eLearning

by Dr. M.G.R EDUCATIONAL AND RESEARCH INSTITUTE

Dr. M.G.R

EDUCATIONAL AND RESEARCH INSTITUTE

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Maduravoyal, Chennai - 600 095, Tamilnadu, INDIA

Approach to Design

Part 1 – Collect information

The design of a building or space will have numerous requirements from the client or end user. It is important in the very early stages of design to carry out in depth research and consider as many aspects of the use of the spaces as possible. Some considerations can include:

•Do the spaces have specific functions or need to be particular shapes or forms?
•Do the spaces need to be flexible?
•Is it possible to create a sequence of spaces (offices, museums for example)?
•Do the spaces have different requirements in terms of light, ventilation, view, accessibility?
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•Must any of the spaces have particular security or privacy?
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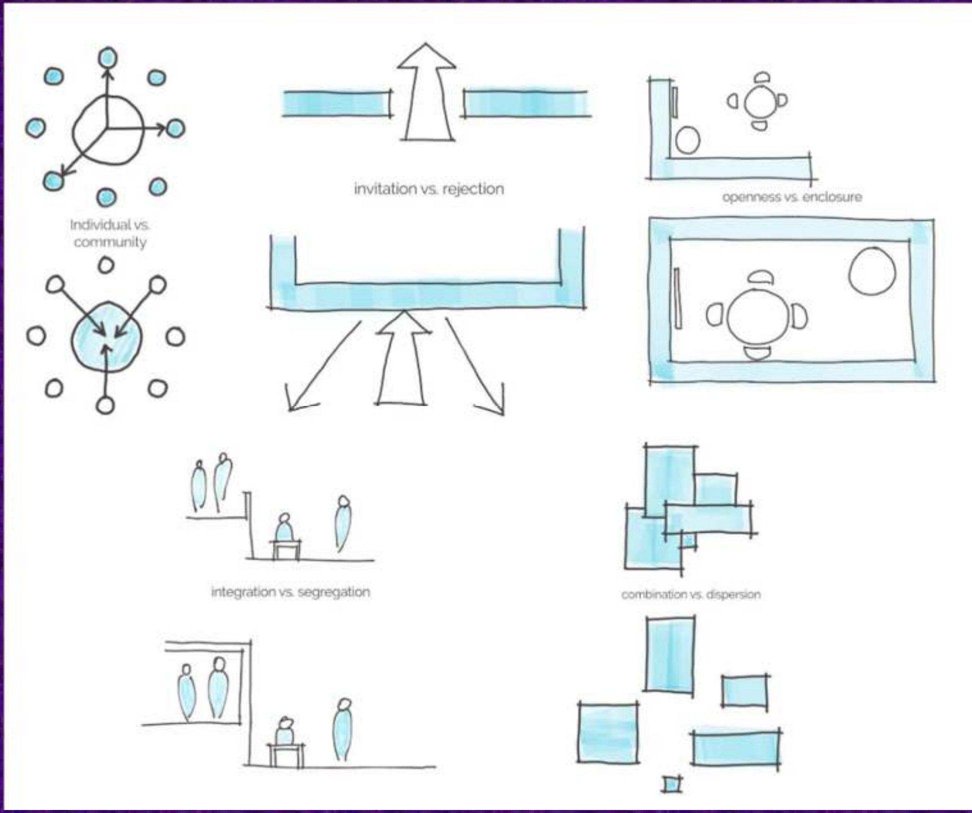
An example of some questions to consider if you are designing a residential unit:
•What is the family size and structure
•Location of site
•Number of levels
•Family or individual interests and activities

The more information and data that can be collected in these earlier stages, the easier it will be to make the leap from data to diagrams and drawings as you proceed through the space planning process.



Part 2 – Interpret requirements – build the brief

When we look at how to create spaces and accommodate humans in those spaces we can consider some universal concepts relating to how people interact with their environments.

