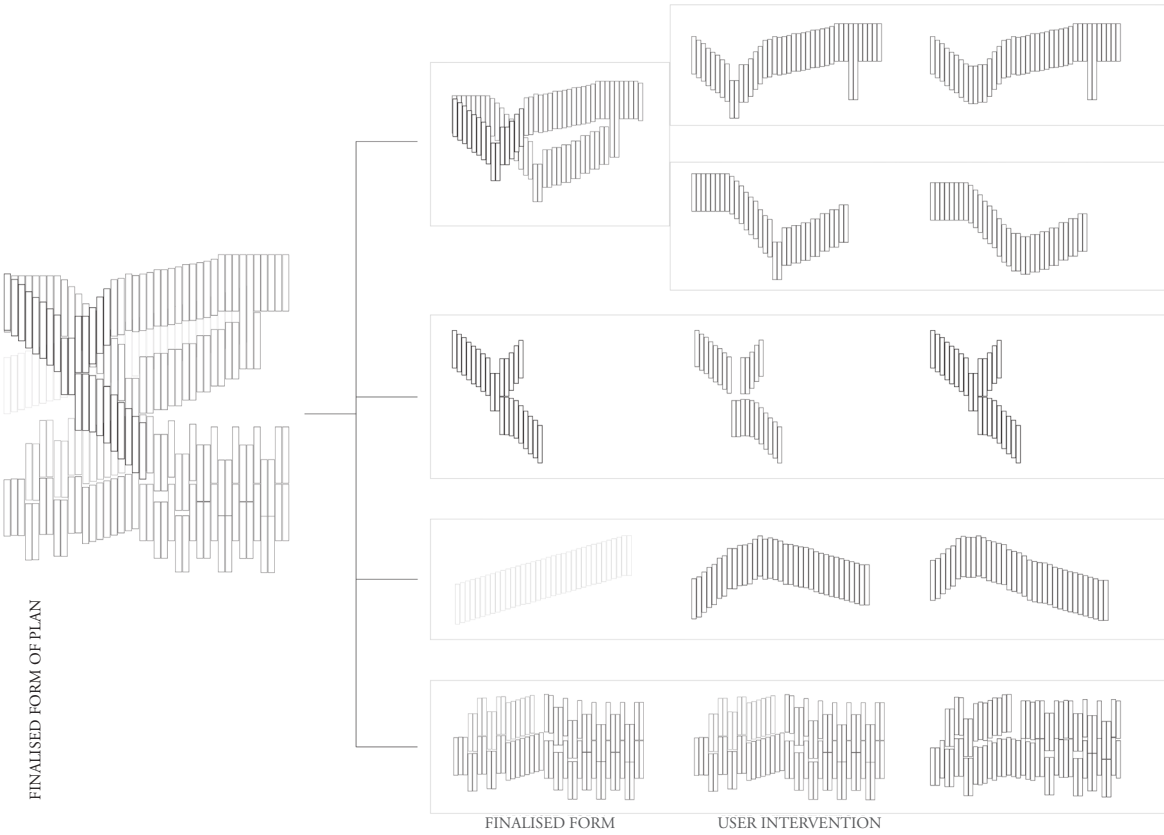
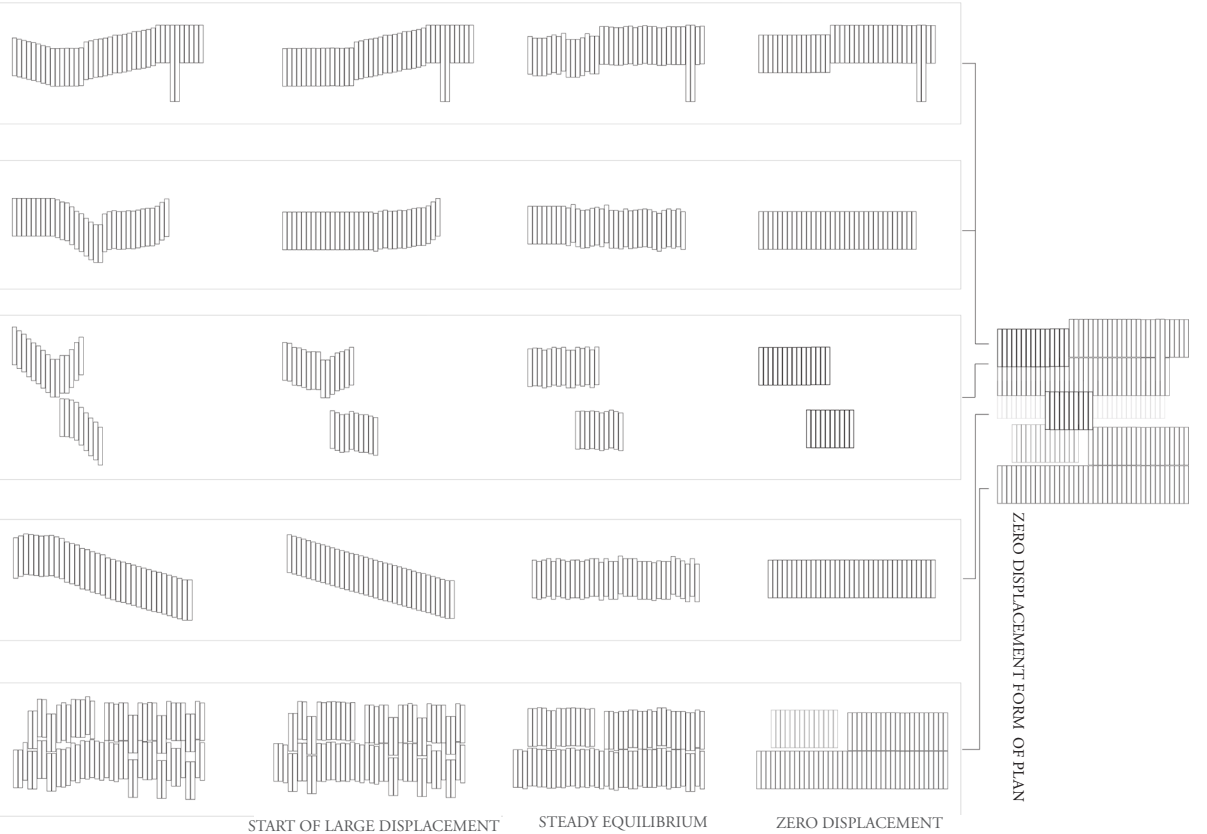
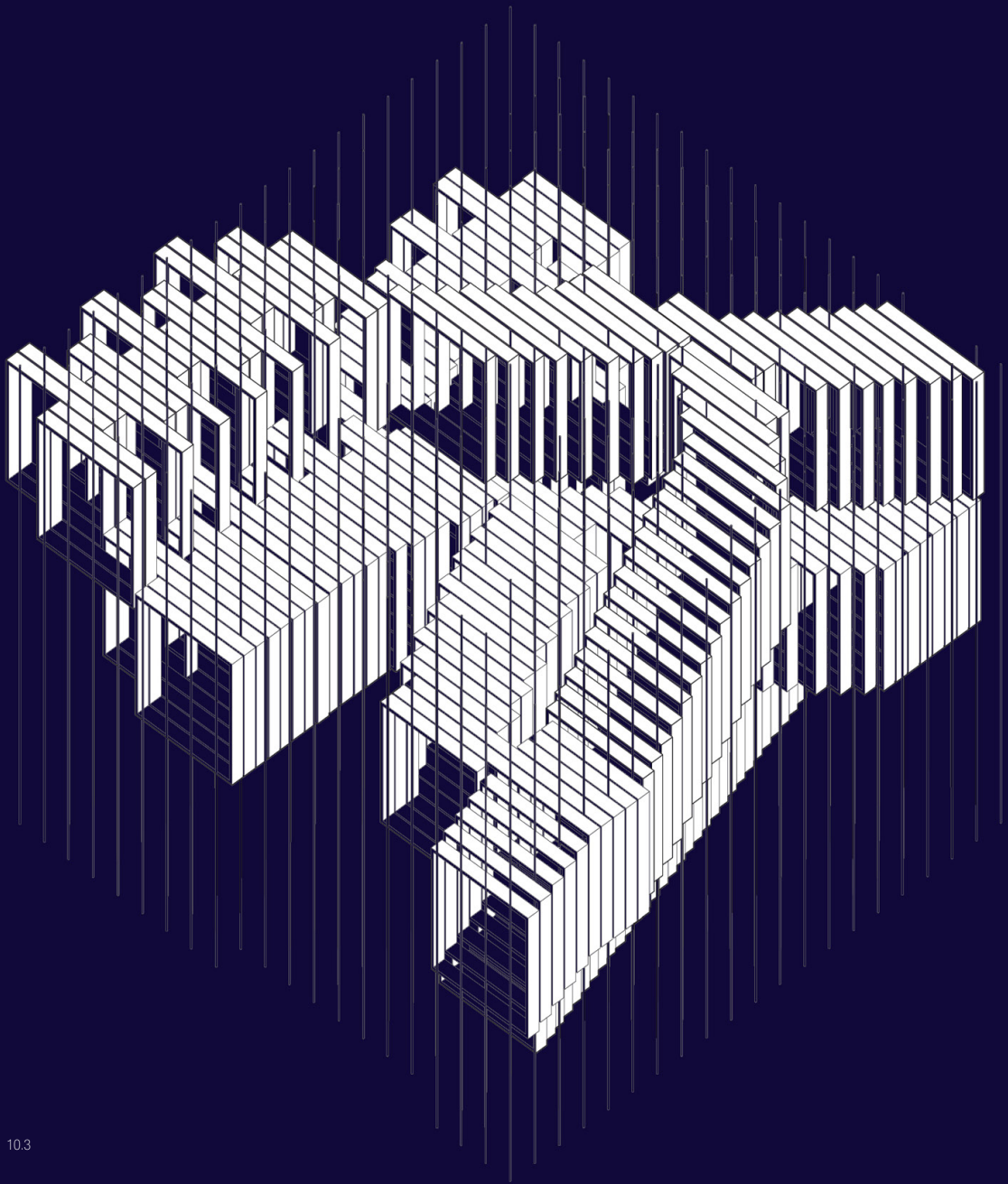
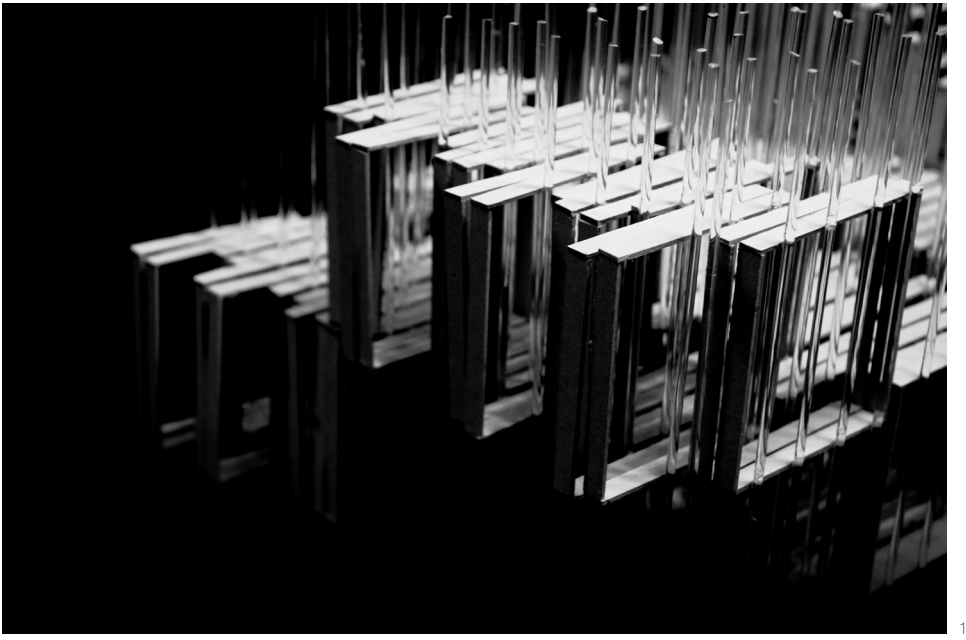

FINALISED FORM OF PLAN
FINALISED FORM
USER INTERVENTION


START OF LARGE DISPLACEMENT
STEADY EQUILIBRIUM
ZERO DISPLACEMENT
ZERO DISPLACEMENT FORM OF PLAN

10.2





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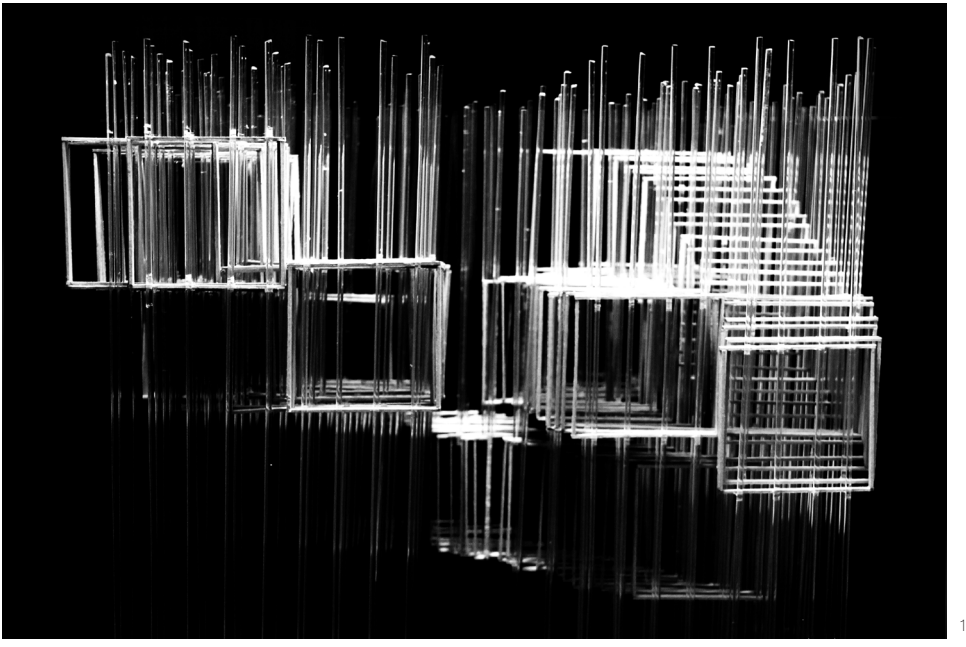

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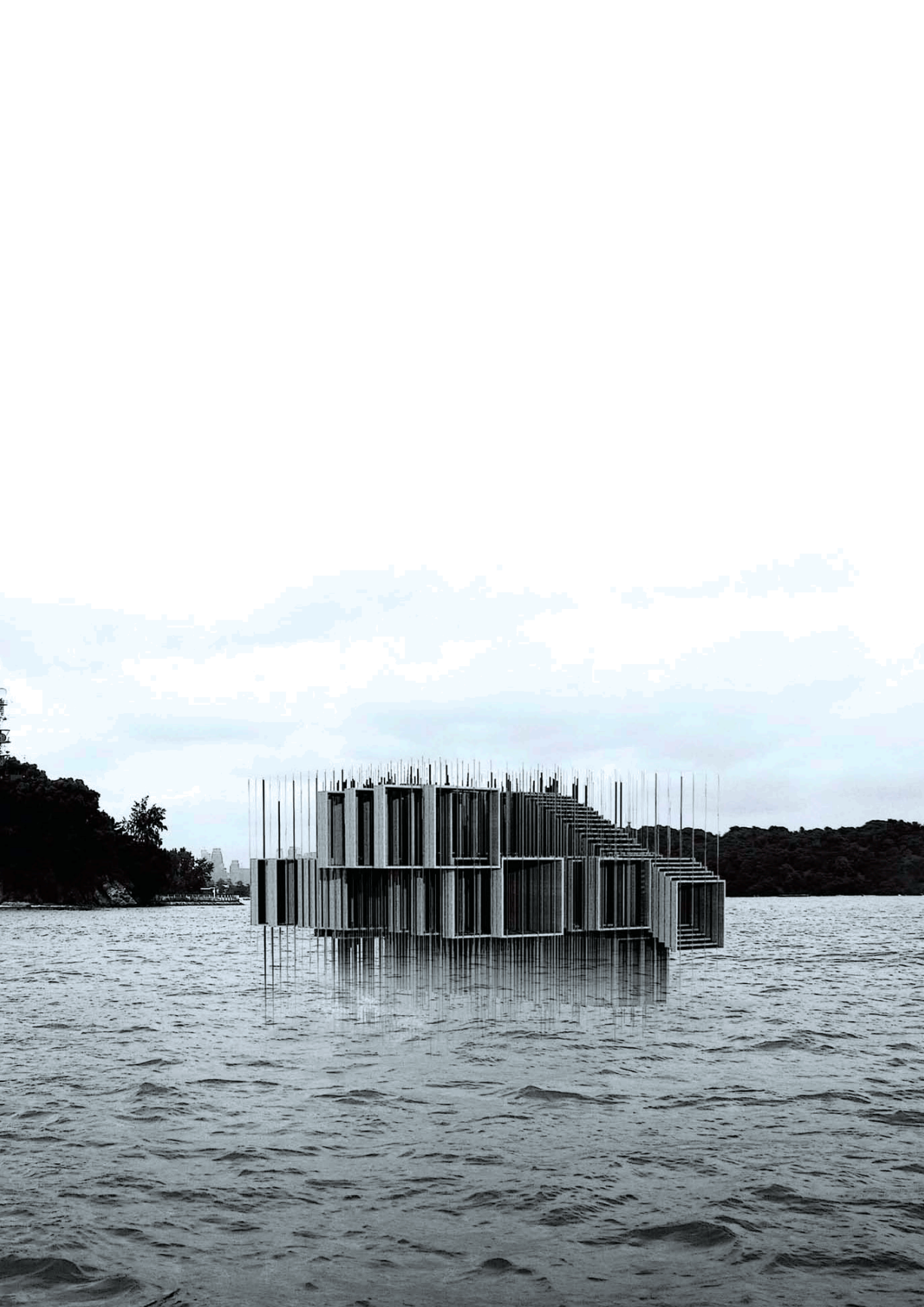
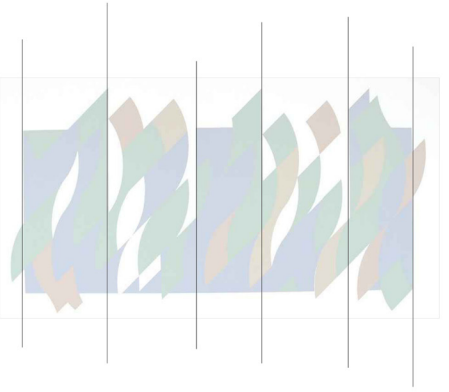
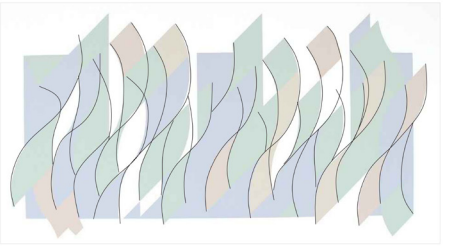
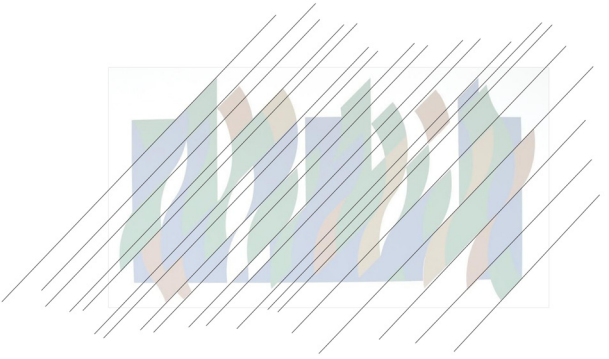