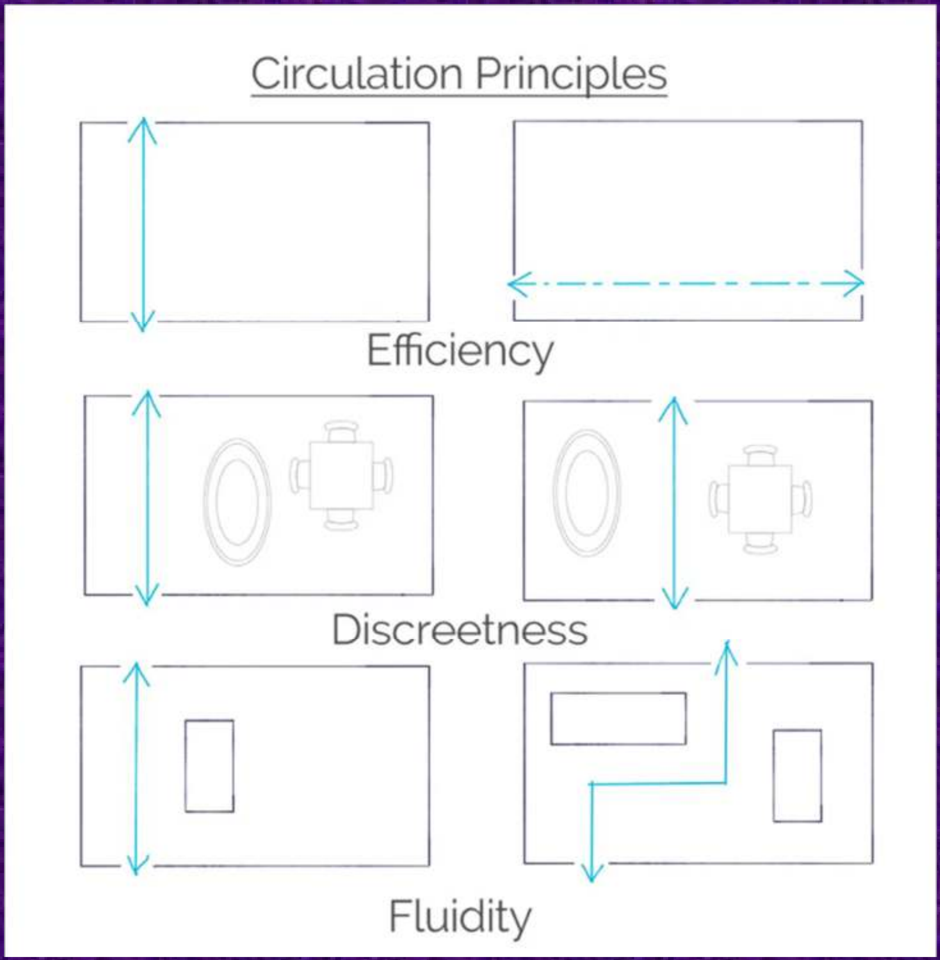
•Insider vs outsider
•Individual vs community
•Invitation vs rejection
•Openness vs enclosure
•Integration vs segregation
•Combination vs dispersion

With these factors in mind we can start to develop a plan of requirements, extract from the data we have collected the necessary functions these spaces will be fulfilling.

In some cases it is suitable to develop a matrix/table that demonstrates the requirements of each room, in terms of privacy, daylight, access, equipment and so forth, along with writing out any additional requirements or special considerations for each room. This information will be a useful reference as you work through the spaces of each room and start to develop some sketch diagrams.

- Part – 3 - Consider some of the following as you plan out your spaces:

- How does the envelope affect the internal spaces?
- How will the contents of the room be arranged?
- Do the rooms connect?
- What is the flow of the circulation?
- Are the proportions of the spaces comfortable?