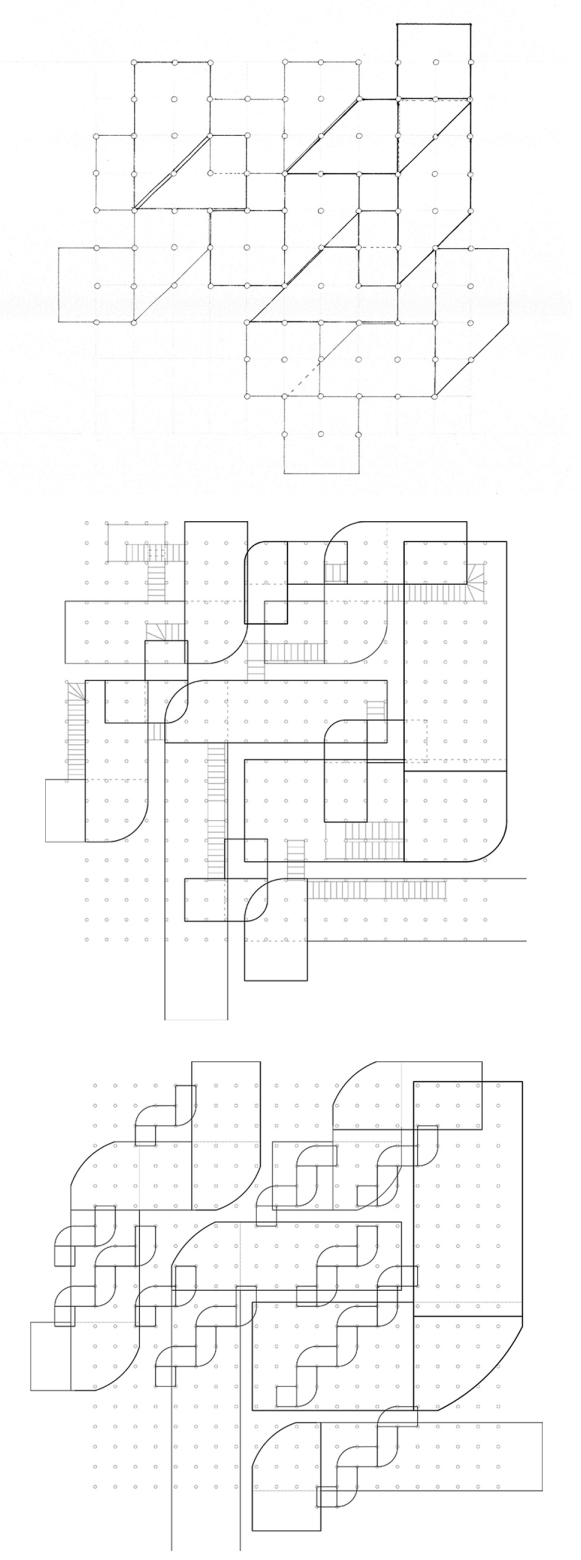




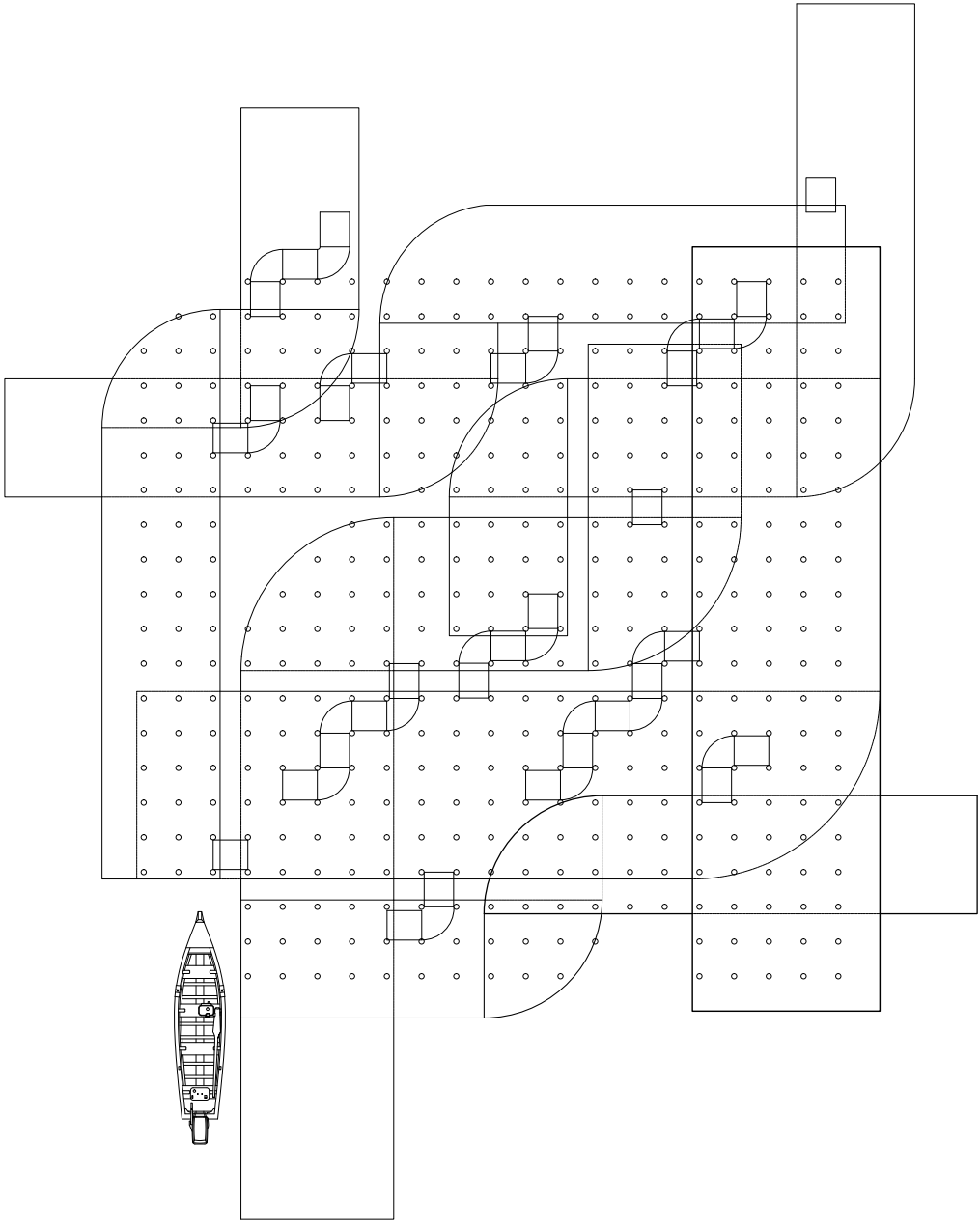


11.0

11.0 Analysis of inherent linear systems within Bridget Riley's *Arcadia*. Three sets of predominant linear systems to be abstracted as verticals, S-curves and 45° diagonals. **11.1** Development of structure's plan based on the linear systems abstracted from the painting. Evidence of verticals, S-curves and diagonals in various iterations of the plan. **11.2** Final plan embodies abstracted linear systems. Staircases are also designed for formal coherency. **11.3** Axonometric projection illustrating the folding steel curvatures that make up the structure. Resultant pockets of spaces comprises two main type of spaces. A space flanked by a large steel curvature that connects the floor to the roof or an open-sky platform. The curvature of the steel structures intersecting the *bakau* poles also provides the stiffness required to maintain structural integrity.



11.1



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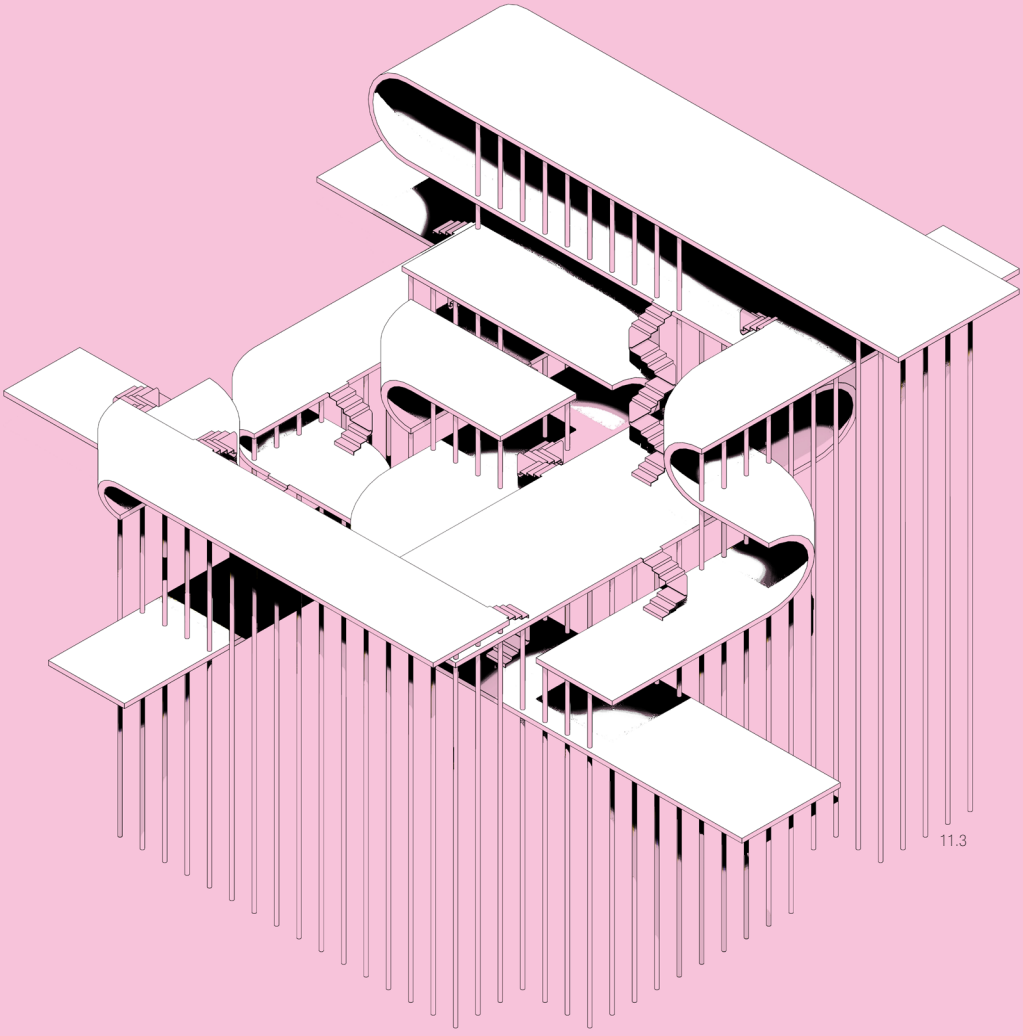

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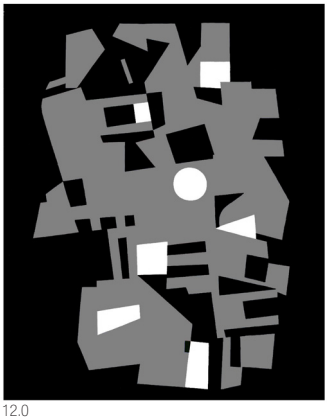

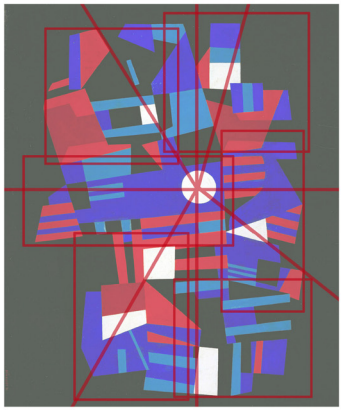

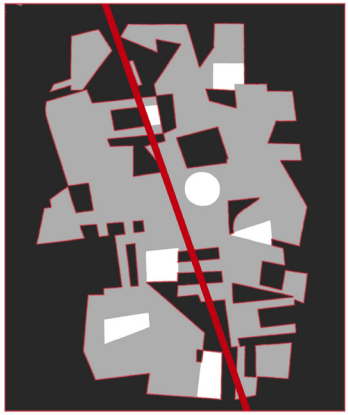

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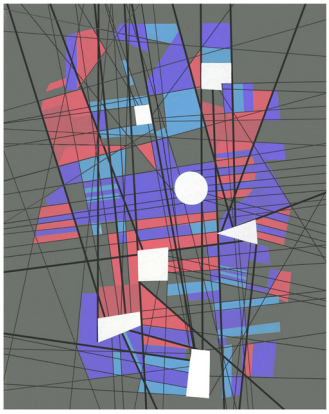
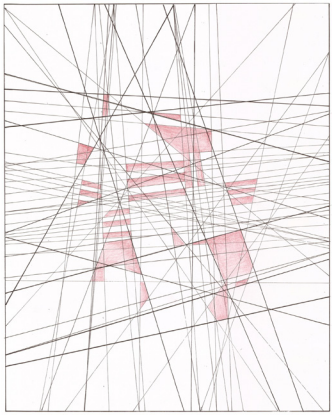
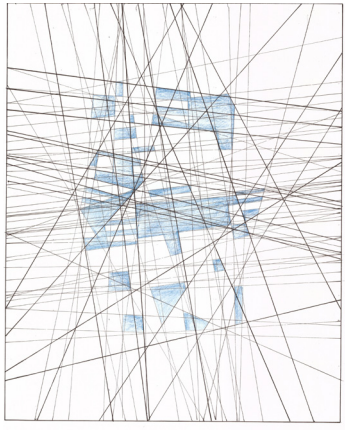
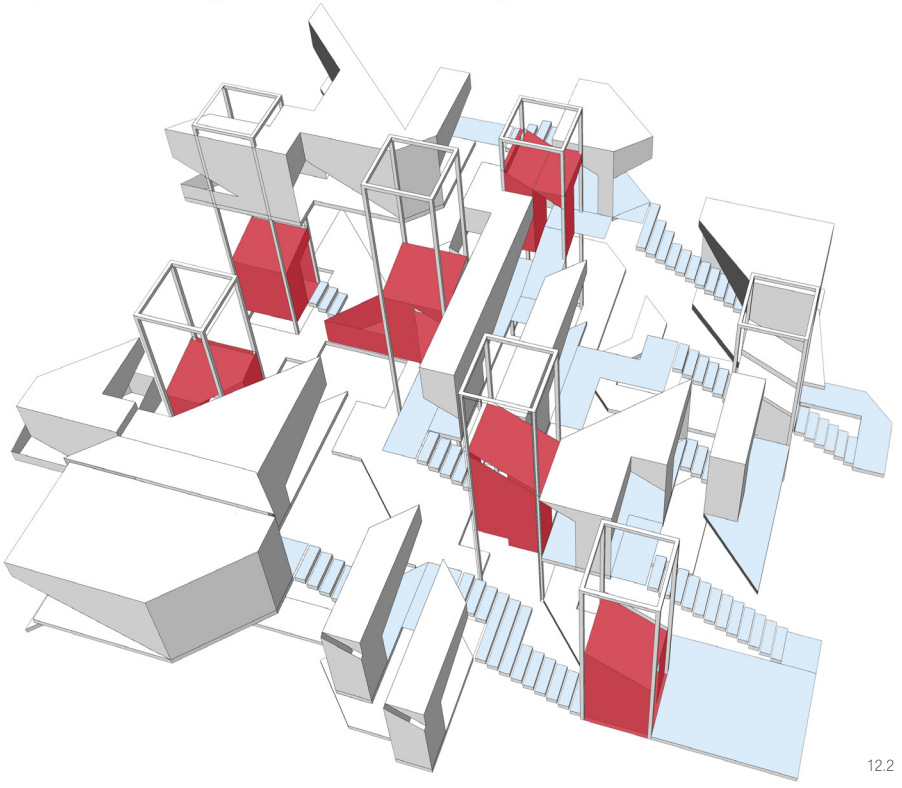






12.1

12.0 Abstraction of white areas from Ad Reinhardt's *Red and Blue Composition on Fireboard* as cores. **12.1** Abstraction of red and blue areas as voids. **12.2** Location of structural core governed by the white areas in the painting. **12.3** Location of voids governed by the red and blue areas. These voids are further translated into spaces with different programmatic concerns. The red voids demarcate zones for activity while the blue voids are primarily circulatory spaces. **12.4** Series of models that plot the formal transformation of the structure. **12.5** Detail model illustrating the construction details of the core structure. **12.6** Elevation **12.7** Section **12.8** Exploded axonometric of structure. The drawing splits the various components (cores and voids). The interplay between cores and voids results in a series of spaces that correspond to the composition of the primer.



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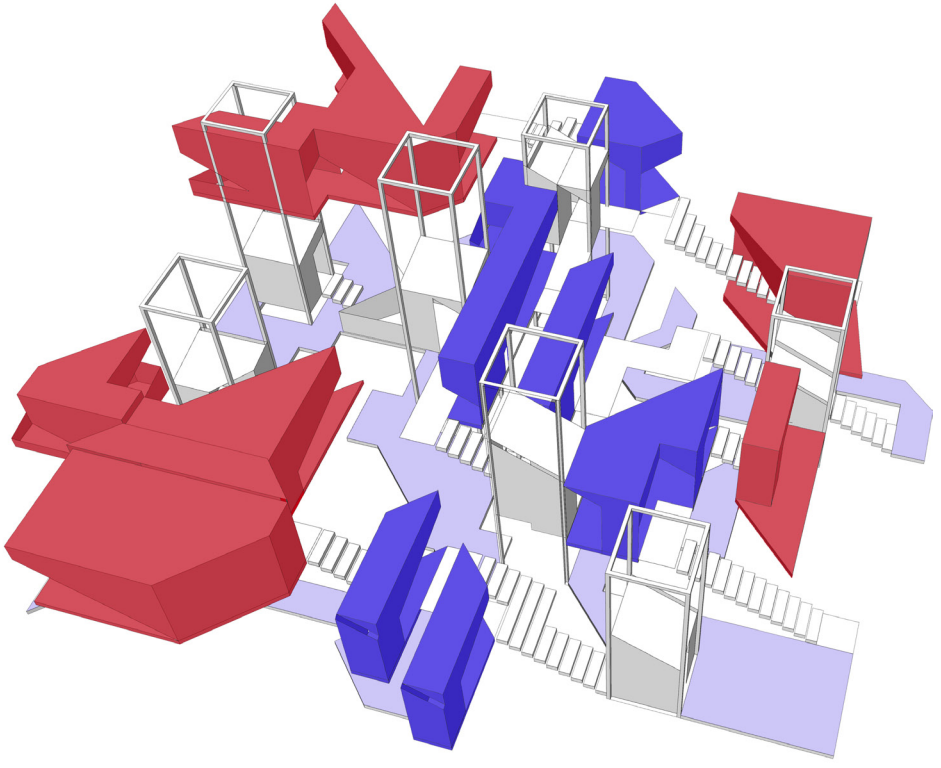

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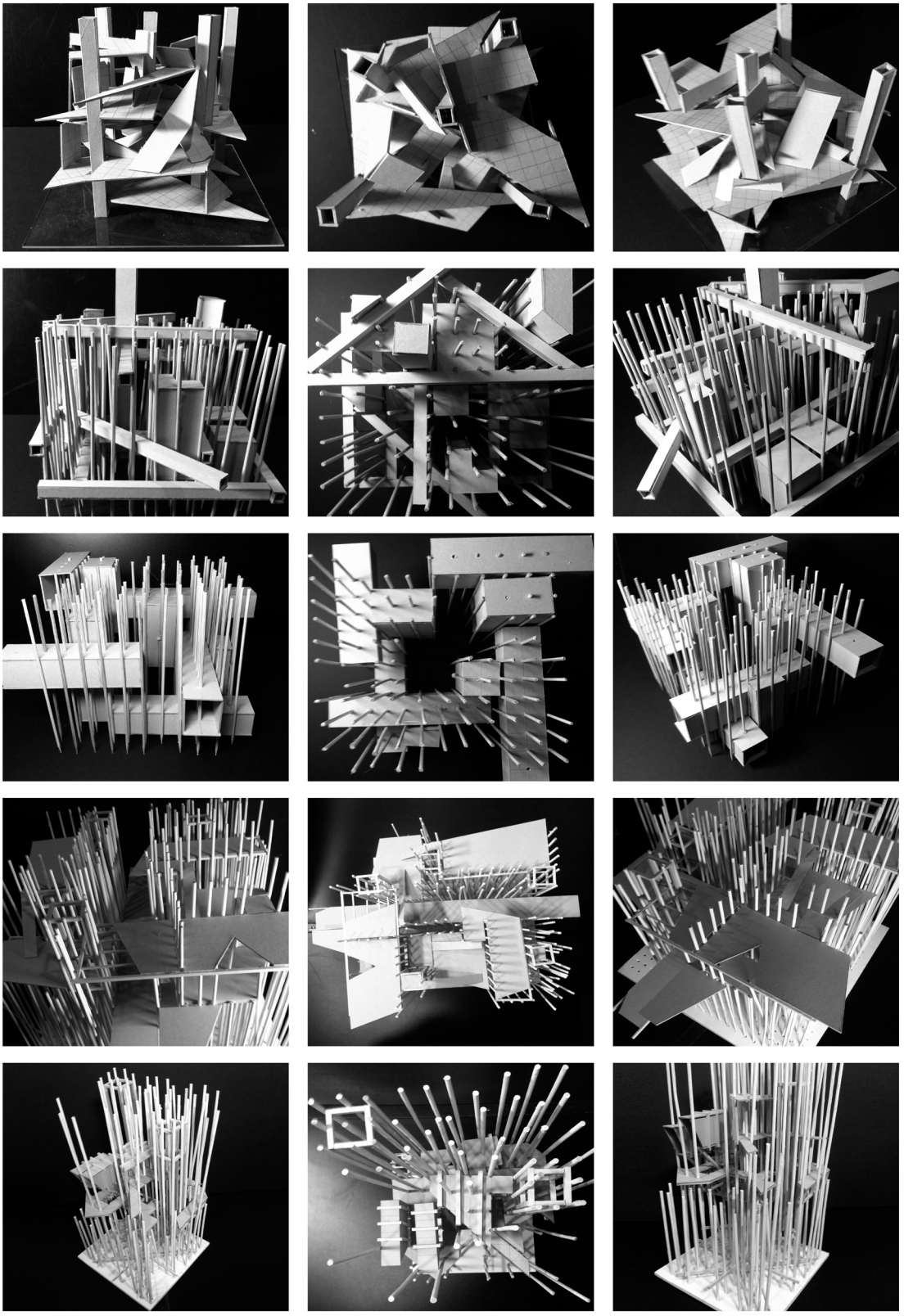