- Part - 4 - Developing circulation

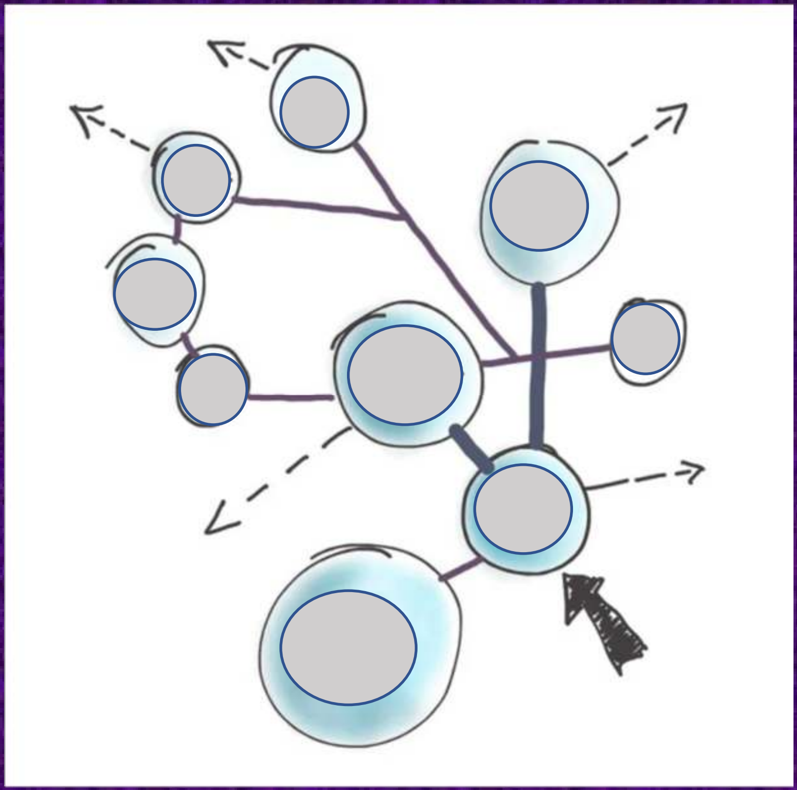
- How people move around the building from room to room is just as important as the destination.
- When developing a circulation structure we can look at a few basic principles
- How efficient is the circulation in getting from point A to point B - Is the circulation discrete?
- What is the fluidity of the circulation? Is there a smooth flowing route or a more direct route?
- Does the circulation route clash with furnishing requirements?

- Part 5 – Create the solution

Once the spaces have been considered and the requirements have been studied it is time to start sketching out relationship diagrams. The relationship diagram takes your design from data to a more visual look at physically planning out your space. It is abstract, and rough but enables you to develop your understanding of the requirements and visualise how the spaces will work together and how the circulation may flow between them.

At this stage the diagram does not need to represent the building size or space, more a look at how each room relates to one another, sizes and so on.

Lets solve this !!



Design Process – Unit – V – Theory of Architecture

[redacted]

- Always ask, "**Is there a better way**?"
- **Challenge** custom, routine, and tradition.
- Are reflective.
- **Play** mental games.
- Realize that there may be **more than one "right" answer**.
- See **mistakes as pit stops** on the way to success.

How creative thinkers work
?

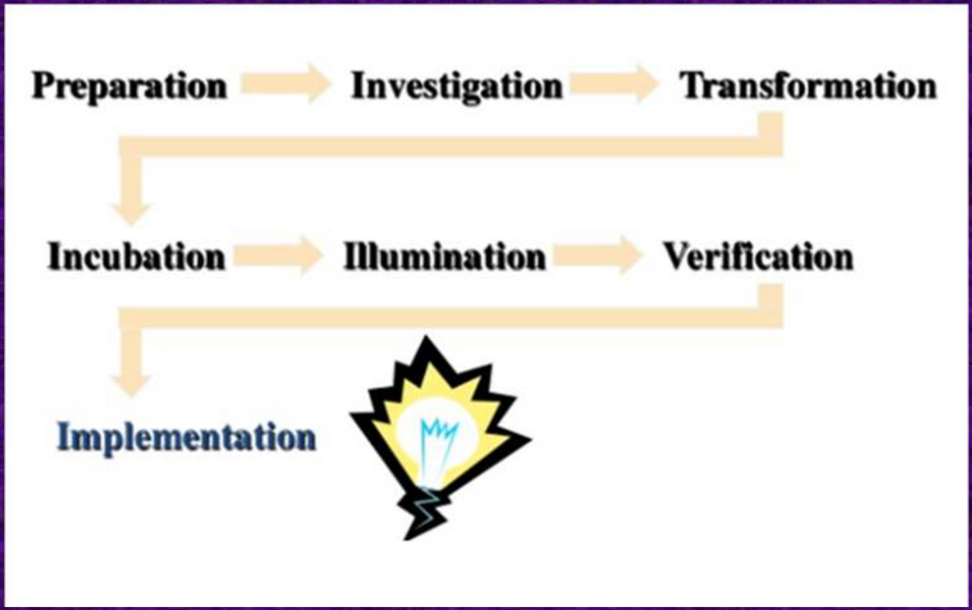
- Read voraciously
- Think in opposites
- Look for new uses for old things
- Draw and keep your idea in a file or notebook

Increasing one's
Creativity

- Searching for the one "right" answer
- Focusing on "being logical"
- Blindly following the rules
- Constantly being practical
- Viewing play as frivolous

- Becoming overly specialized
- Avoiding ambiguity
- Fearing looking foolish
- Fearing mistakes and failure
- Believing that "I'm not creative"

What are the barriers to
Creativity

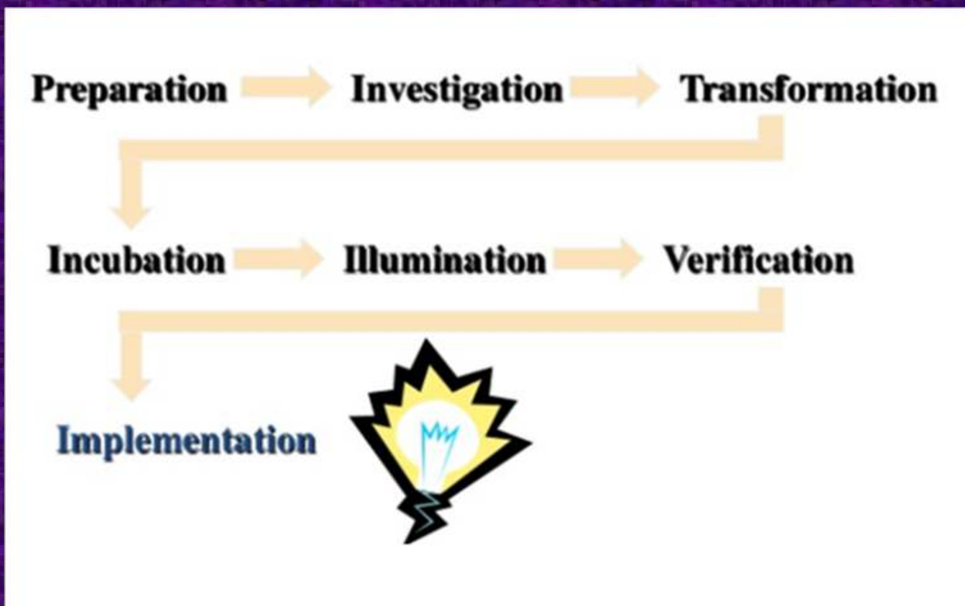


- Combining ideas from different sources
- Visual Imagination, Visual Metaphor, and Analogy
- Expanding the search space

Creativity Process

What is Creativity Design ?