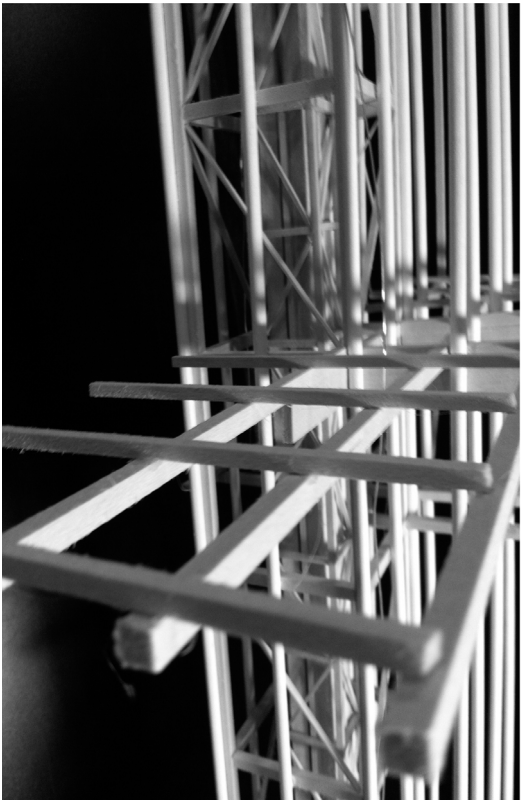

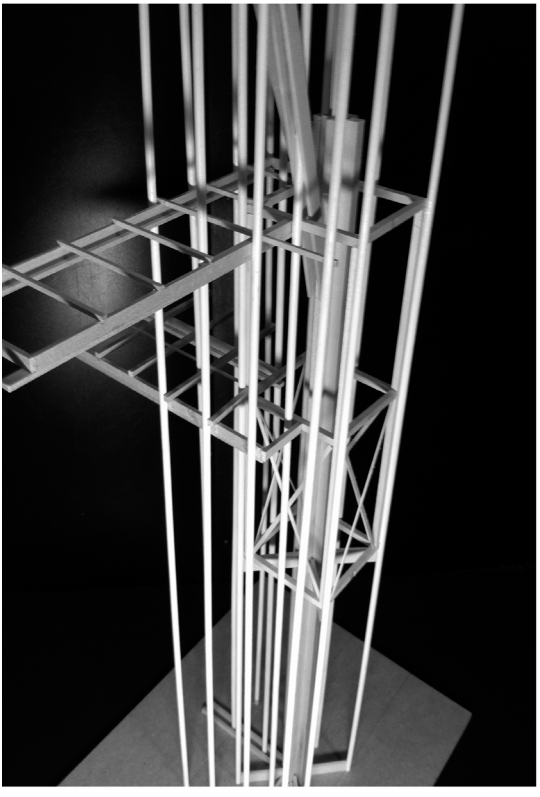

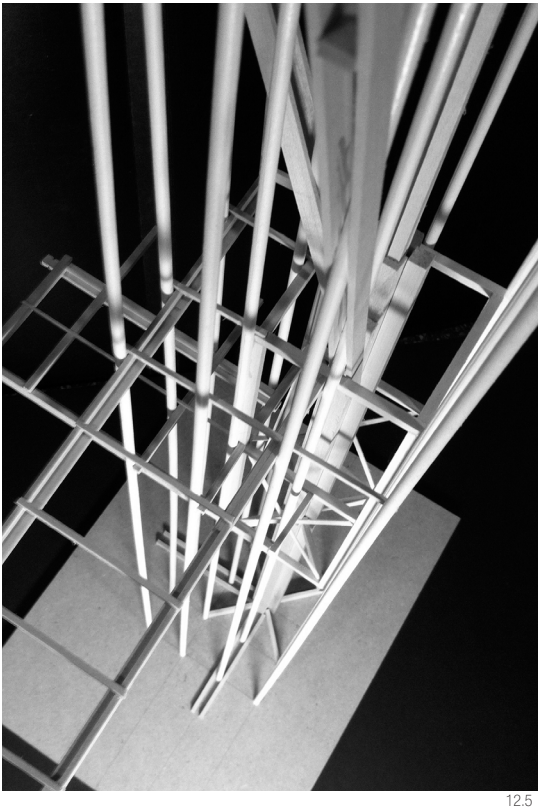

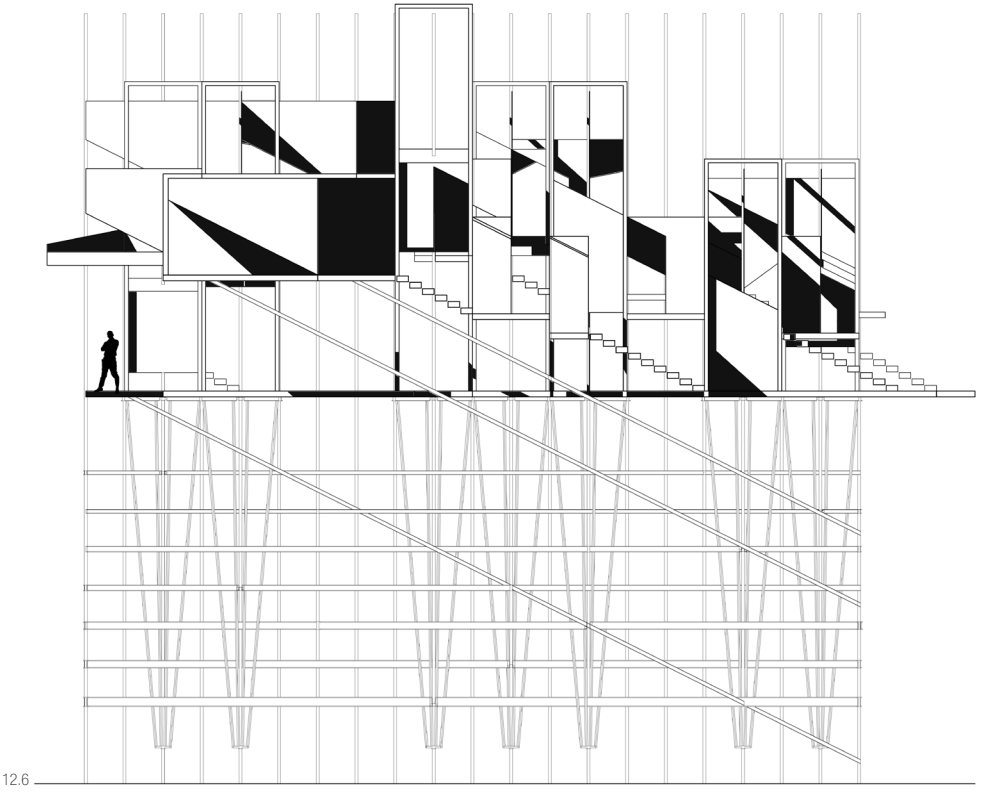
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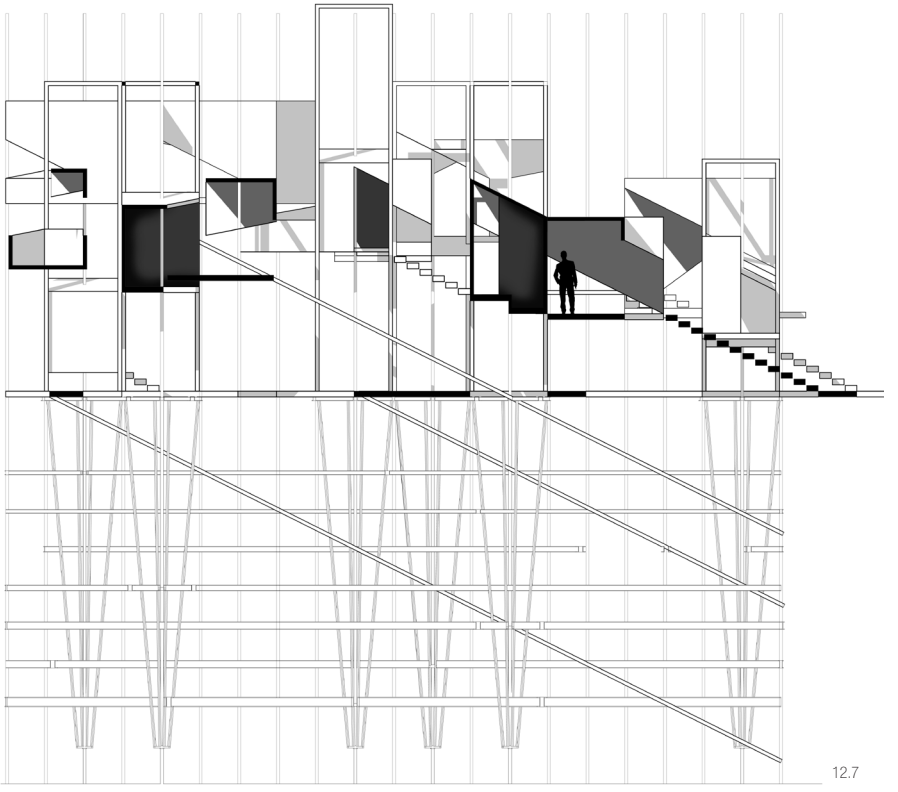

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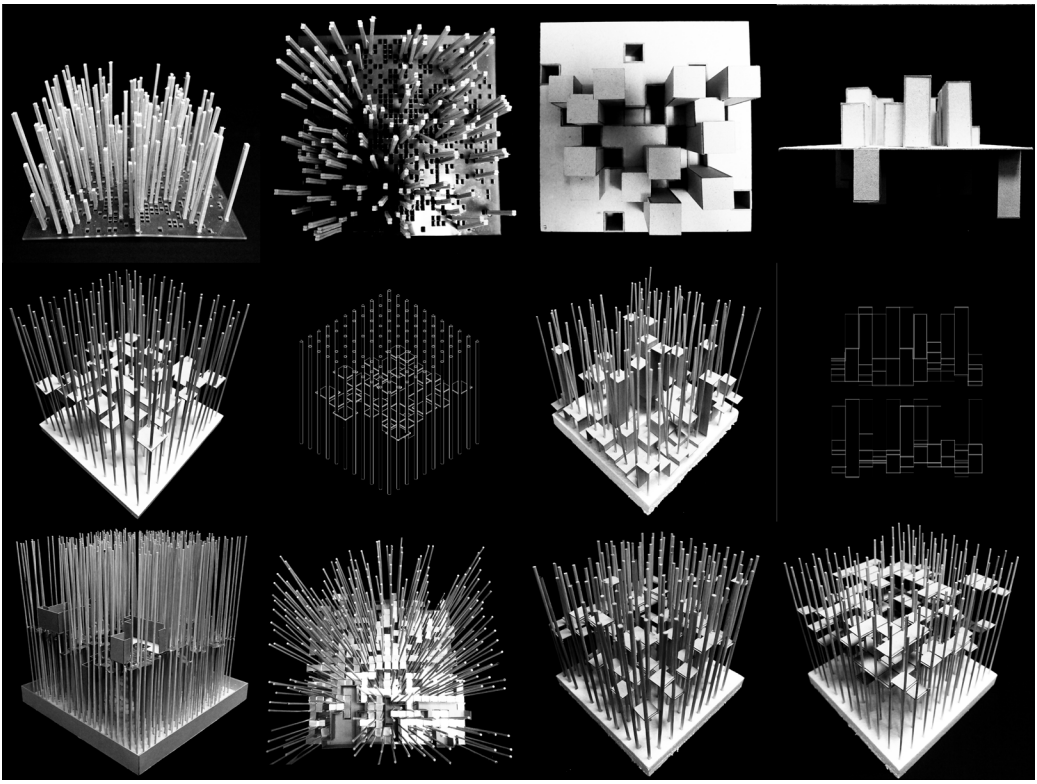
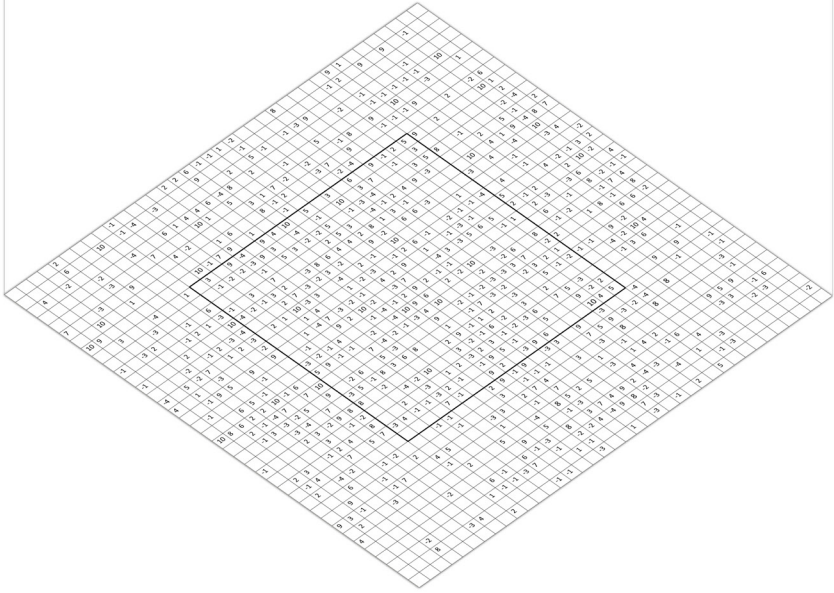
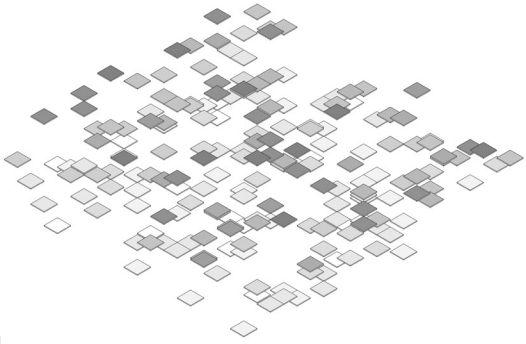


13.0

13.0 Series of process models and drawings exploring the various tectonic and spatial arrangement of modules governed by the tones of Ellsworth Kelly's *Spectrum Colors arranged by Chance II*. **13.1** Abstraction process.The painting is divided into its inherent grid, isolating invidual squares of colour at each point. Each square denotes the location of the platform on site. Abstraction of tonal values from the painting. Each colour is allocated a value that corresponds to its tonal saturation. These values would then be reflected by the various platform heights. Darker tones are lower and lighter tones are higher. **13.2** Exploded axonometric projection illustrating the final plan of the structure, providing a suggestion of possible circulation within the structure. **13.3** Exploded axonometric projection. The folding platforms dominate the structure and serve as its main structural system to secure the poles. These platforms are also the main fishing spaces and their walled counterparts, the rest areas.





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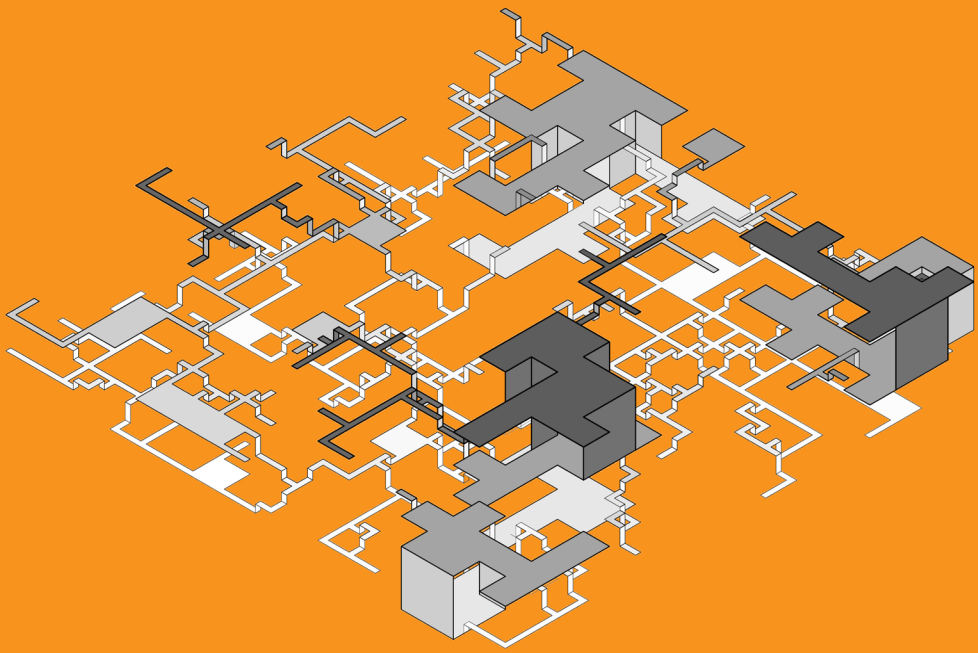

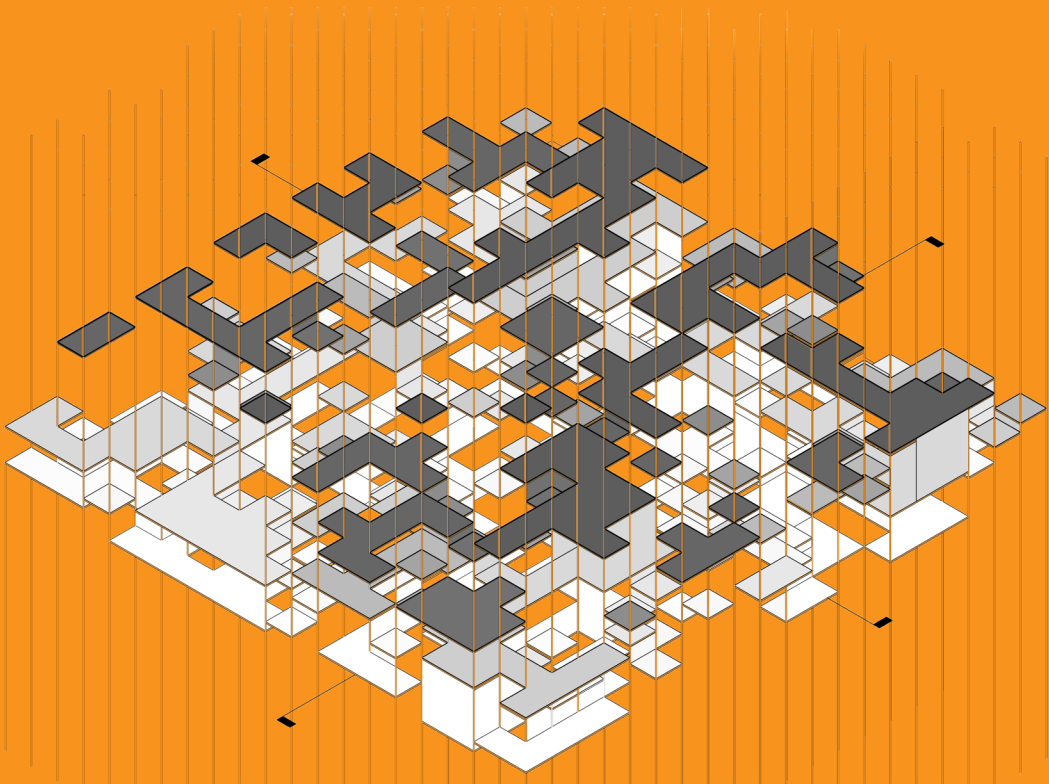

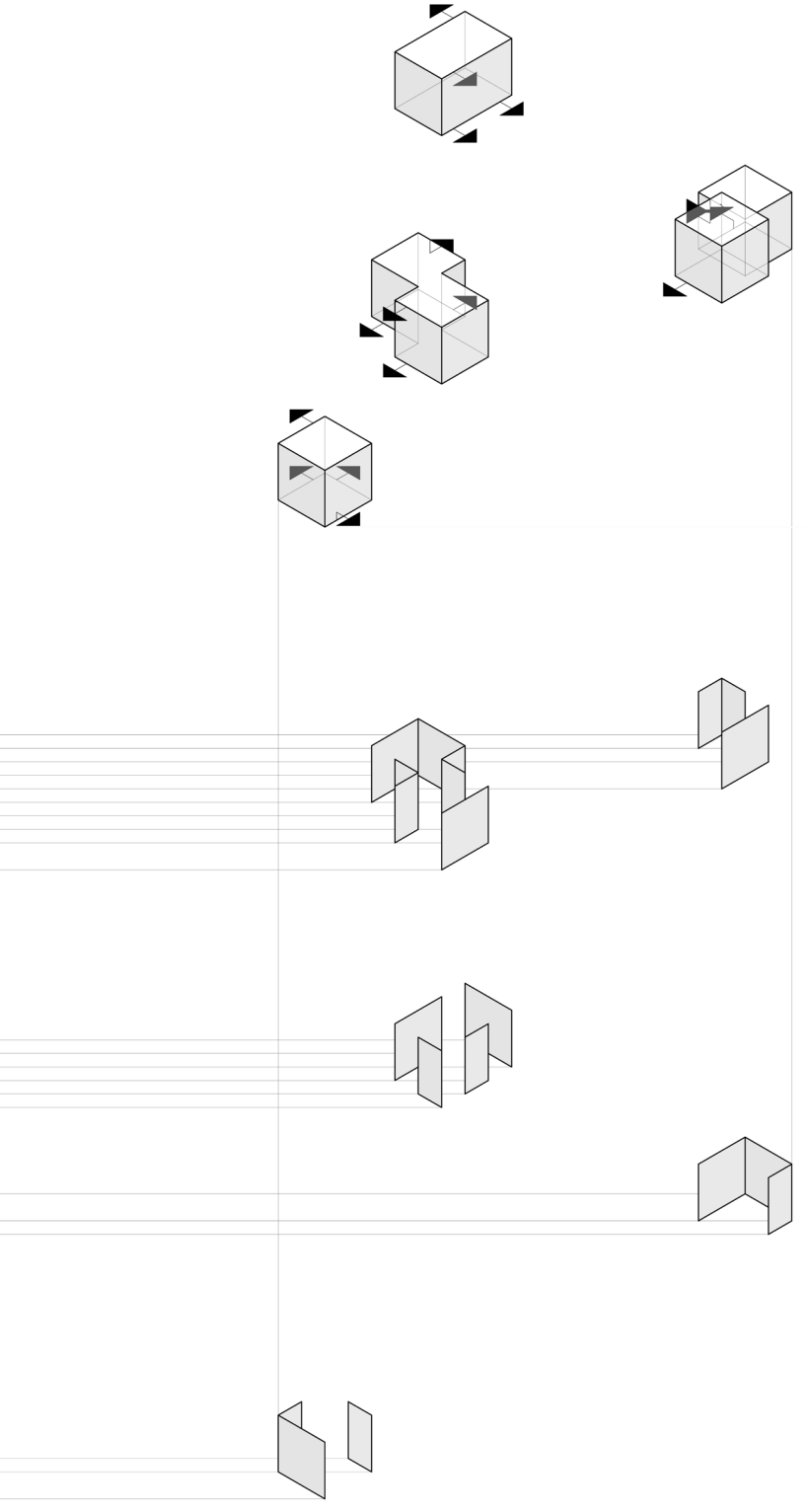

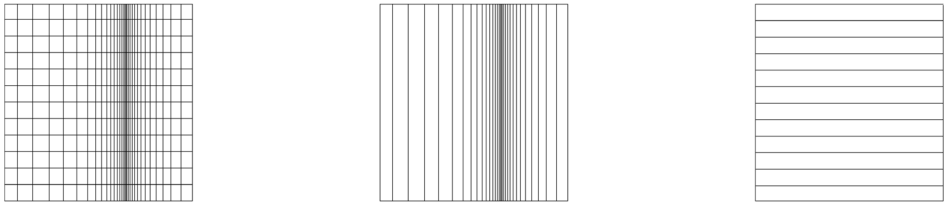

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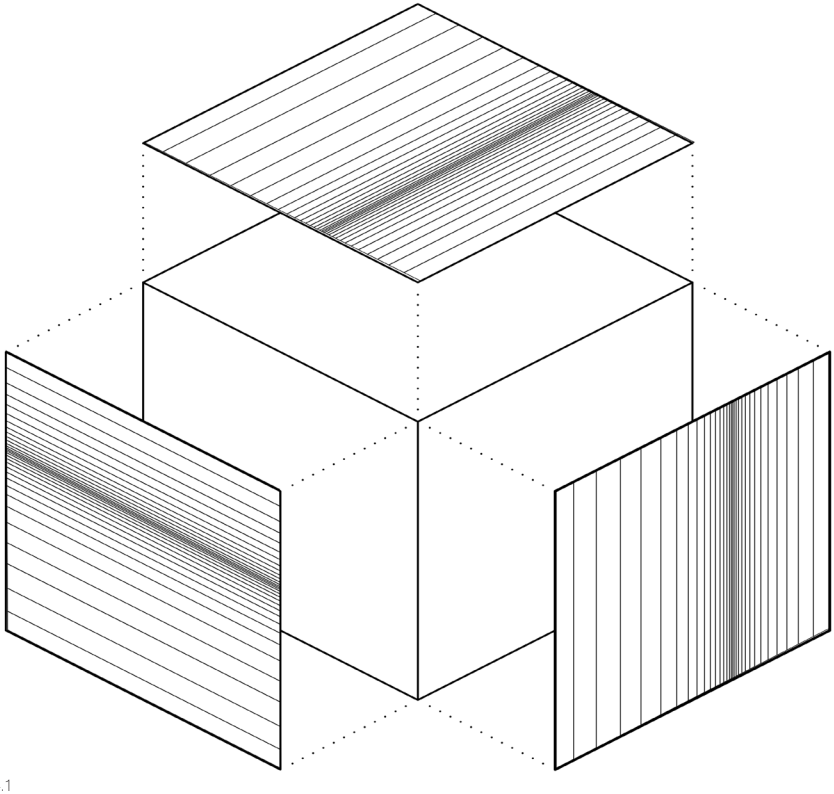
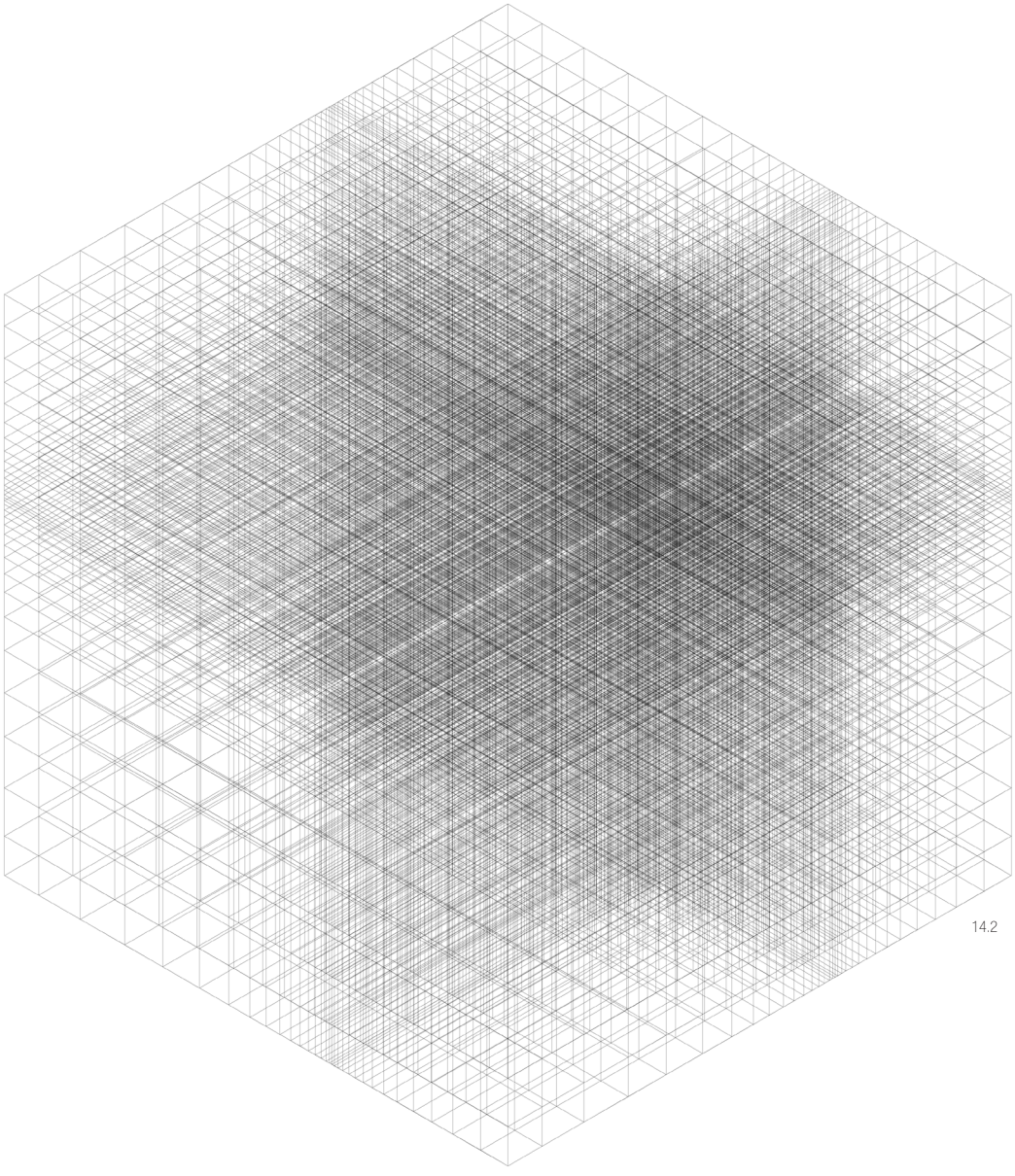


14.1

14.0 Abstraction of innate geometric systems within Bridget Riley's *Movement in Squares* (horizontal segmentation & vertical segmentation).**14.1** Diagram illustrating the three dimensional imposition of linear systems. **14.2** Resultant conceptual drawing from the three dimensional imposition of abstracted linear systems. **14.3** Drawing of structure's plan and elevation. The plan and elevation exhibit a structural composition that exists as a series of steel frames and *bakau* poles imposed and intersected together; providing a similar composition that stems from the conceptual drawing.**14.4** Axonometric projection of structure illustrates the various interlocking steel frames and *bakau* poles.



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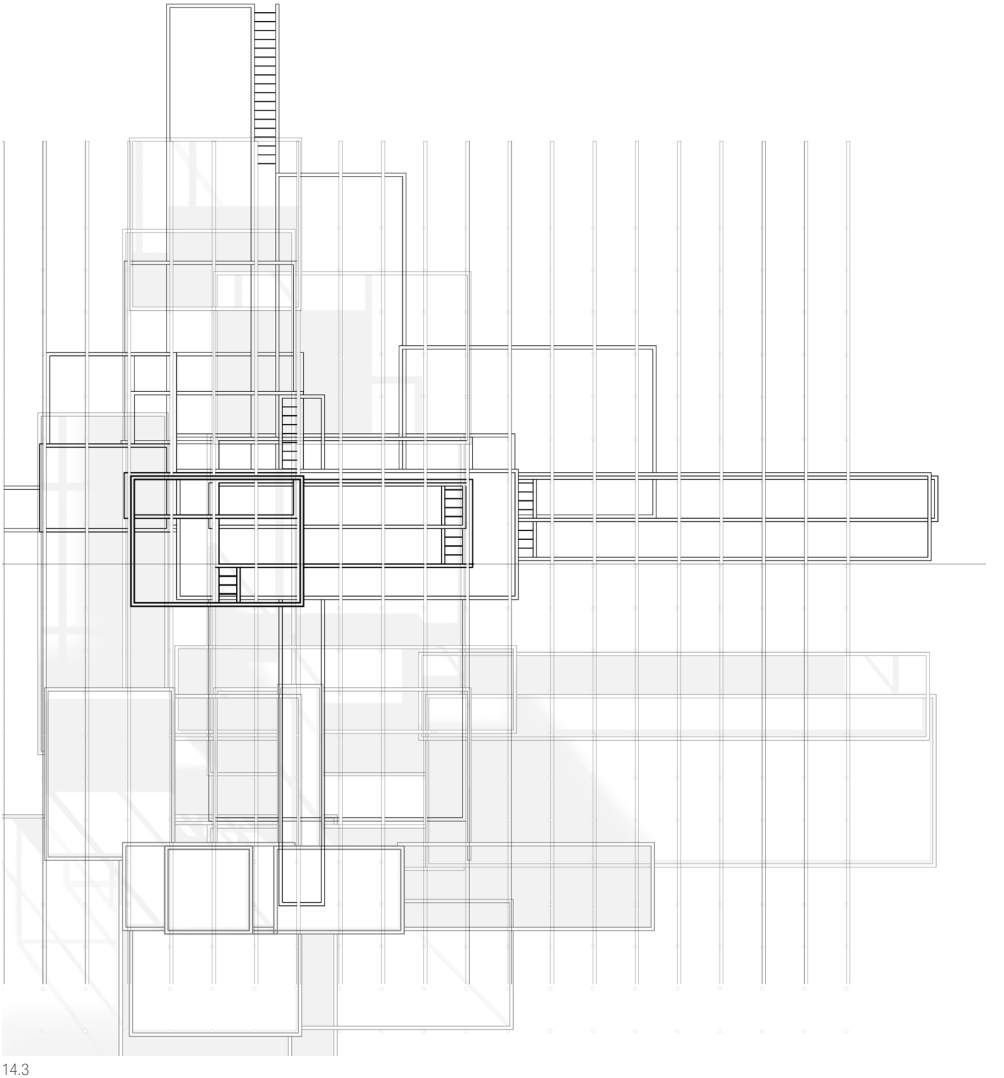

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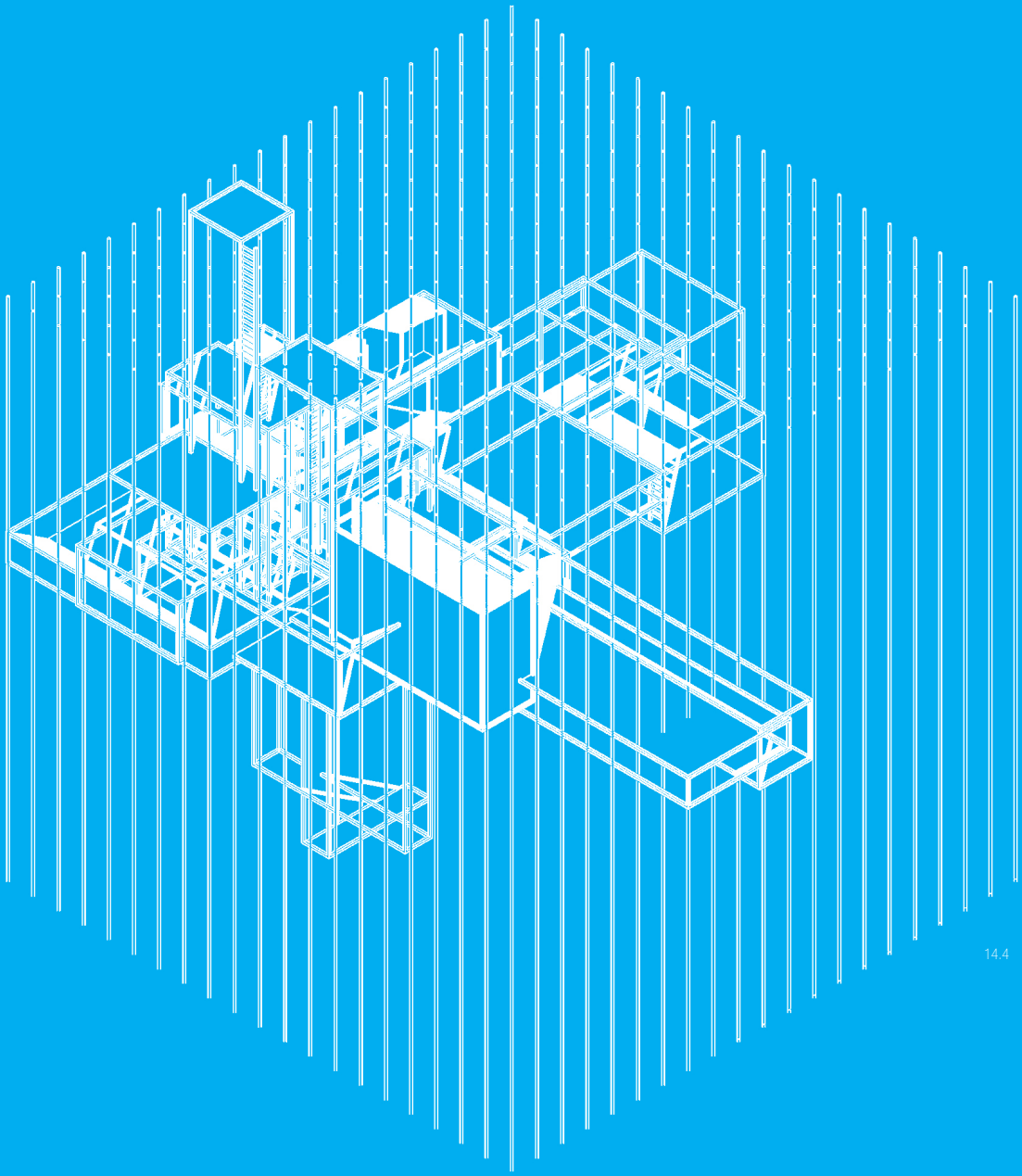

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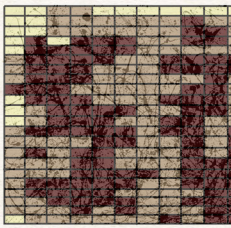
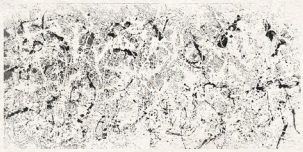
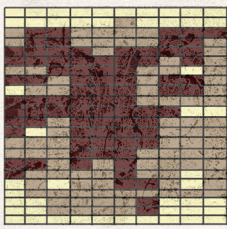
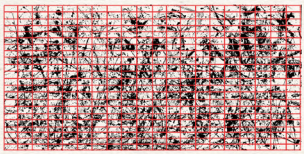
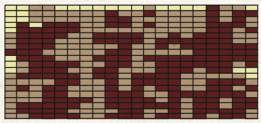
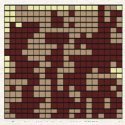
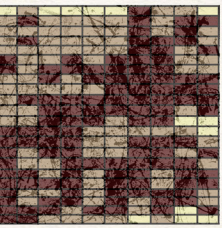
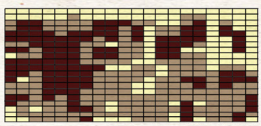
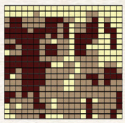
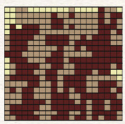
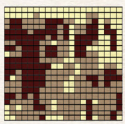
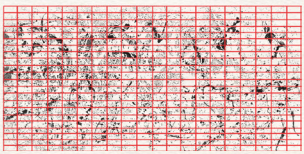
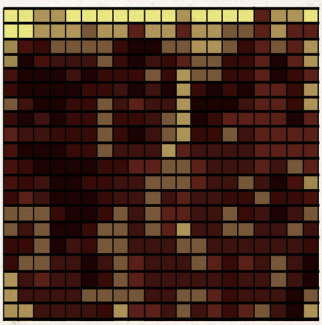
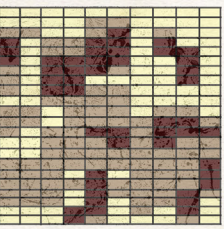




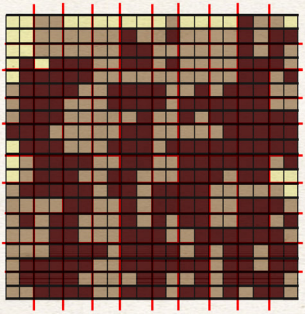


15.1

15.0 Imposition of barnacle image onto Jackson Pollock's *Autumn Rhythmn*. The project blends the inherent systems abstracted from the painting and barnacles to create a structural manifestation of both ideas. **15.1** Abstraction process.The painting's layers are isolated and divided into a grid, each layer corresponds to a layer within the structure. The paint density of each layer is recorded and charted, providing a value that corresponds to tonal saturation. **15.2** Relation of paint density to structural redundancy.These values are then translated into structure. The greater the paint density, the greater the structural redundancy of the module. **15.3** Reef formation illustration. The structure consists of two separate realms, a subaquatic realm and one above water. The subaquatic realm gradually builds up reefs and barnacles, producing a new organic structure governed by the existing structure. **15.4** Tectonics of barnacles. The structure attempts to mimic the inherent spatial and tectonic language of the barnacles. A denser lower portion terminates with a filigree structure at the top.

15.5 Site Plan, Plan, Section of structure. The structure provides a series of undulating levels based on the combined paint density of the painting. The variation of levels within the structure allows for varying tectonic experiences. Sunken platforms provide for a more covert space. Heightened platforms nearer to the filigree structure surrounds the inhabitants with porous screens. **15.6** Impressionist drawing illustrating the approach towards the structure. Exploded axonometric projection of the two distinct layers and key components of the structure. Detail drawing of the joinery between steel frame/plates and *bakau* poles. **15.8** Sectional model.



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Minimum Value Per Area = 1 X 4 = 4

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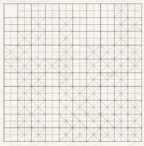
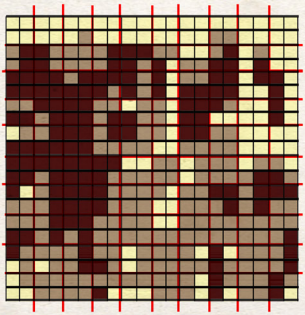
x 4

4 > x > 9

9 x





Maximum Value Per Area = 3 X 4 = 12
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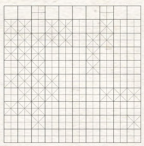
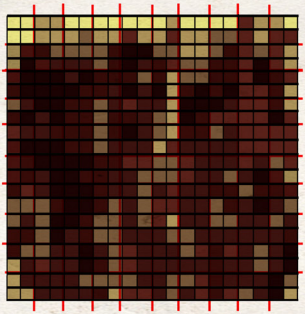
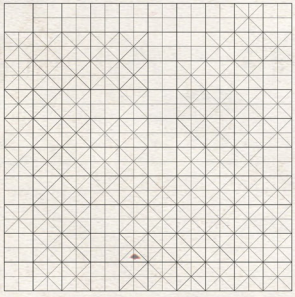
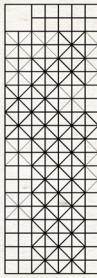
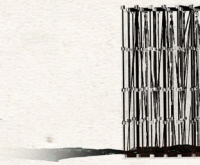


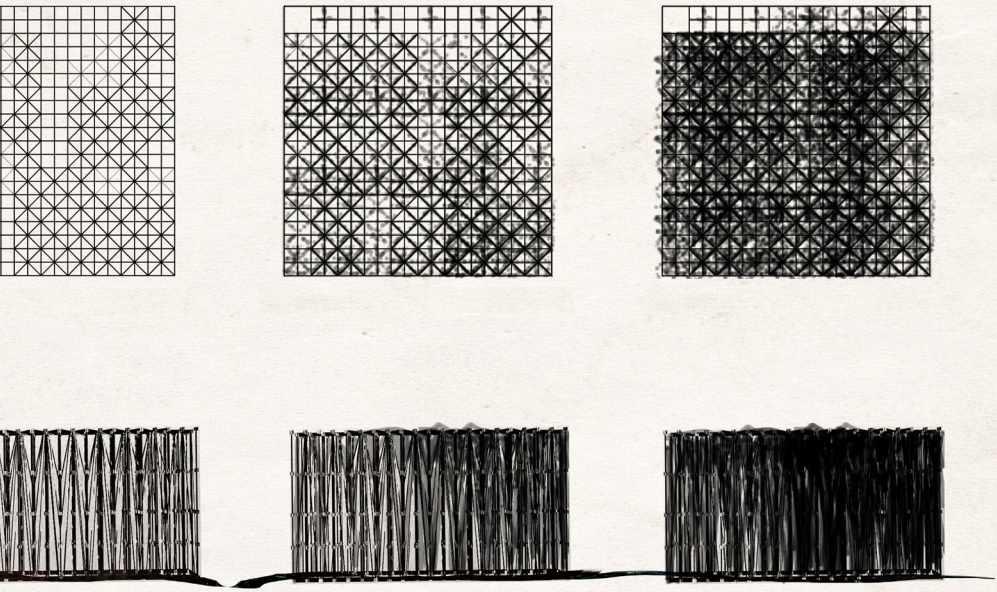








15.2



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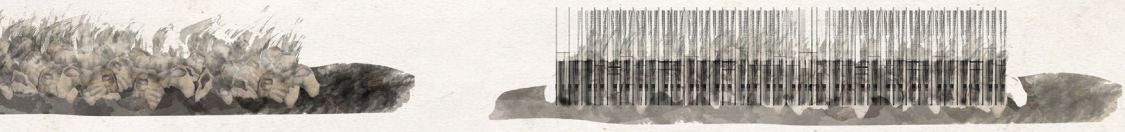
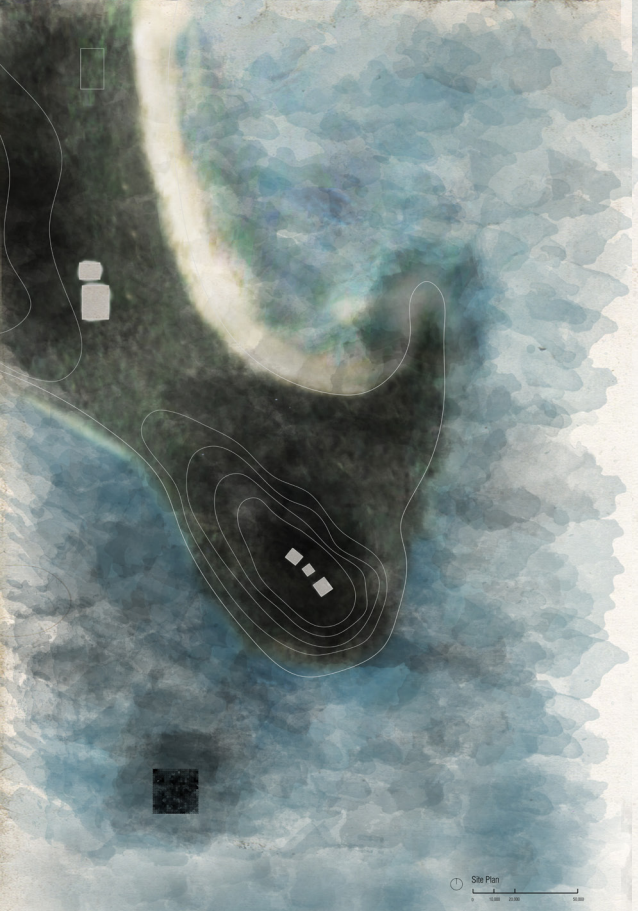
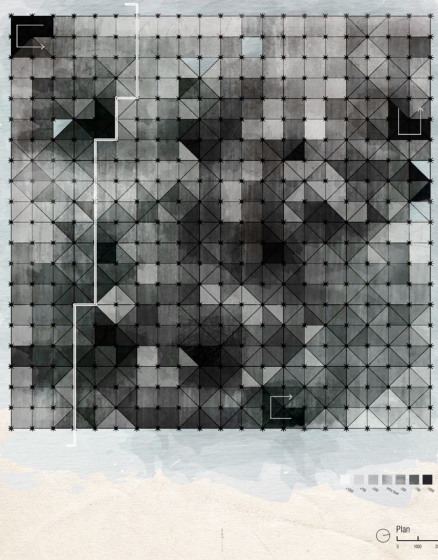


Section View of Spaces in between barnacles on rock

Abstraction of Spaces in bewtwen barnacles on rock

15.4


Site Plan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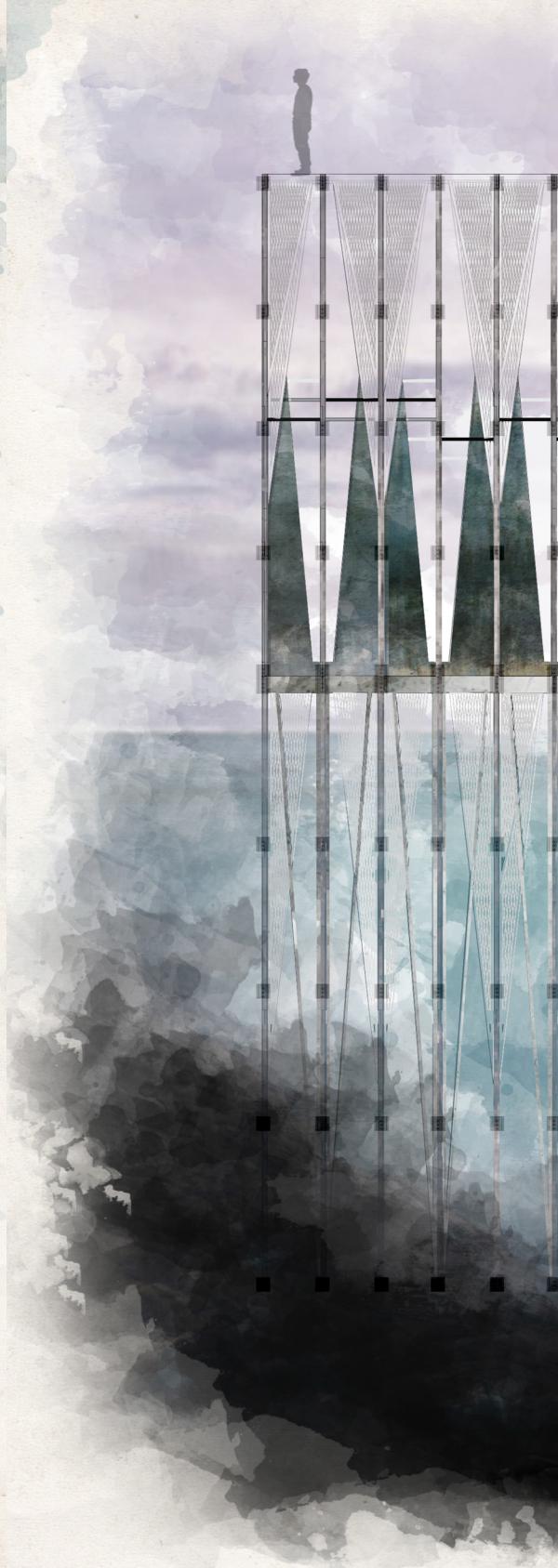