Design
Process



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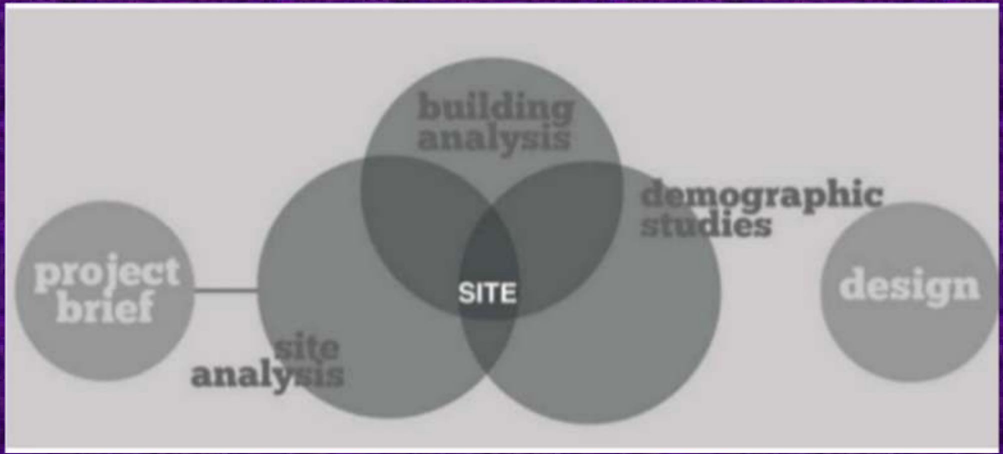
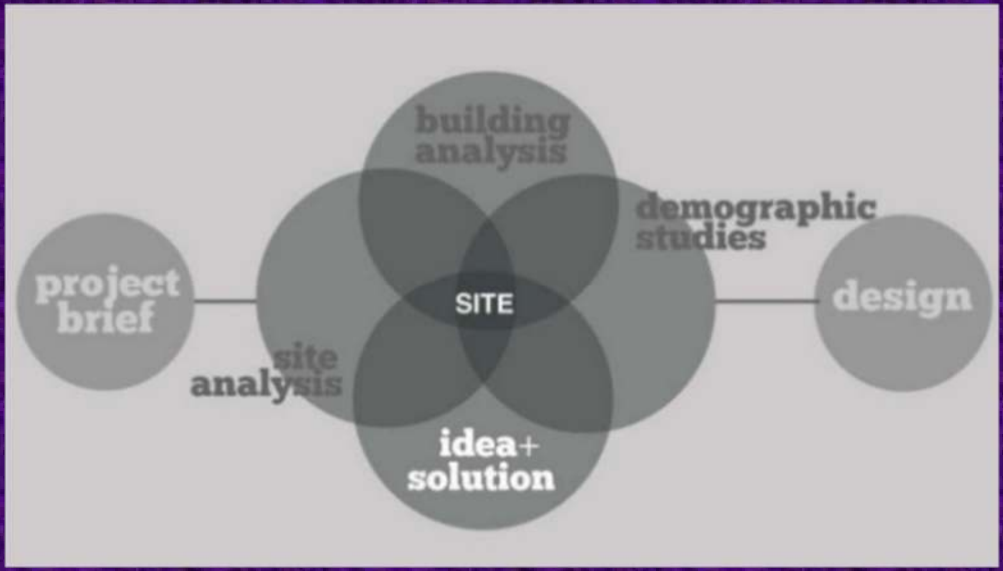
Creativity Process

What is Creativity Design ?

Design
Process

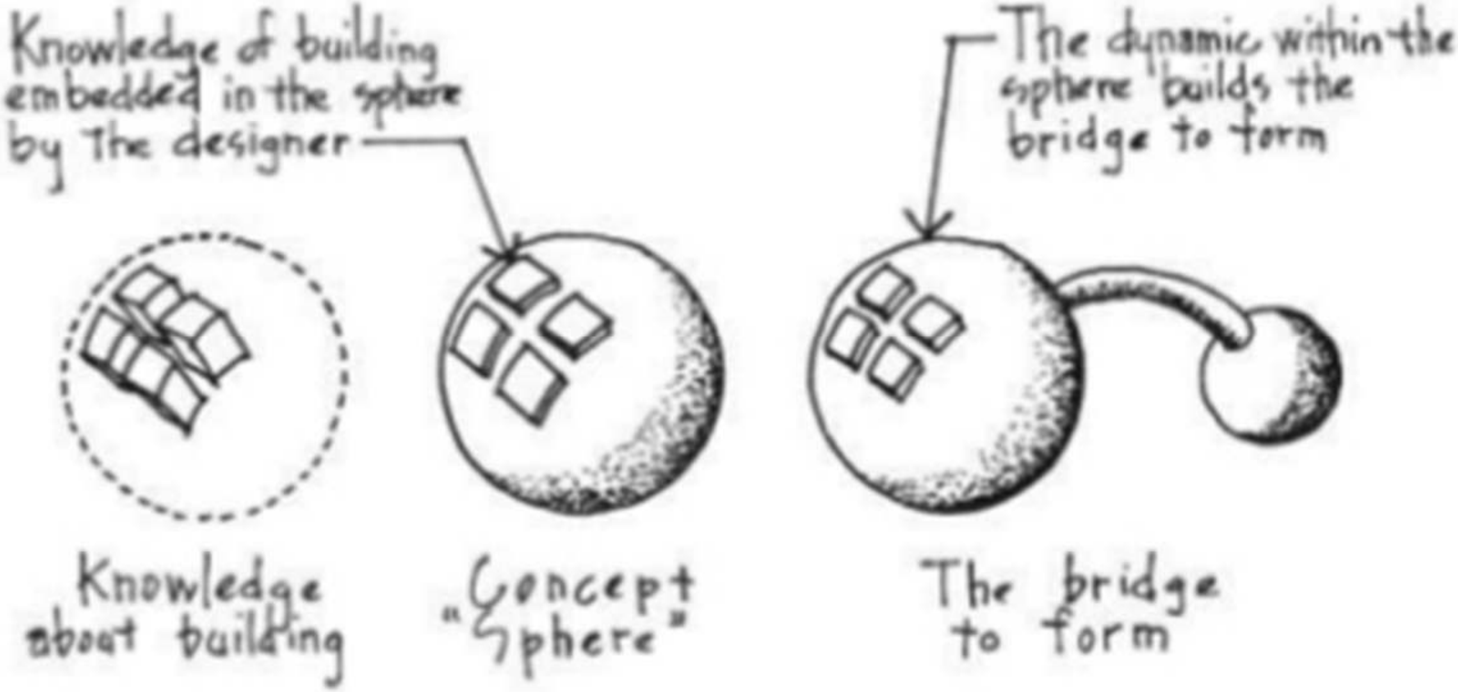
- BRIEFING
    - Site selection, Program formulation, Data collection, Examples, ...
- Analysis
    - Design and Project Data analysis
    - Identification of Objectives
- **Synthesis**
    - Formulation of **Concepts** and Alternatives
    - Communication of **Concepts**
- Evaluation
    - Review of Alternatives
    - Selection of one alternative
- Design
    - Design details
    - Communication media





Steps involved in Design Process

- The design process works with **information** and **ideas** simultaneously on **many levels**.
- Designing is a reciprocal **action** and **reflection**.

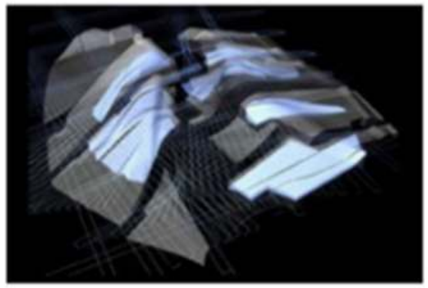


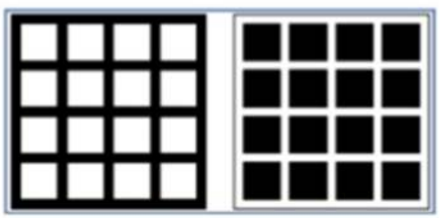
Sphere Illustration

- The common problem right after every project brief for all students are:
  - Where should I begin?
  - How could I explain it?
  - What are the basis for this design?
- There are several approaches to design. Here are the breakdown summary in each of these approaches.

Where do I start ? How do I start ?