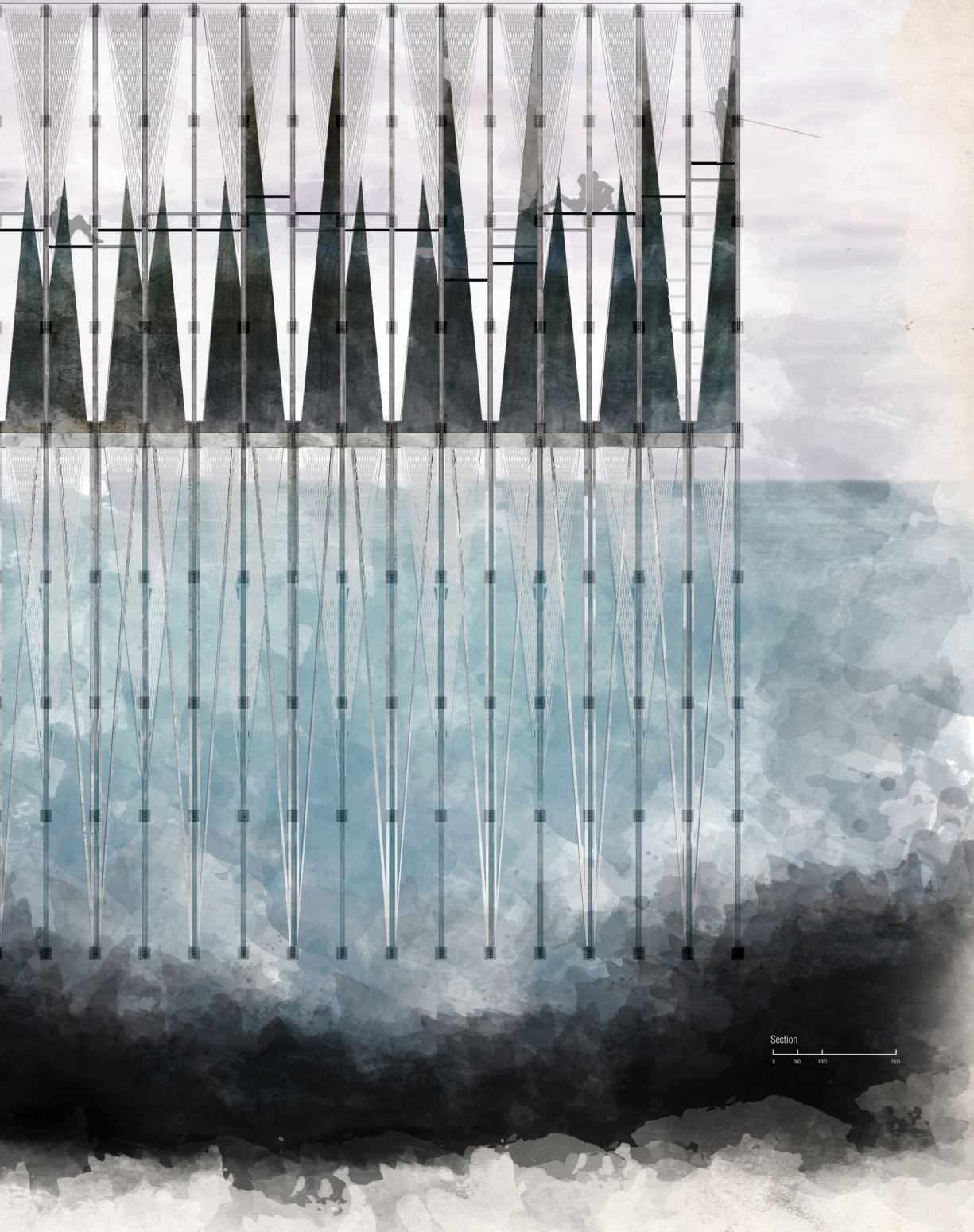
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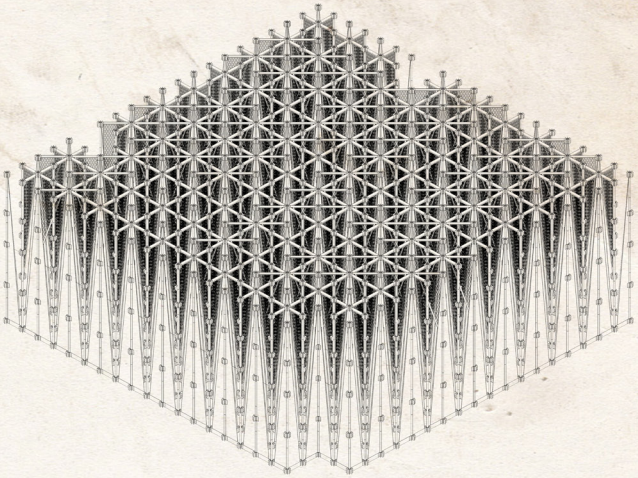
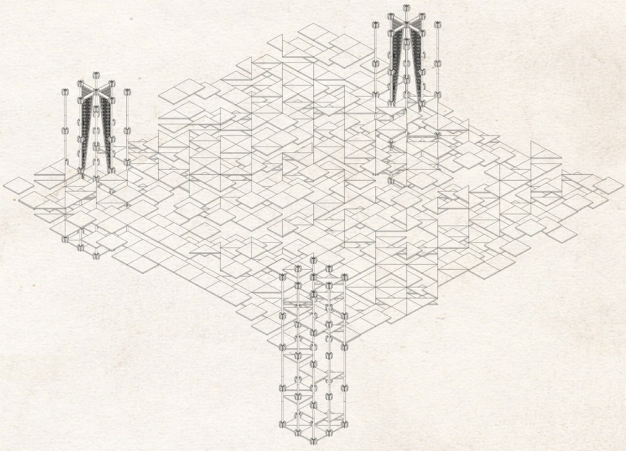
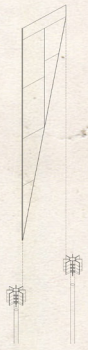
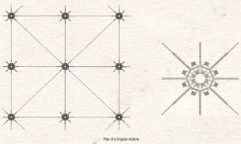
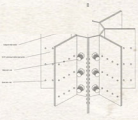


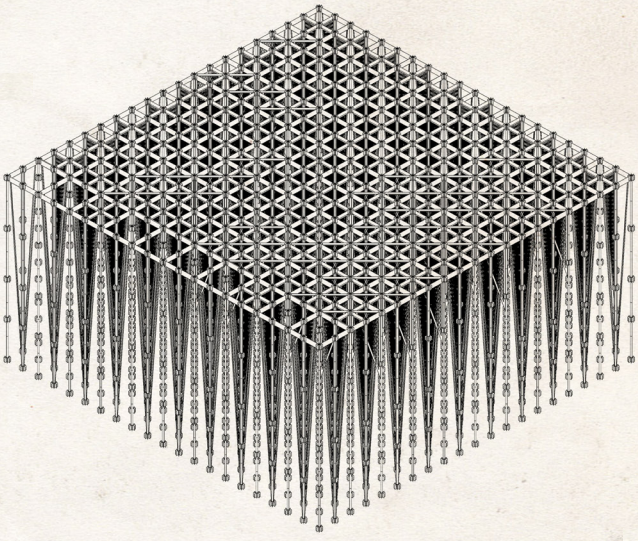


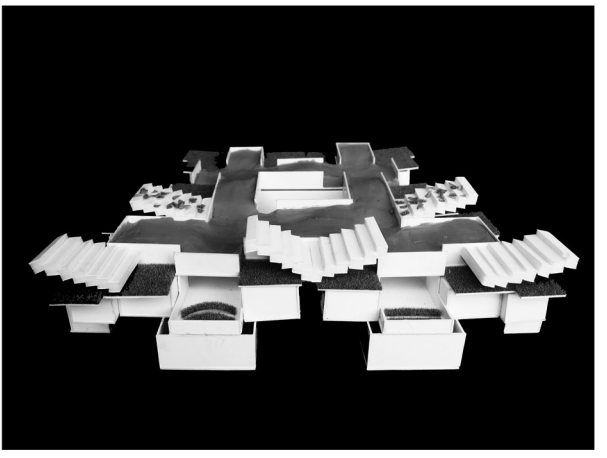


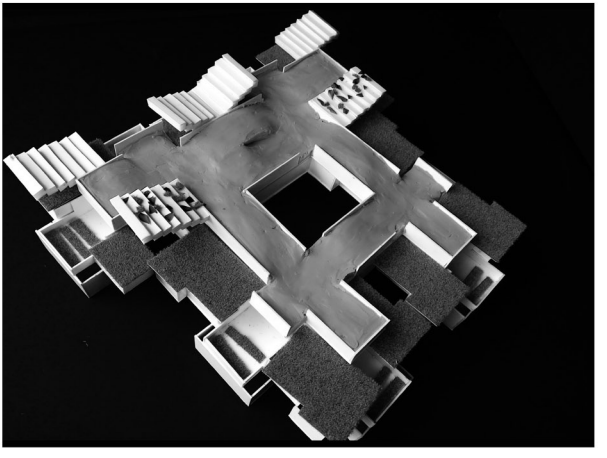


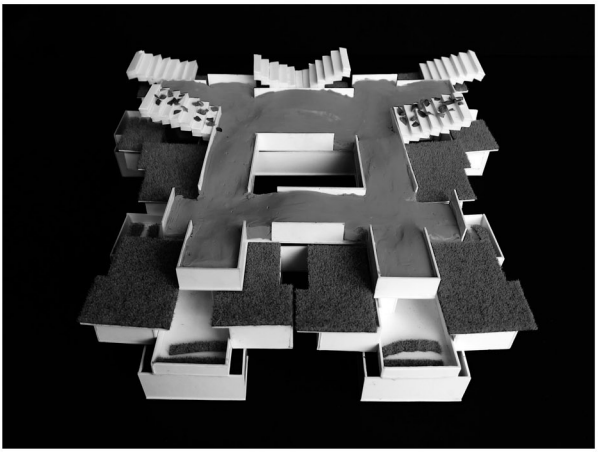
Plan of a single module





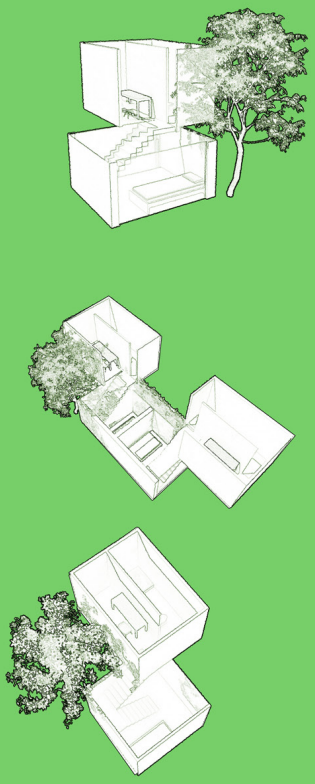




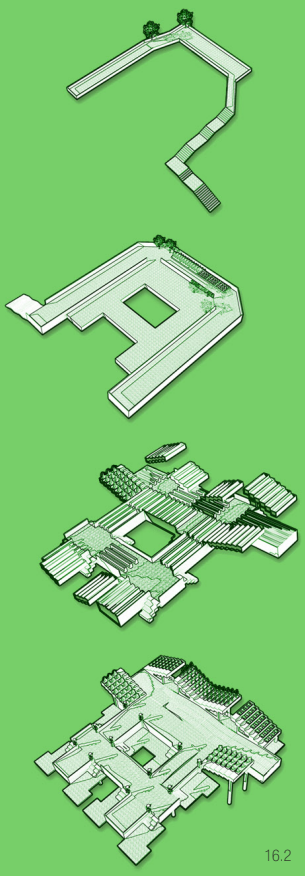


16.0

16.0 Model, the scheme utilises an expansive green roof to provide an agrarian lifestyle for its inhabitants. Inhabitants can cultivate their own produce and have community dinners in the main communal kitchen located under the green roof. **16.1** Development of the living units **16.2** Development of the green roof **16.3** Axonometric rendering of final scheme.



16.1



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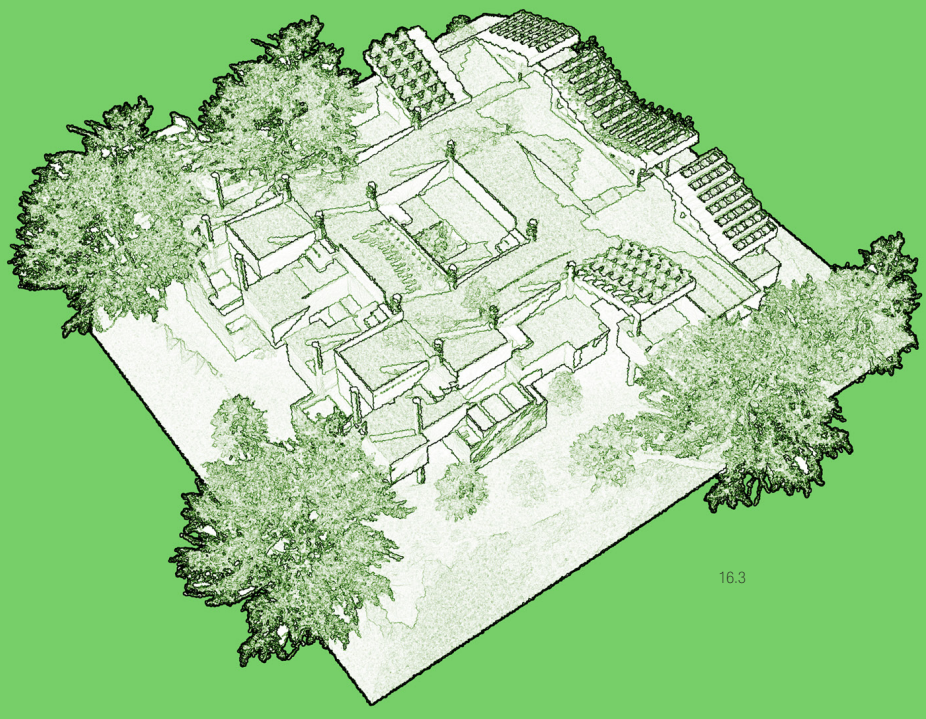

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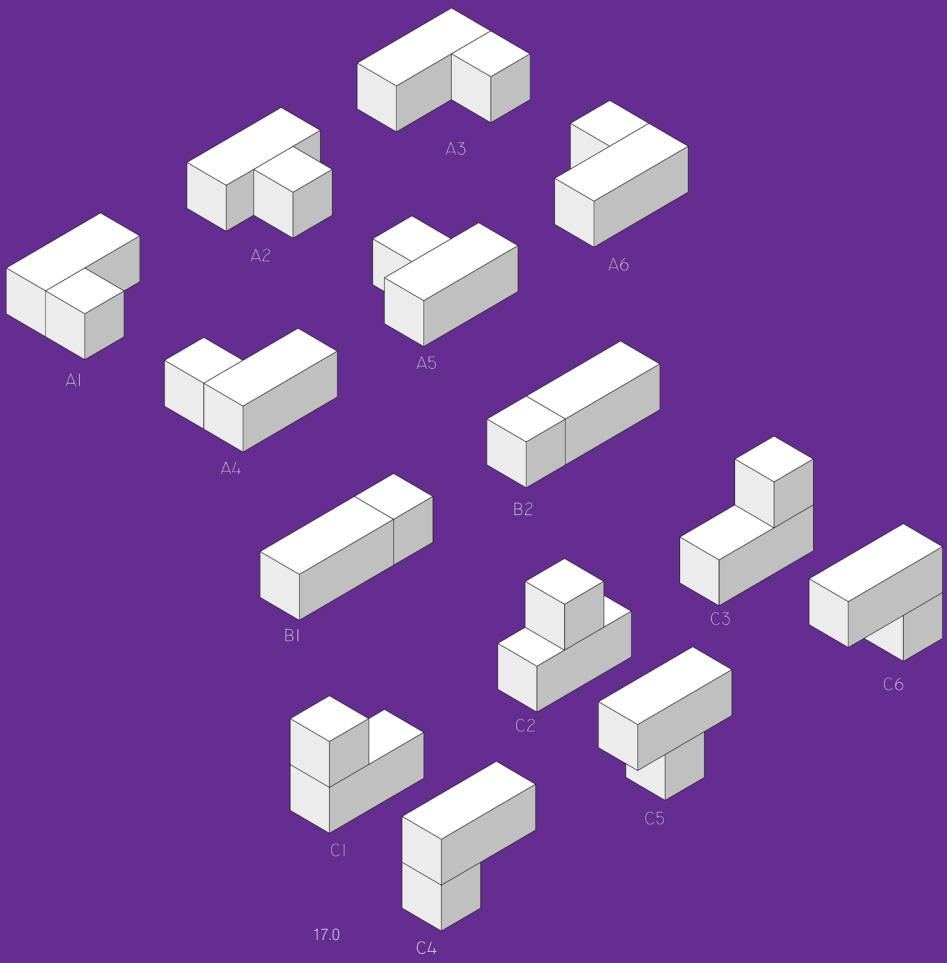
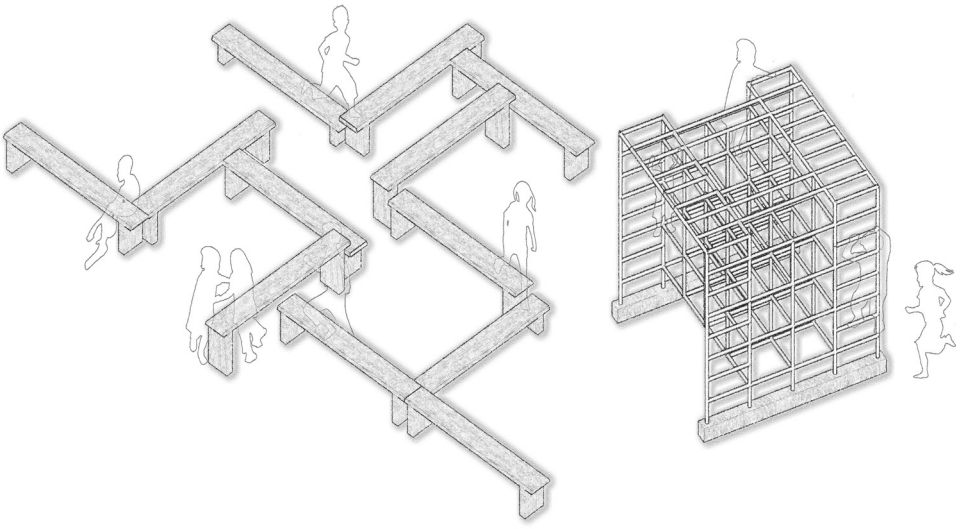


17.0 Form studies. Using the standard container as a pre-fabricated module, various configuration of container-to-container combinations are explored. The combinations are further recombinded in the final iteration to create new forms. **17.1** Formal transformation. Diagram of formal transformation from abstract formal units into a building. **17.2-17.3** Playground and Laundry areas. The schemes extends it modularity from its building form to micro aspects like the playground furniture and laundry units. Spaces like the laundry area adopt a utilitarian purpose from the perspective of an adult, while from a child's viewpoint; the venue becomes a playground with a mini labyrinth. **17.4** Model, form of the overall architecture comprising an amalgamation of container units. **17.5** Ground floor plan. This plan illustrates the living area and play area of the intended mother & child occupants. The overall park-like landscape sets the mood for vibrant and playful communal area. Arrangement of living units and centralised plaza allow children to be continually supervised by a mother living in this cooperative. **17.6** First floor plan. Bridges span across the zone to connect between zones and facilitate inter-zone circulation.