- Figure/Ground
- Surface/Edge
- Outline/Object
- Autonomous figures



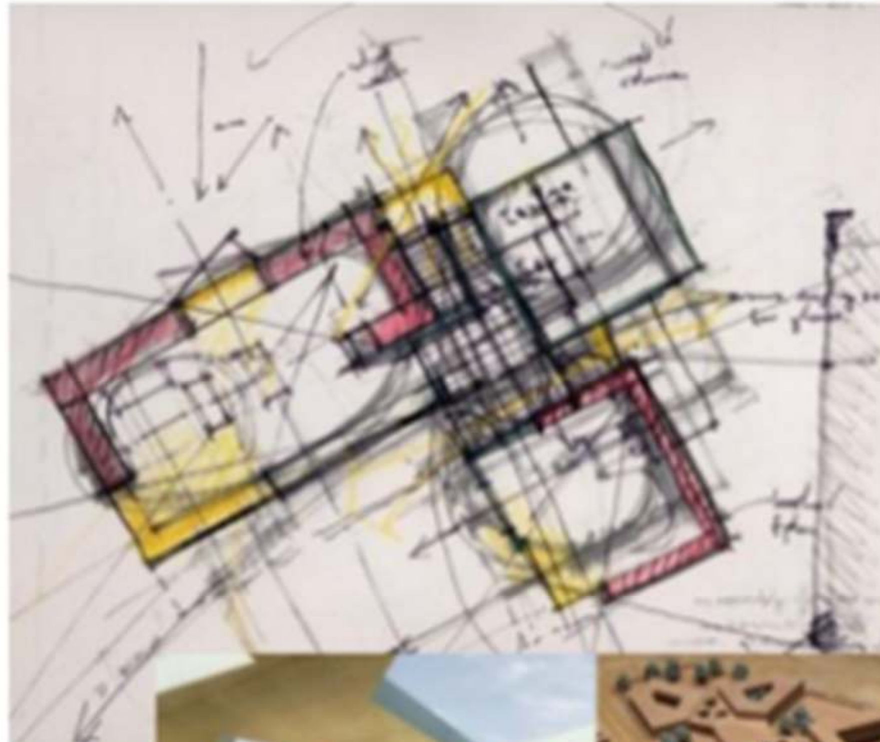


Visual Organization – Positive and Negative Spaces

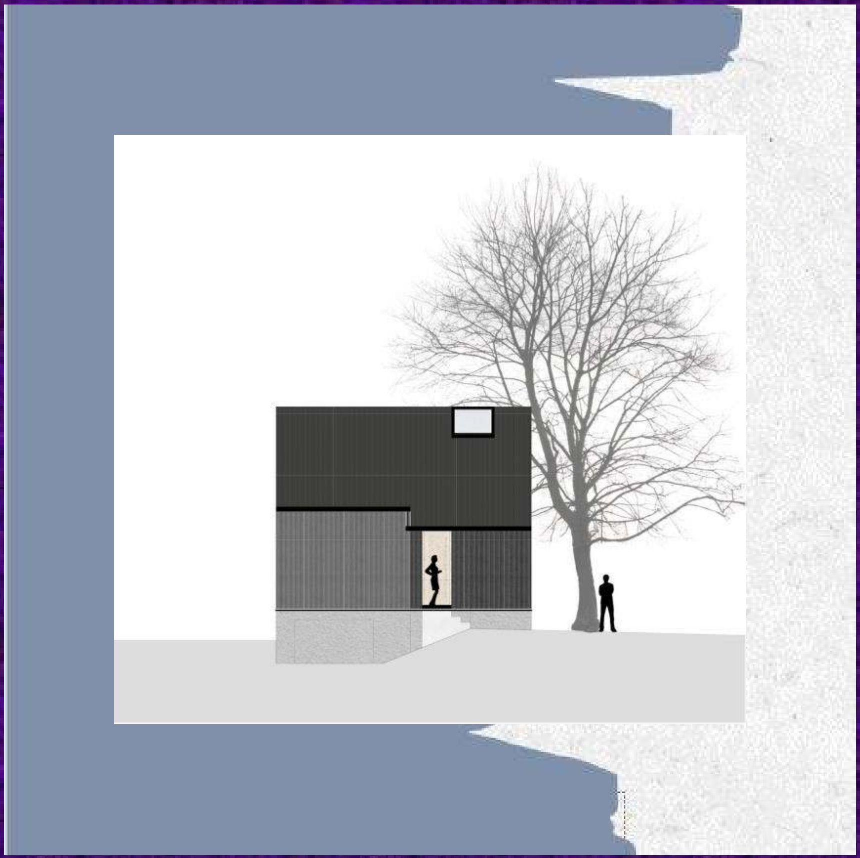
- Linear shape
- The circle
- The ring
- The organic shape
- The square
- The ellipse
- Star shape
- Hexagonal shape
- Rectilinear shape
- The grid
- Radiocentric shape
- Branch shape
- The organic pattern