17.1



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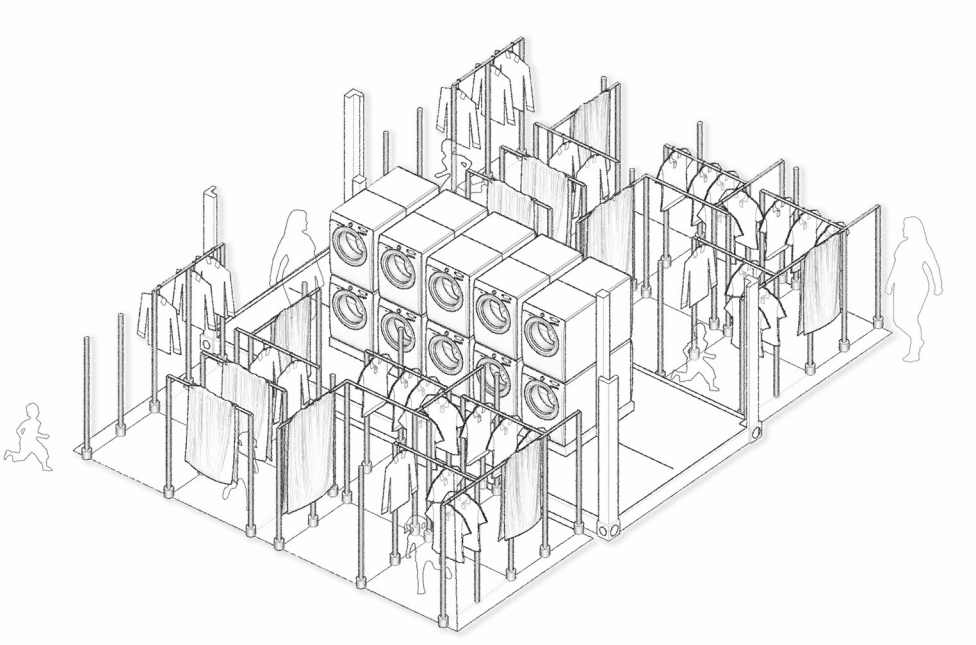

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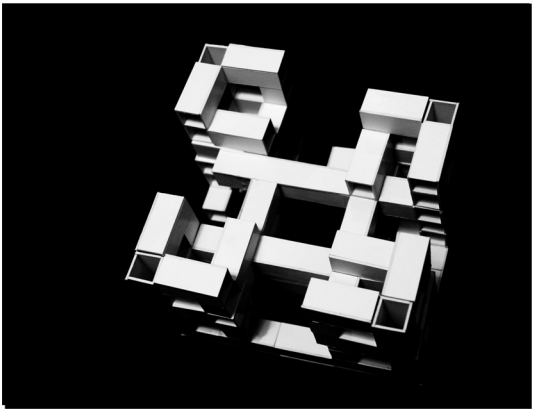

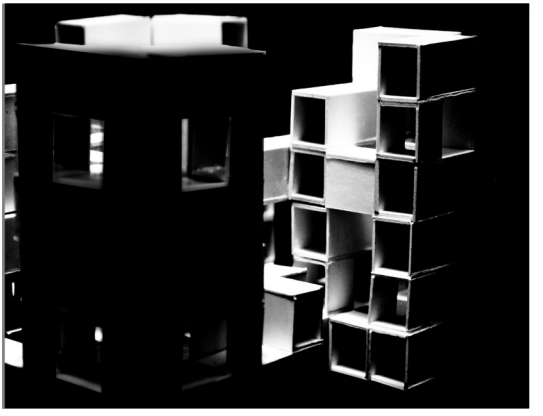

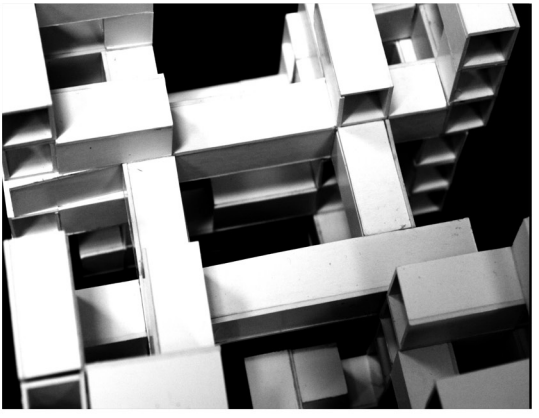

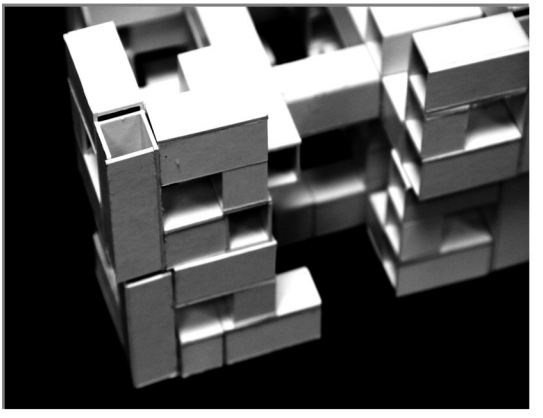

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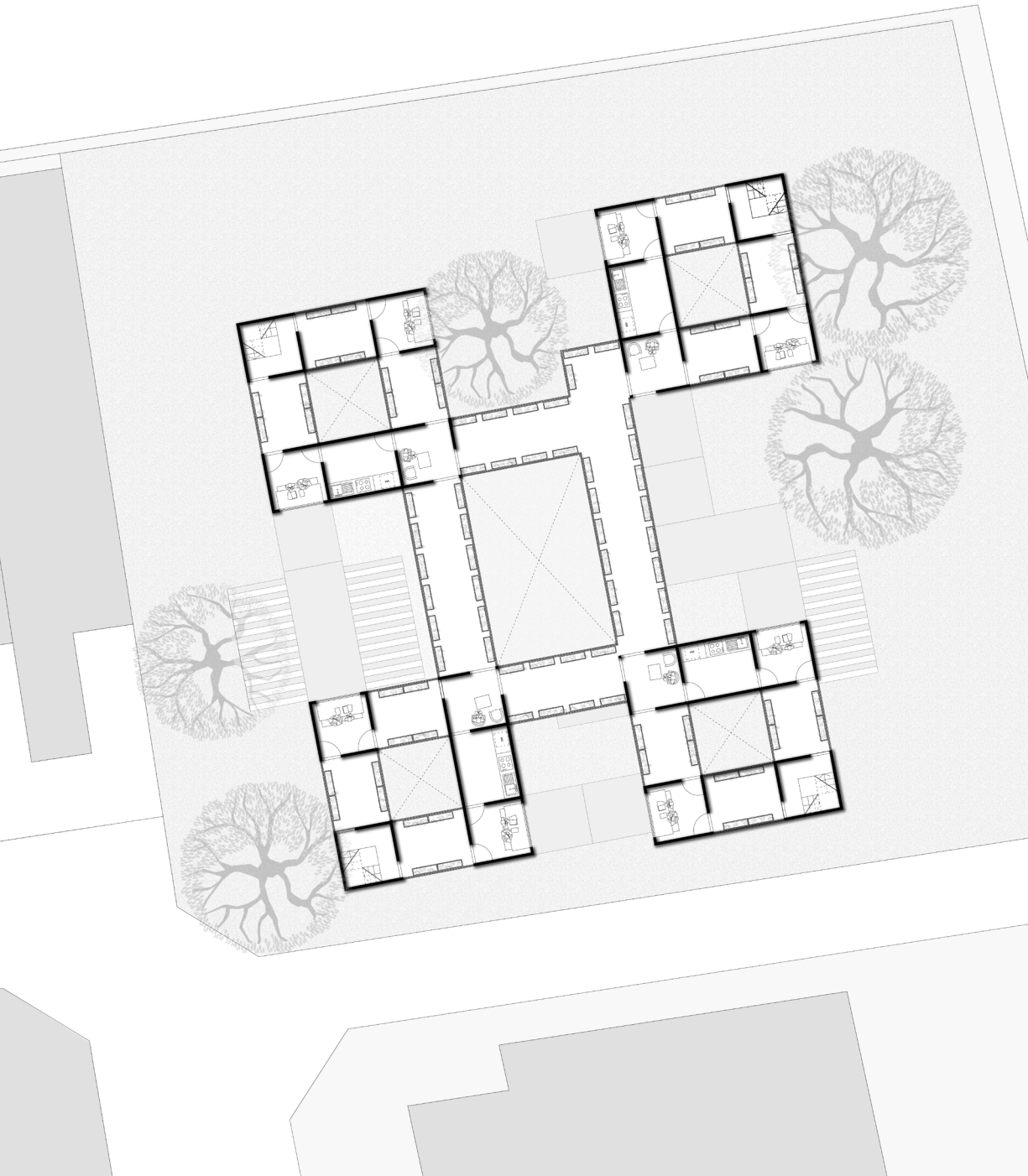
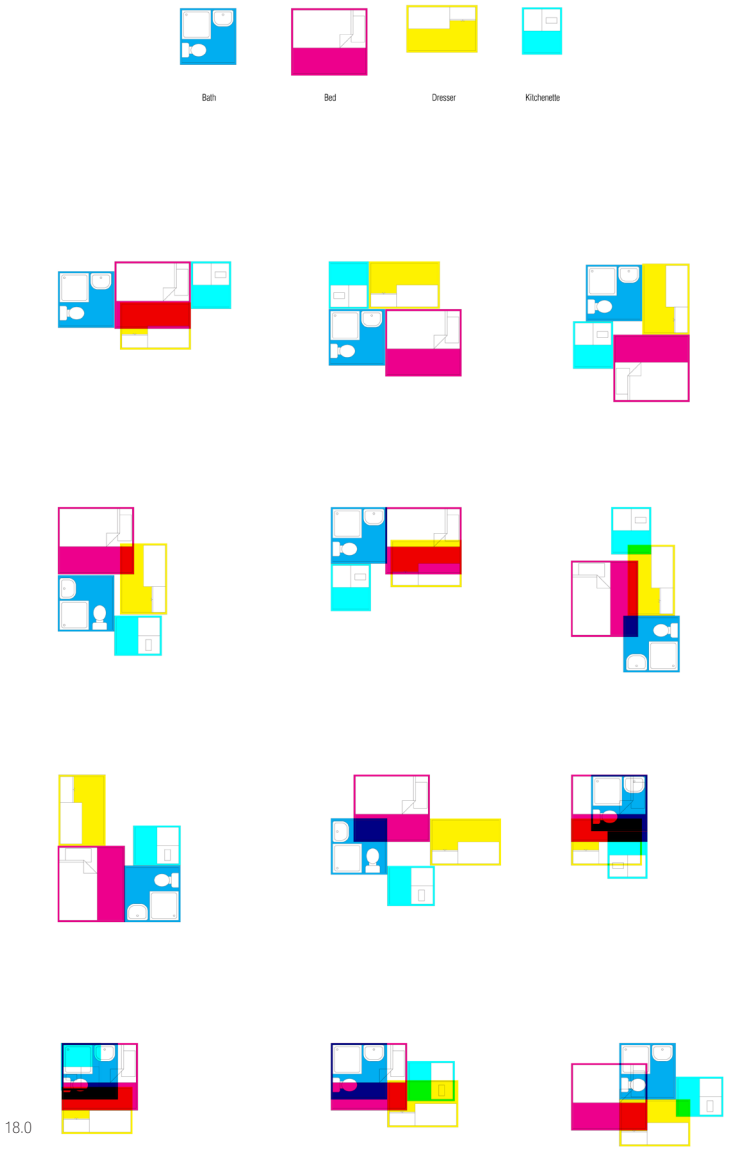
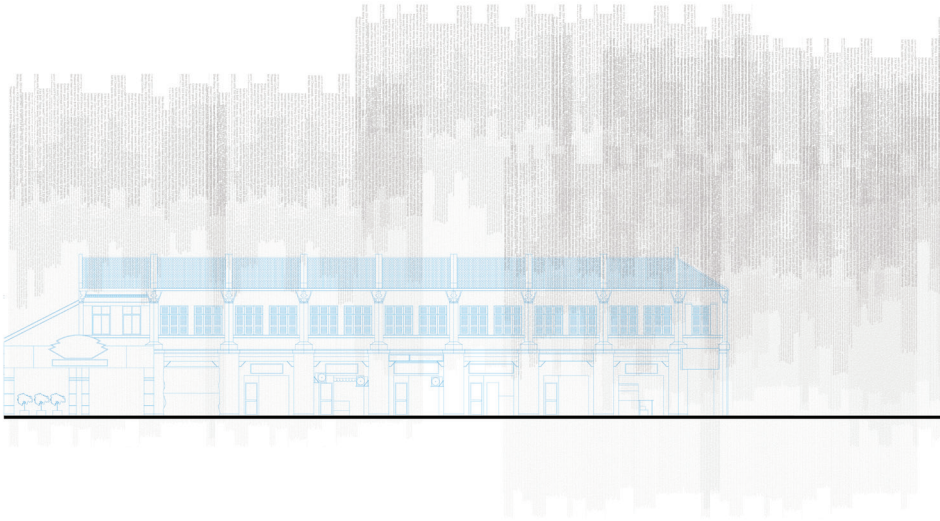


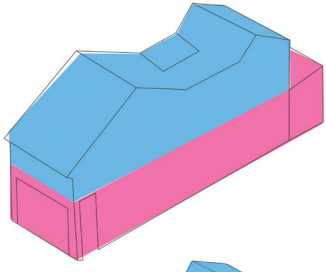


18.0

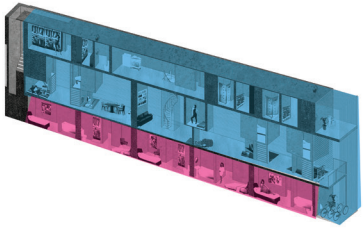
18.0 Study of individual needs and arrangement of amenities. The basic needs of each individual is rationalised, made discrete, and further maintained at a12m^2 limit. Each discrete unit is recreated as a block and arranged in various permutations to explore different formal configurations. **18.1** Floor plans stacked. **18.2** Front elevation. **18.3** Adaptation of shophouse typology. Sited in Geylang, the shophouse typology is transformed. The project attempts to adapt and reconfigure the different elements of the shophouse to fit its current occupants and programme. **18.4** Structural strategy diagram.**18.5** Ground level plan. Main working area with access from the public thoroughfare. Solid tectonic expression allow for a degree of privacy. **18.6** First level plan. Main communal living area with discrete individual zones. Each zone is different and characterised by the area under the sleeping units. Tectonic expression is reversed with minimal shear structures, creating an open plan that serves as a big living room. **18.7** Mezzanine level plan. **18.8** Second level plan. A solid tectonic expression is adopted. Here, privacy is paramount for dressing areas and toilets. **18.9** Model photo montage. a record of formal transformations.

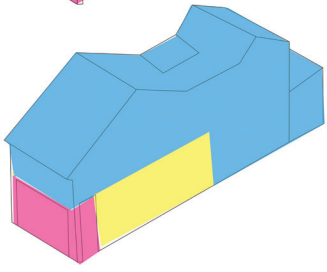
18.1



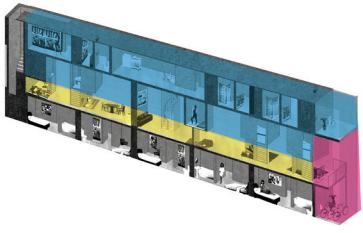


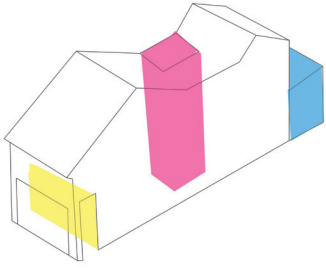
Work vs Play



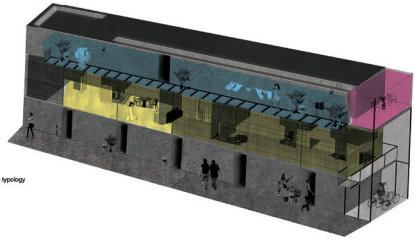


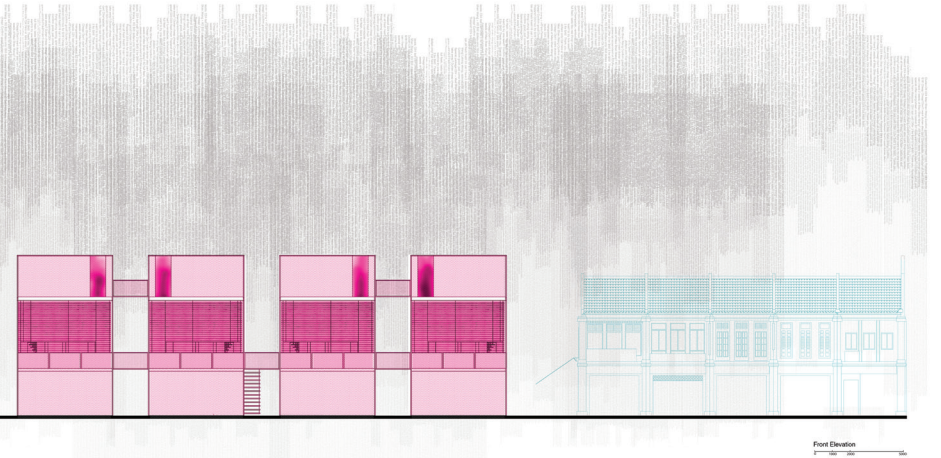
Public / Semi-Public / Private





Adaptations of Shophouse typology





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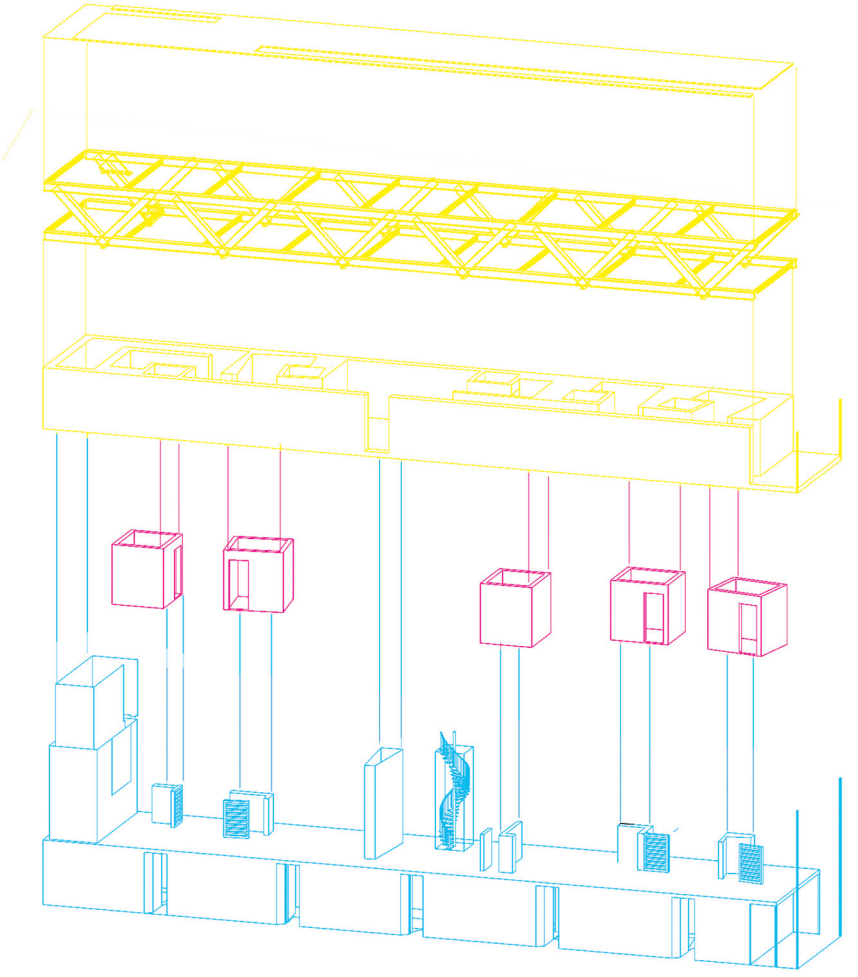

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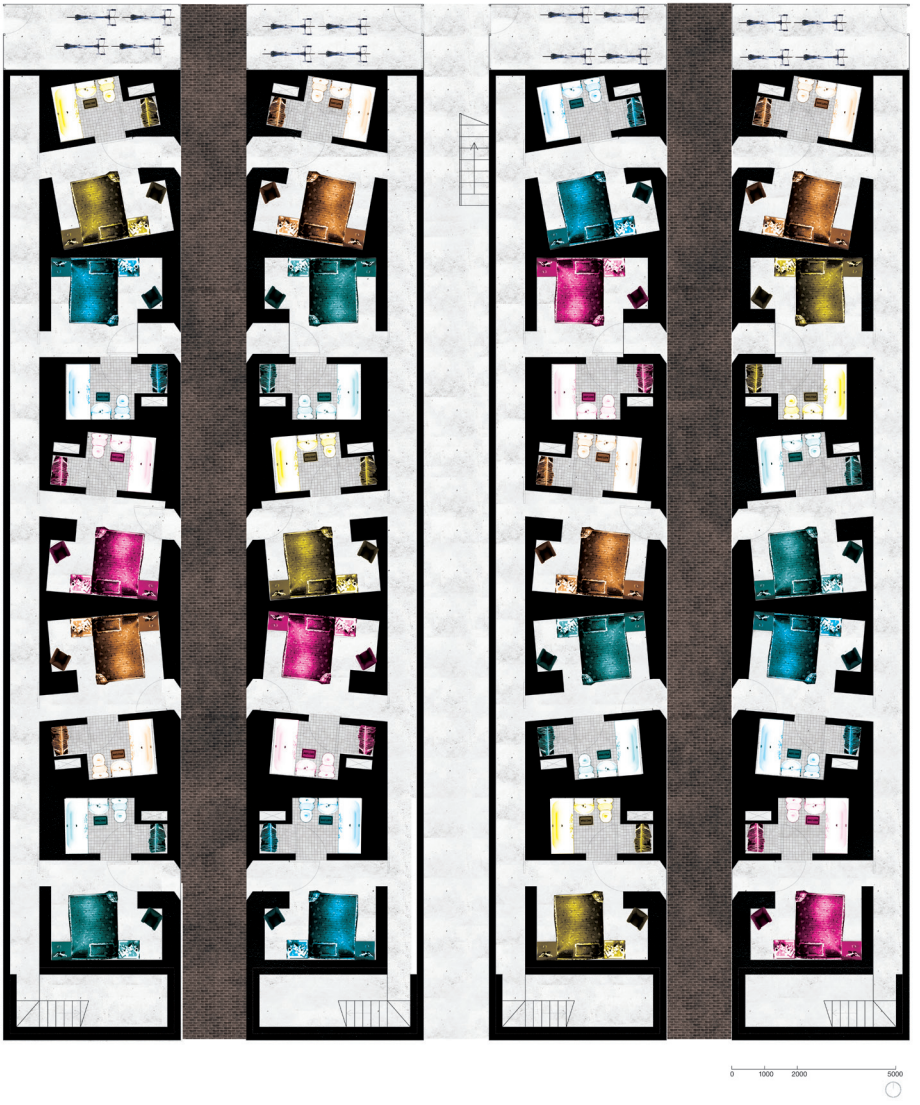

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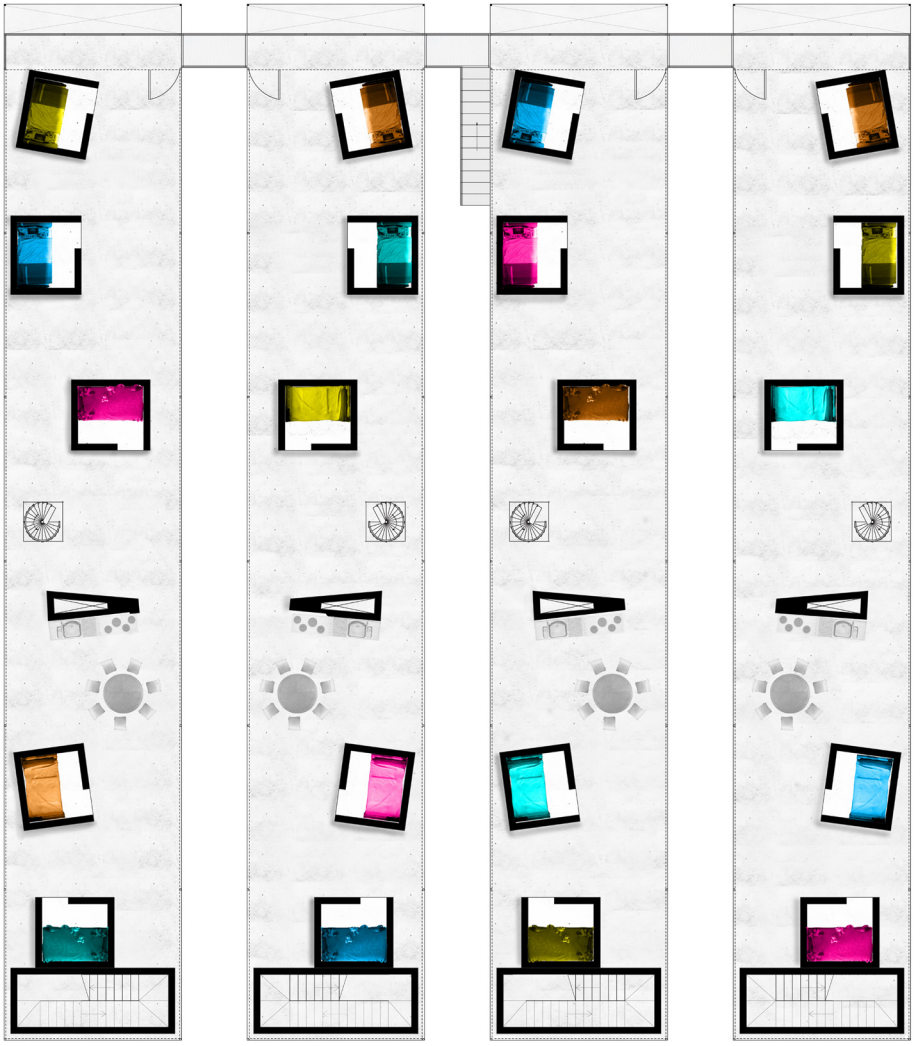

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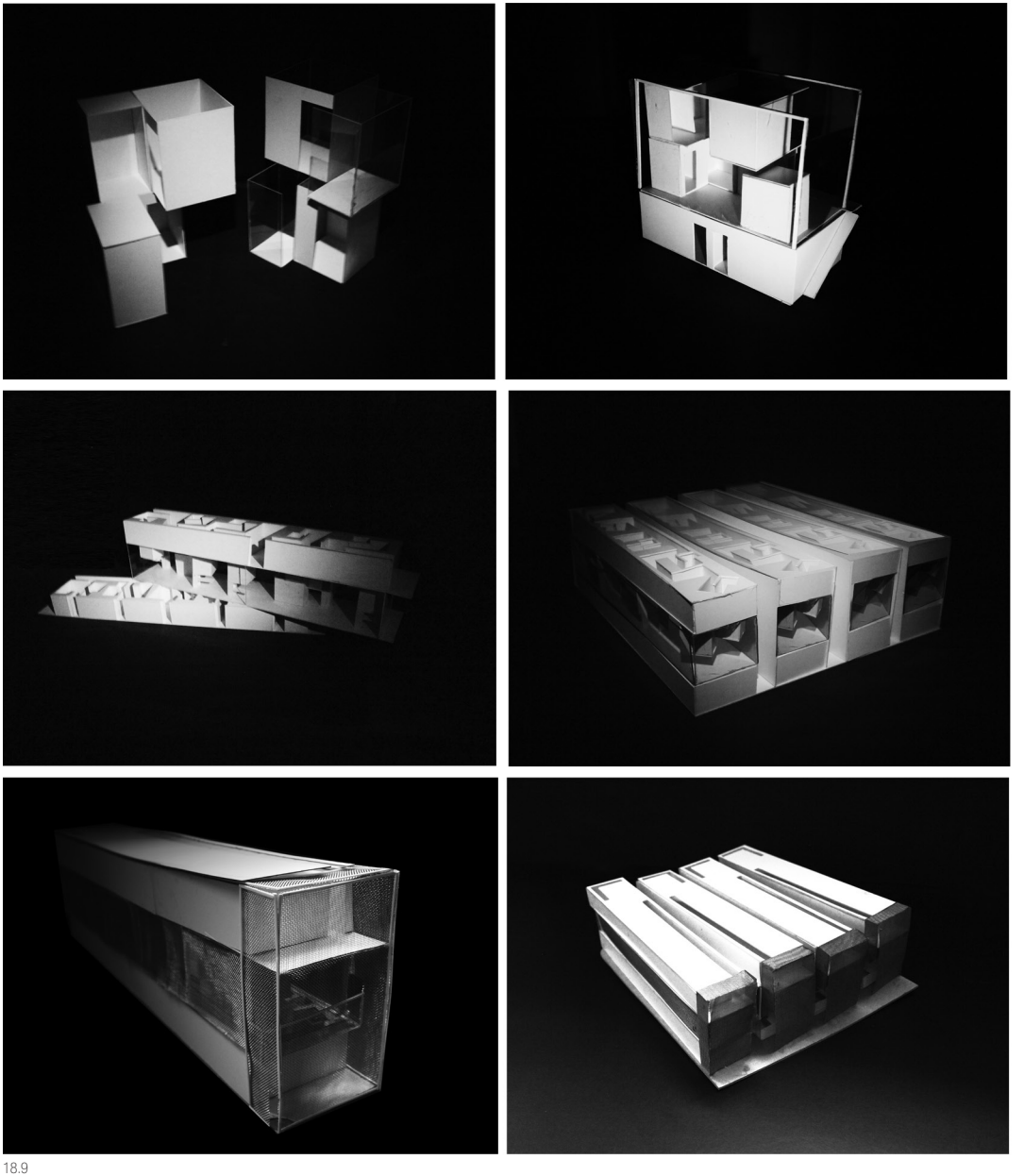

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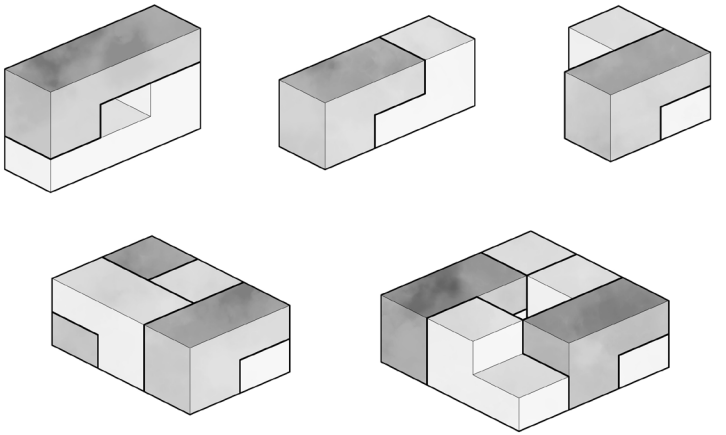

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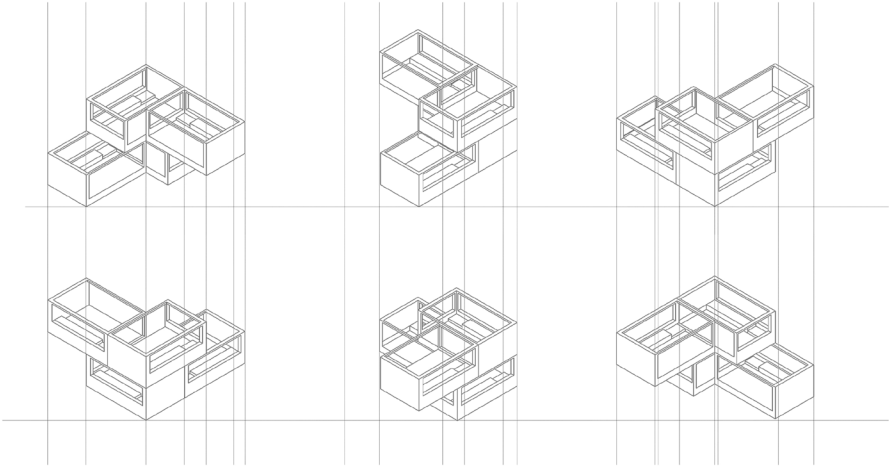
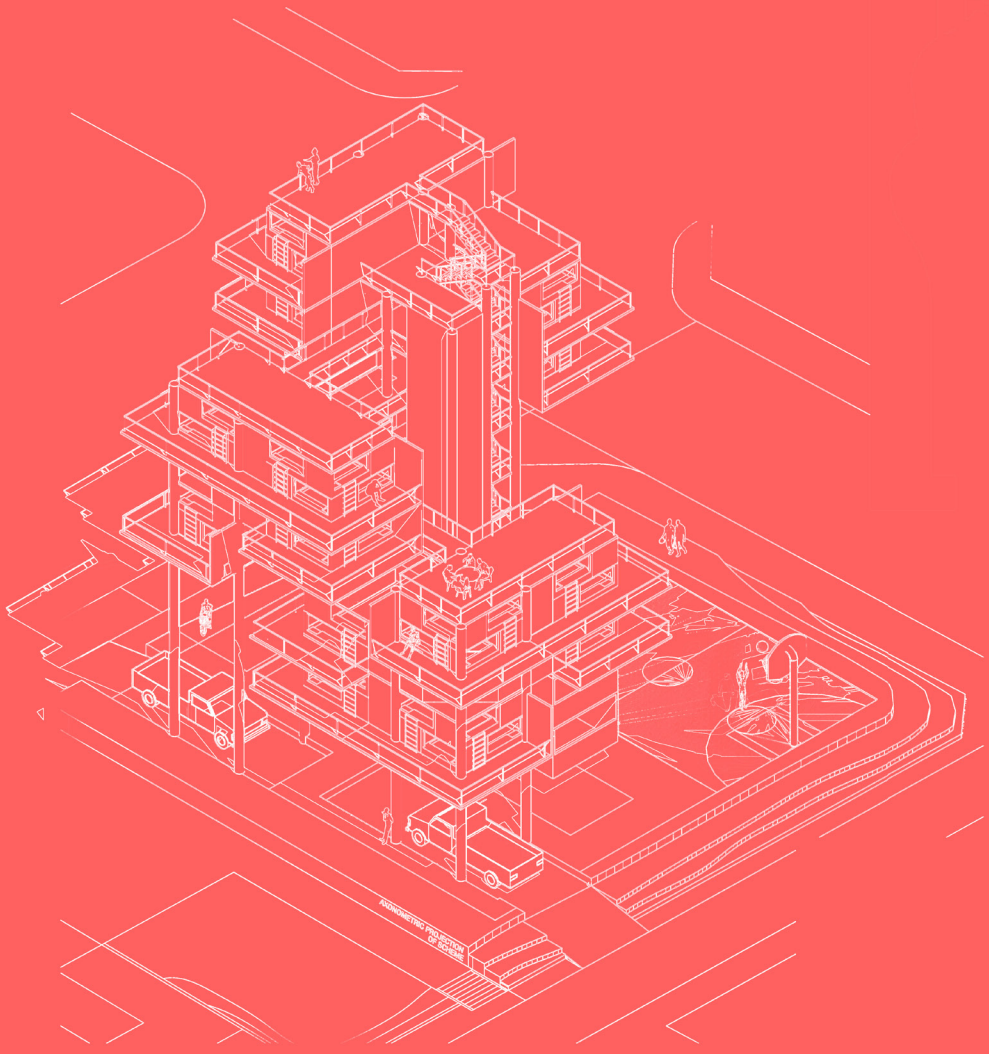


19.1

19.0 Exploration of volumetric composition. **19.1** Study of interlocking living units. Individual living units are stacked and rotated to generate alternative forms. **19.2** Axonometric projection. Stacked cellular units are layered to form a high-rise building. Each cell provides for the worker's basic necessities - privacy, community, air, light and space for storage and slumber. The interlocking units allow for fluid circulation and interaction between groups of the same community. **19.3** Section. Strategically placed open facades and closed walls maintain the privacy of each sub-community and simultaneously allow for interaction.



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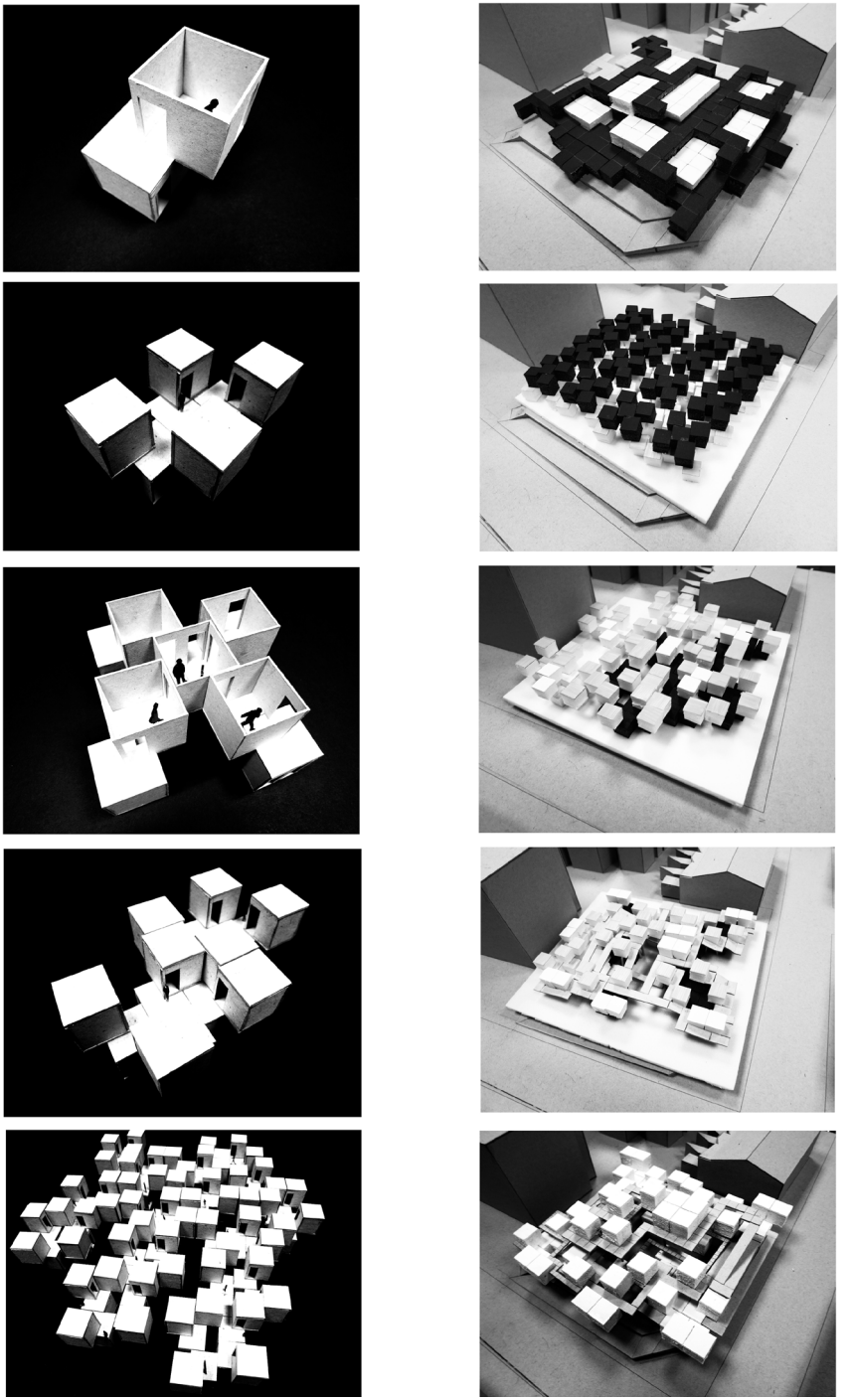
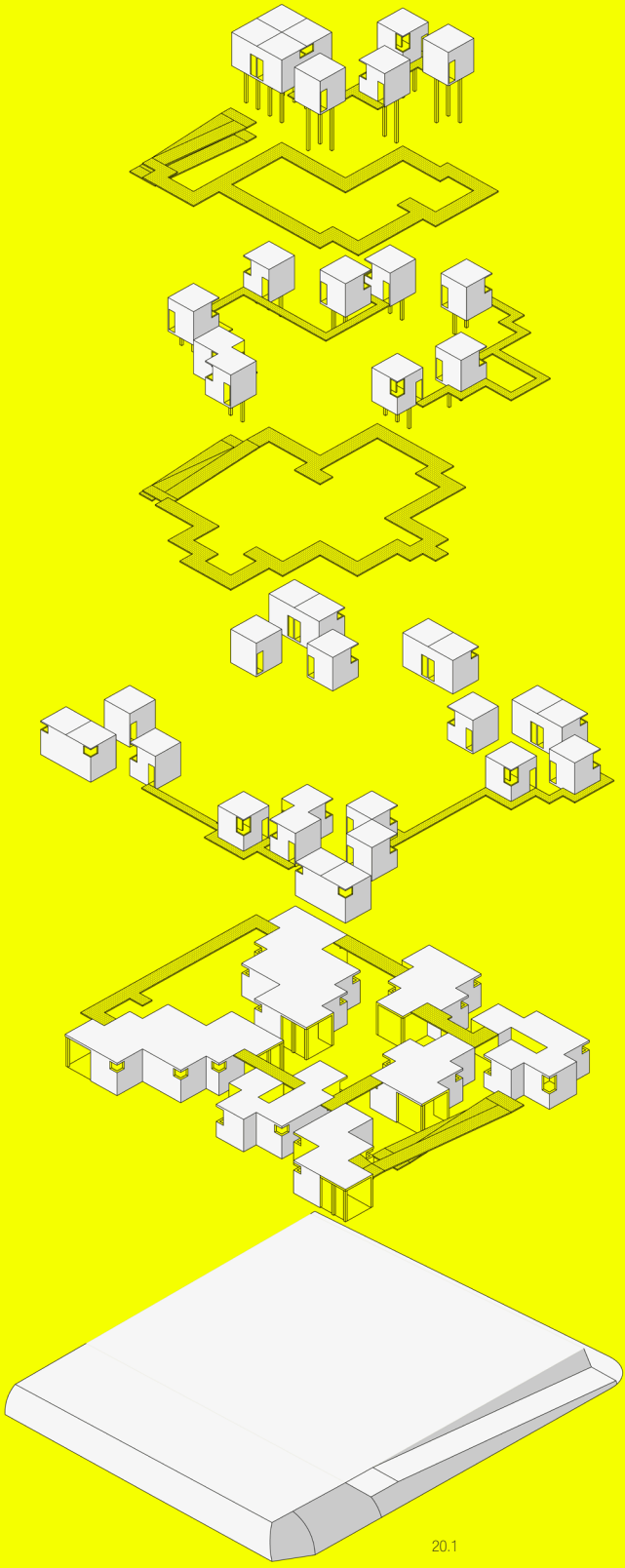
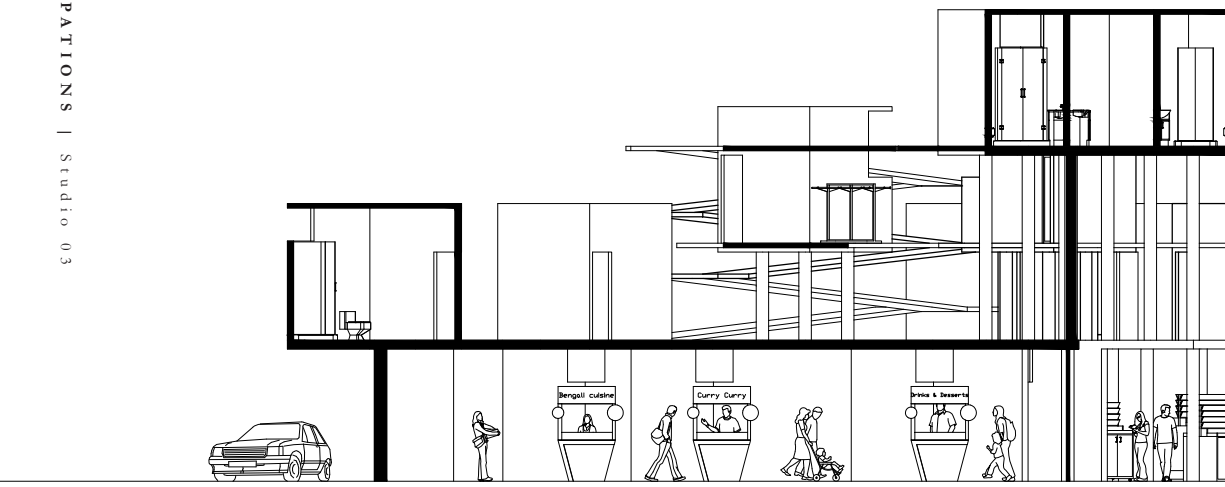
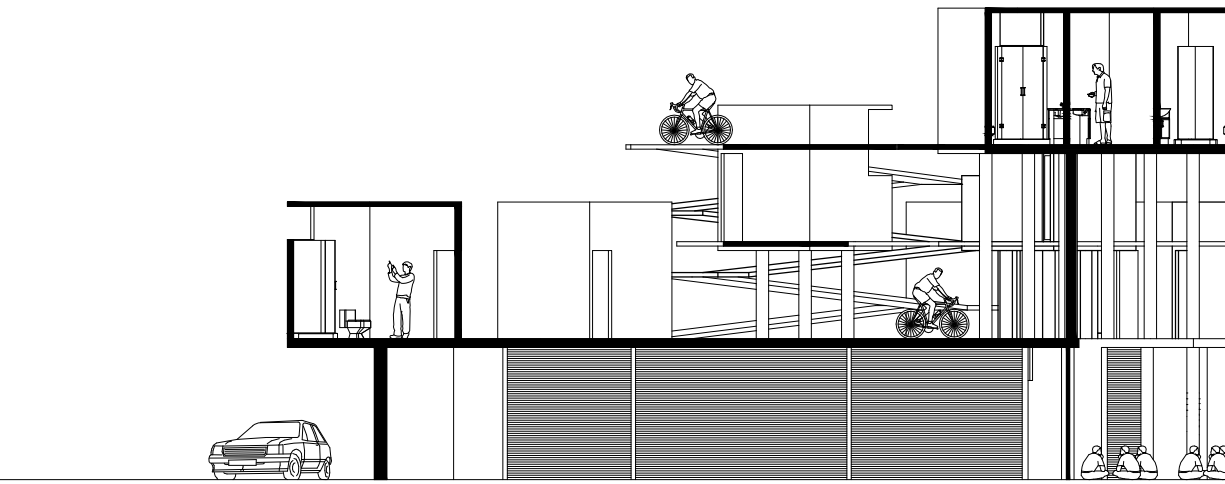


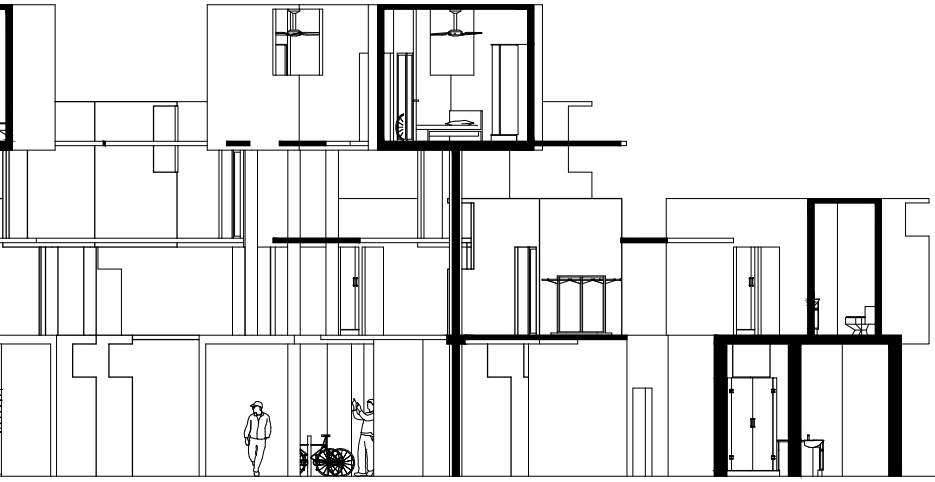
20.0

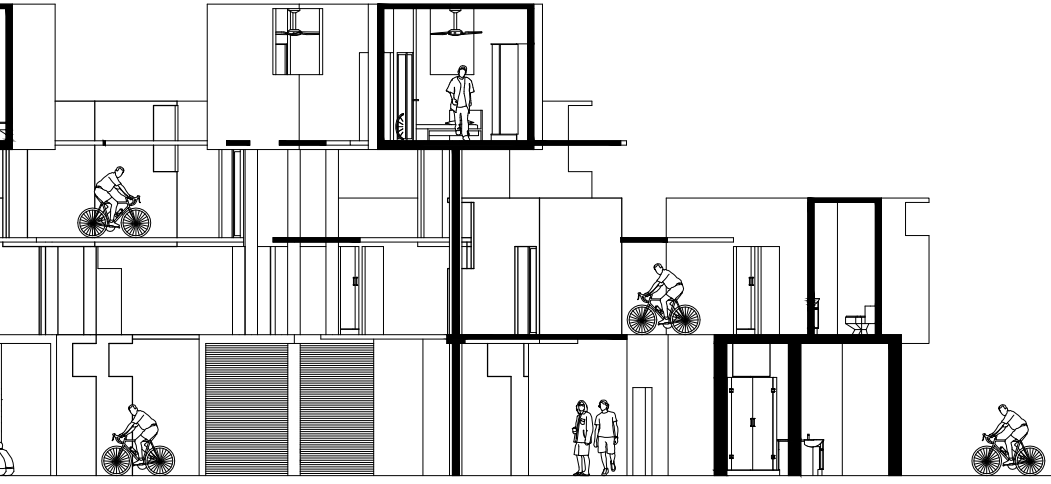
20.0 Photo montage of developmental models, charting the formal considerations undertaken throughout the design process. Living units were conceived, amalgamated and then linked with a series of ramps. Remnant spaces in between the units mimic the spatial aspects of Geylang's back alley. **20.1** Exploded axonometric projection, highlighting the different components of the building. **20.2** Section A-A', Section B-B'. The living units are mainly clustered on the top levels of the dwelling. The ground level is maintained as a communal space with smaller shops that cater to the occupants and the general public.




Bengali cuisine
Curry Curry
Drinks & Desserts







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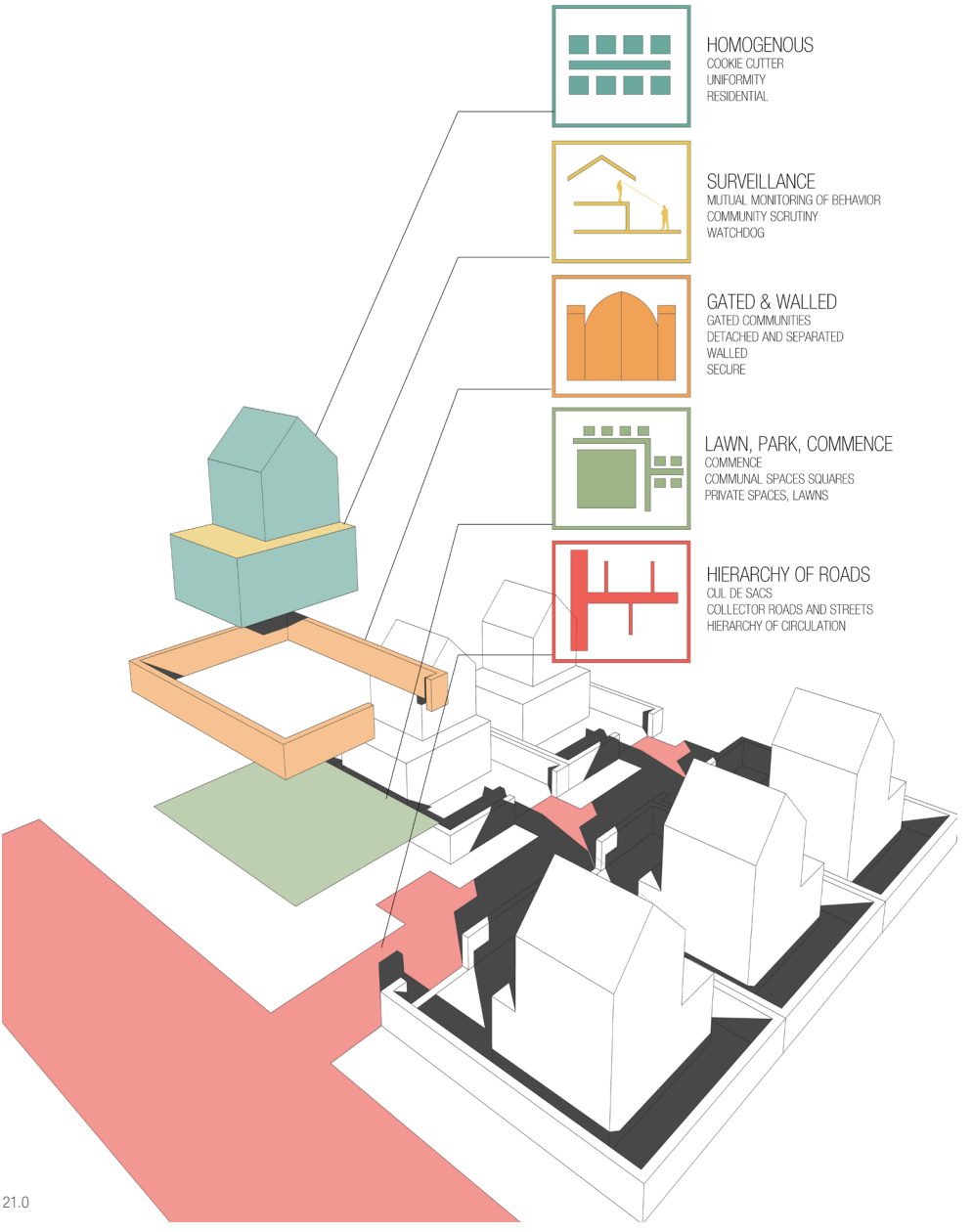
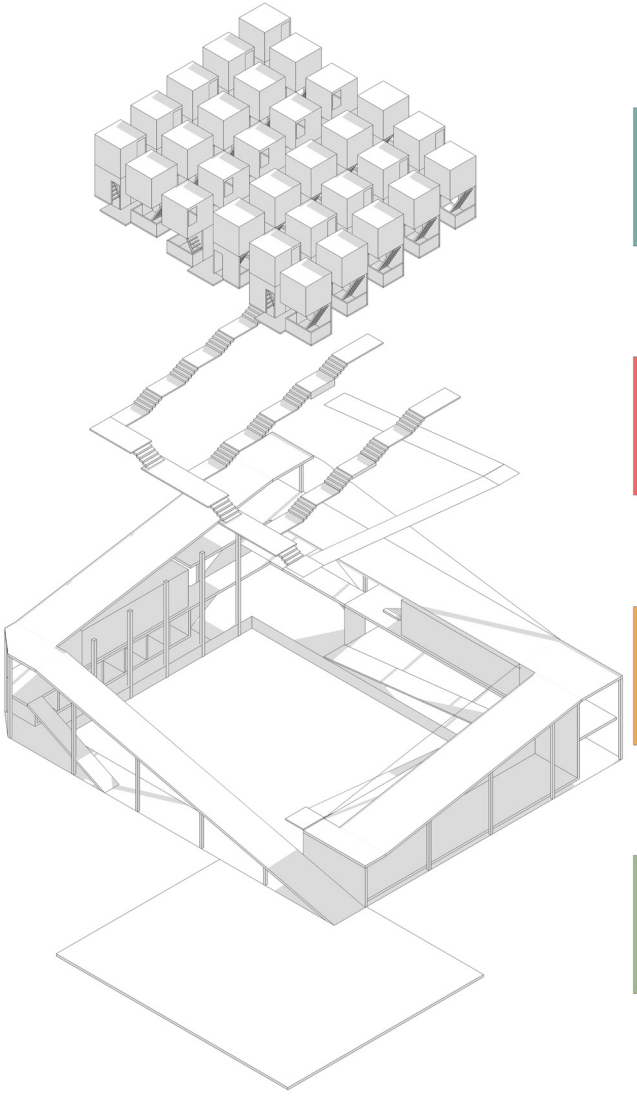
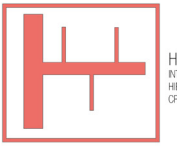


21.0

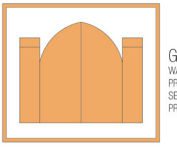
21.0 Elements of suburbia. The different hierarchy of roads, lawn/park areas, gated and walled communities, and homogenous typology. **21.1** Adaptation of suburban elements. Living units are structured as homogenous unit. Circulation paths are planned with an intended hierarchy. The entire community is also gated from the neighbourhood. **21.2** Photo montage of developmental models. Models explore various formal configurations. **21.3** Diagram documenting the development of individual dwelling units. **21.4** Exploded axonometric projection depicting the different components (sport halls, ramp, dwelling units) that make up the student hostel. Serial vision of various spaces within the building. **21.5** Section. The communal sports hall underpins the whole hostel with the dwelling units occupying a separate upper layer.



HOMOGENOUS
DWELLING UNITS
UNIFORMED



HIERARCHY OF ROADS
INTERPLAY OF PUBLIC AND PRIVATE
HIERARCHY OF CIRCULATION
CREATION OF CUL DE SACS



GATED & WALLED
WALL USED AS BUFFER
PROTECTION
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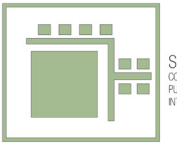
PRIVACY



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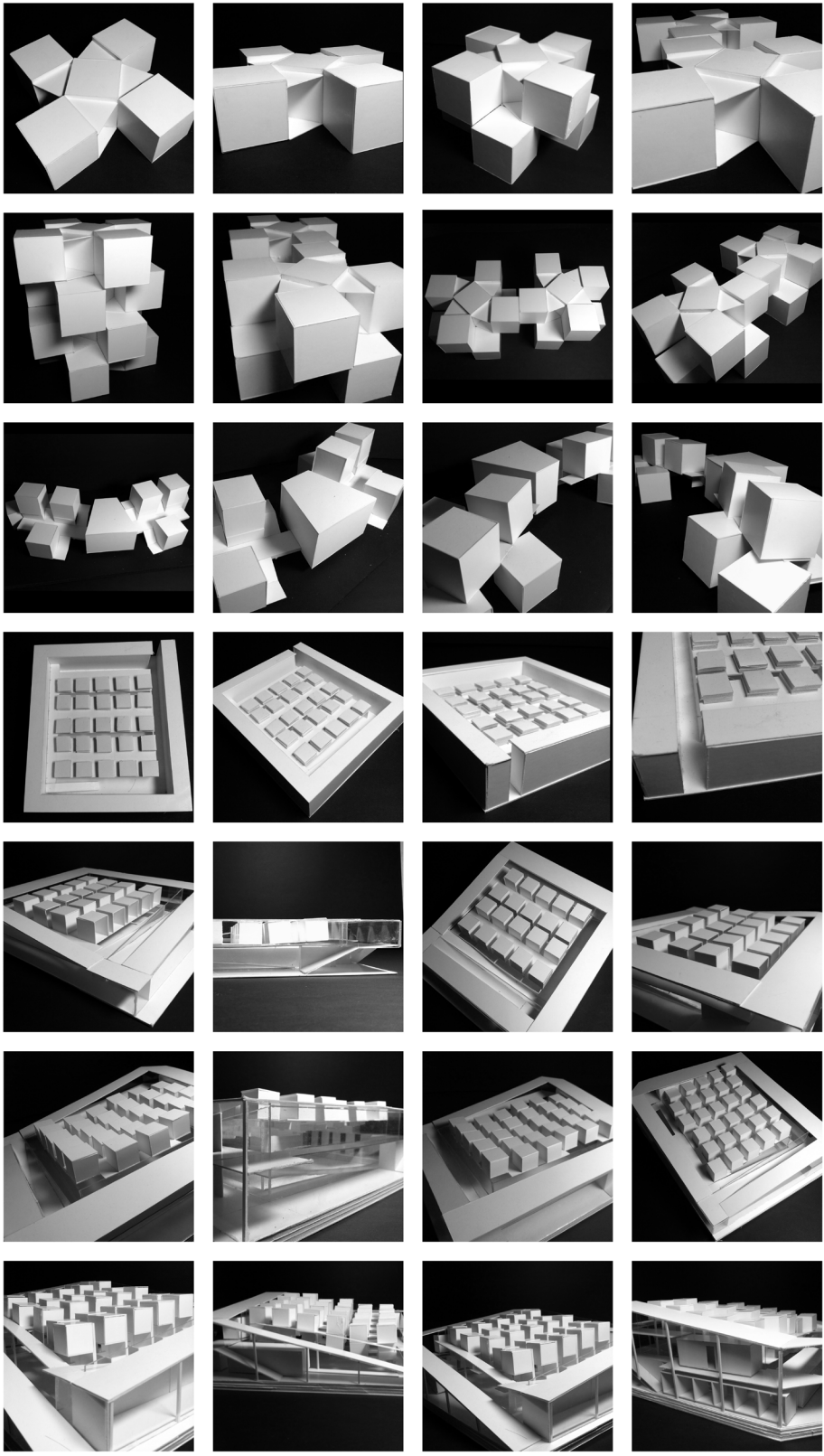
21.1



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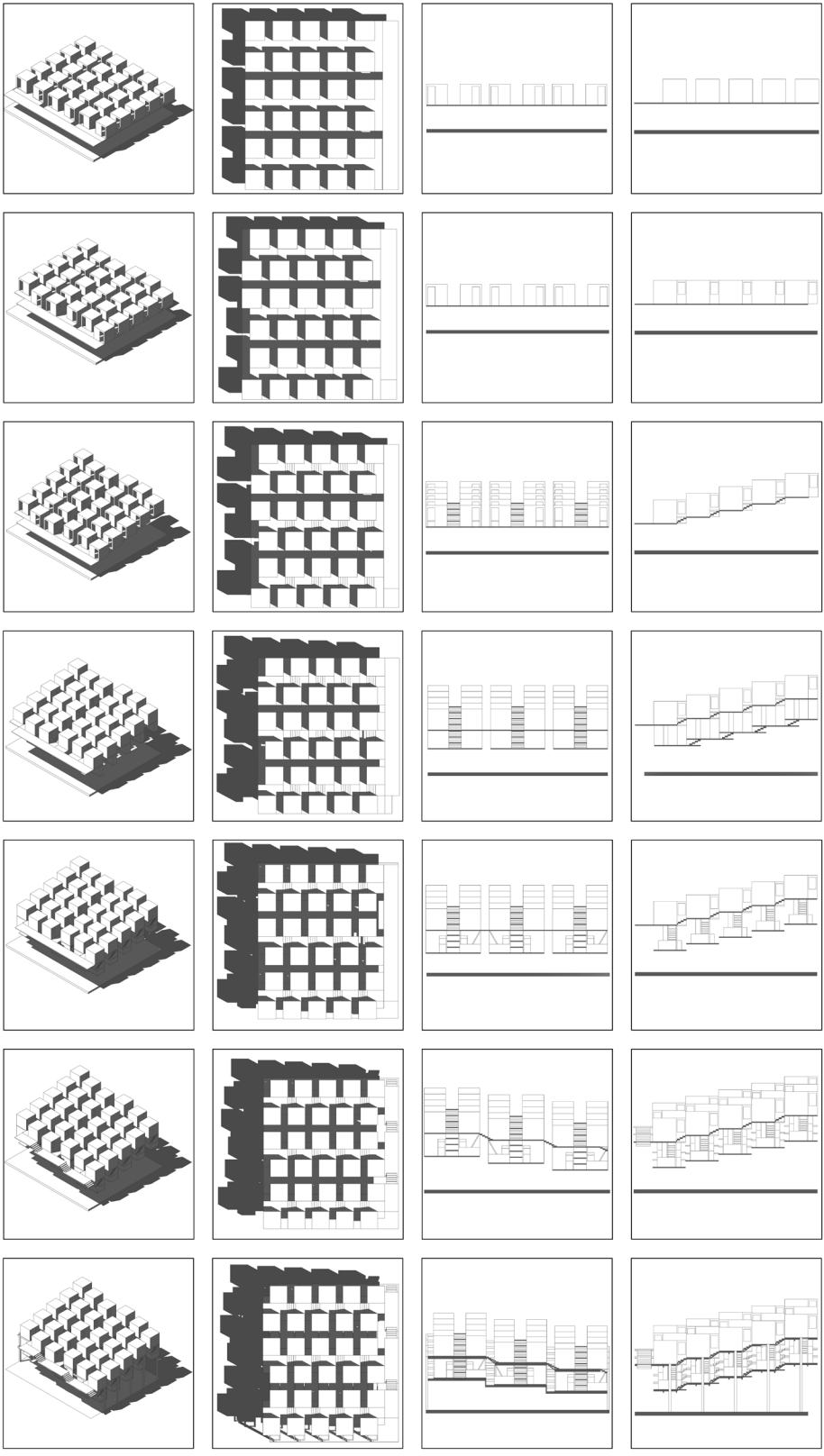

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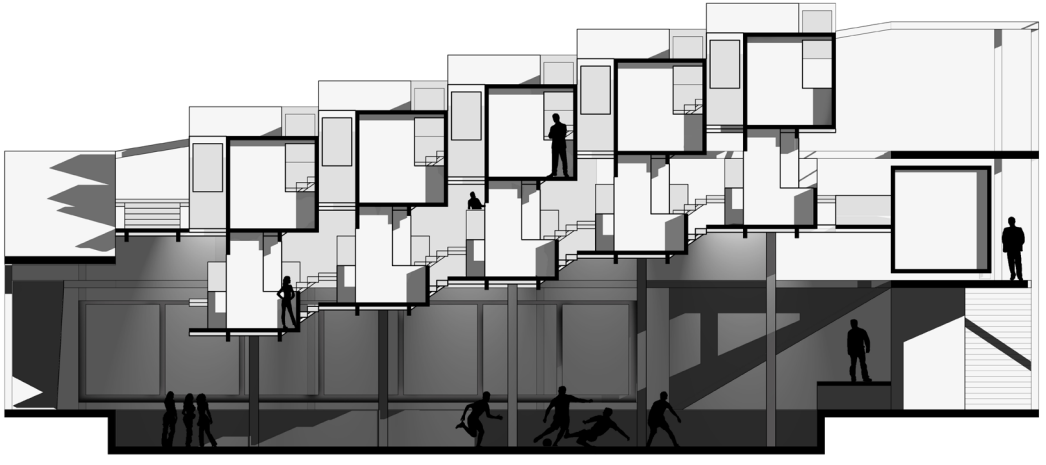

21.5

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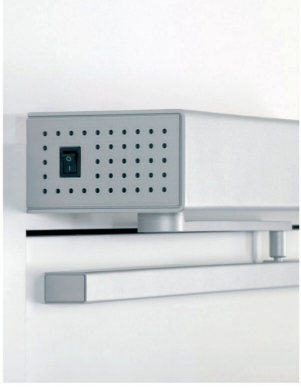
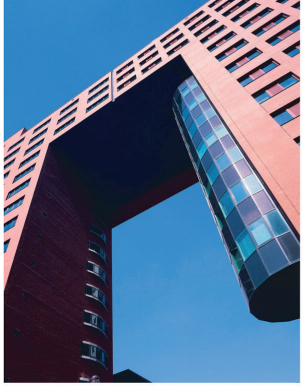









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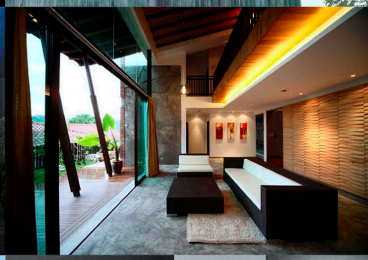

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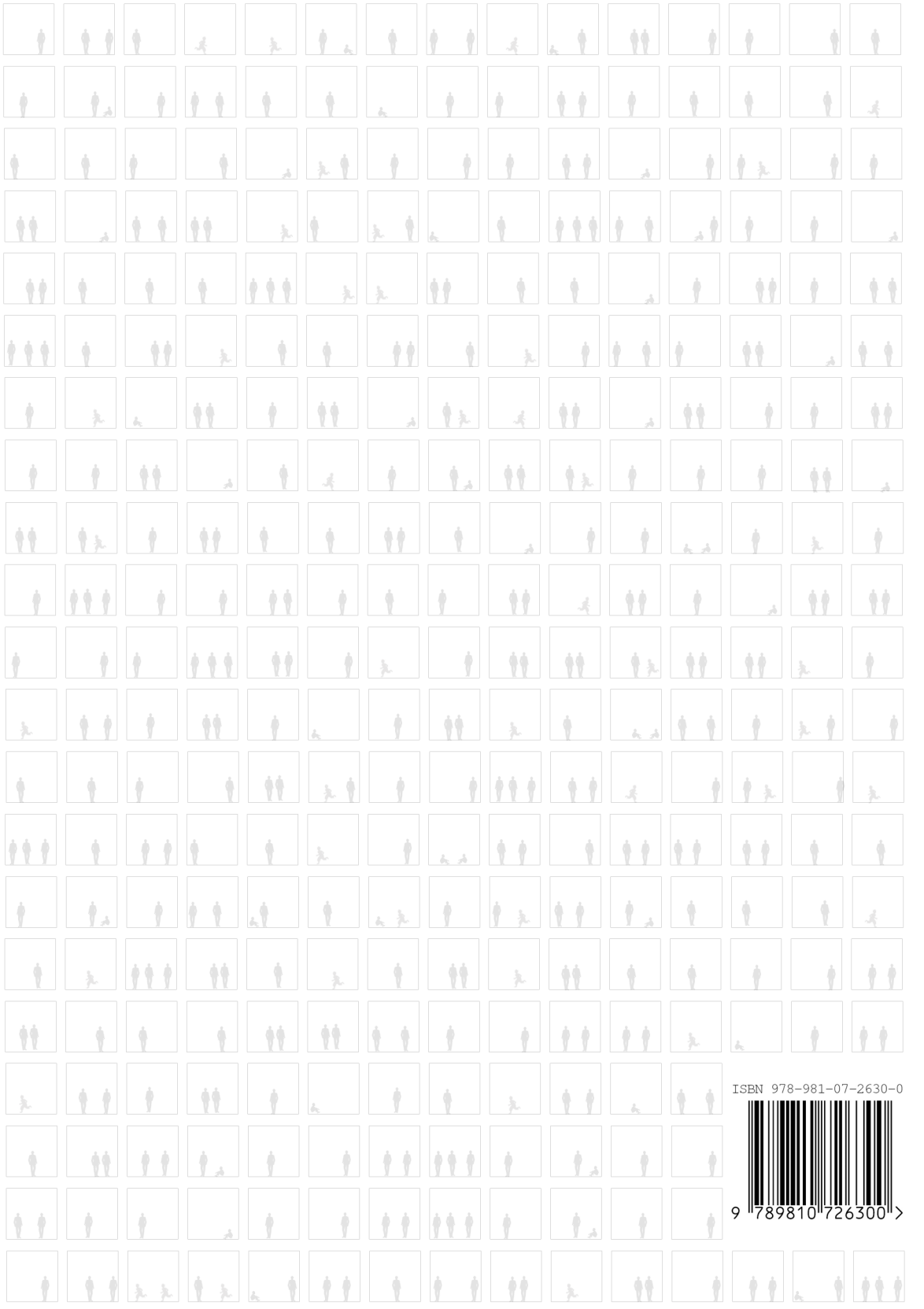

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