Form

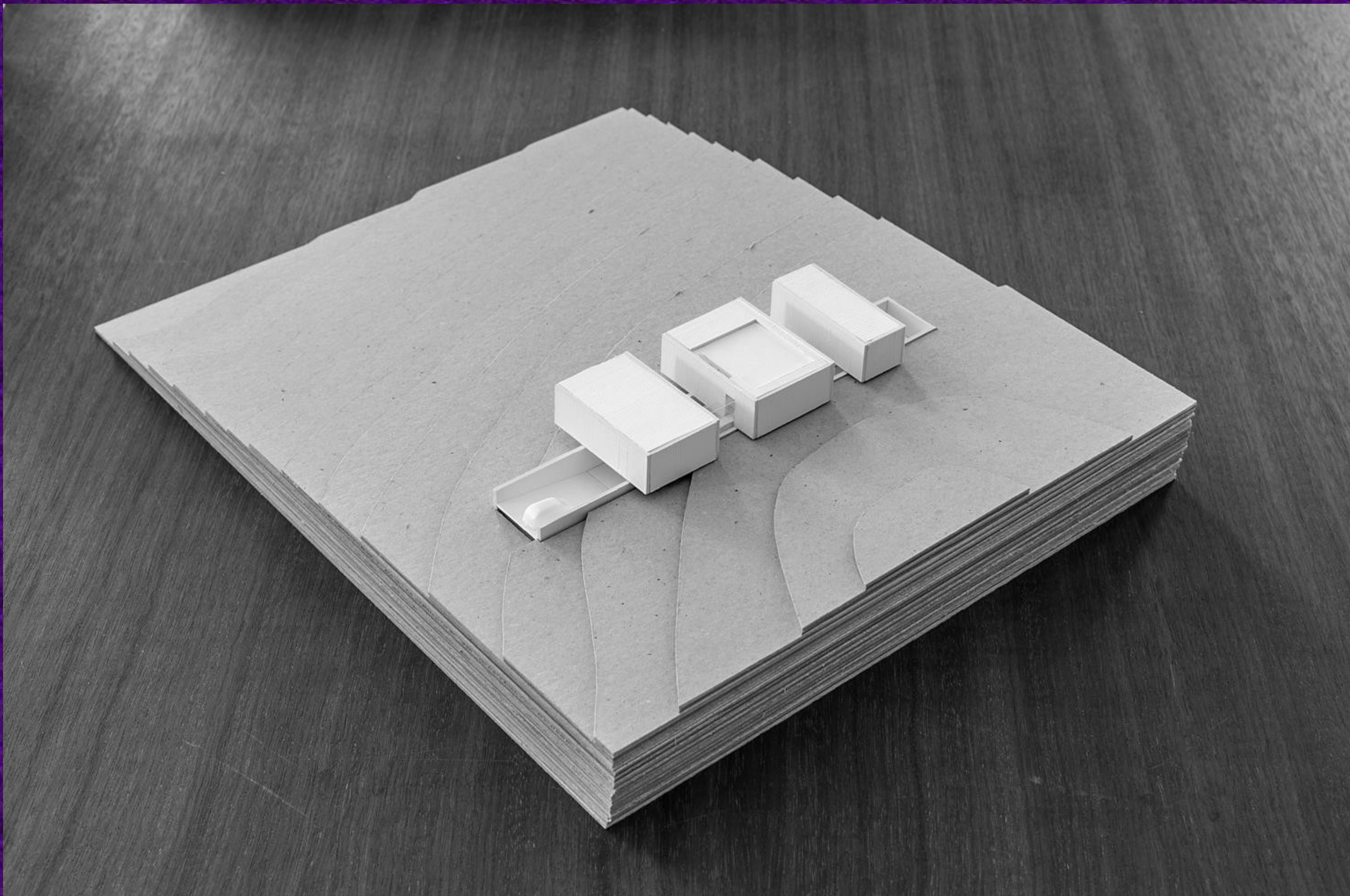
- The pragmatic space
- The perceptual space
- The existential space
- The cognitive space
- The abstract space

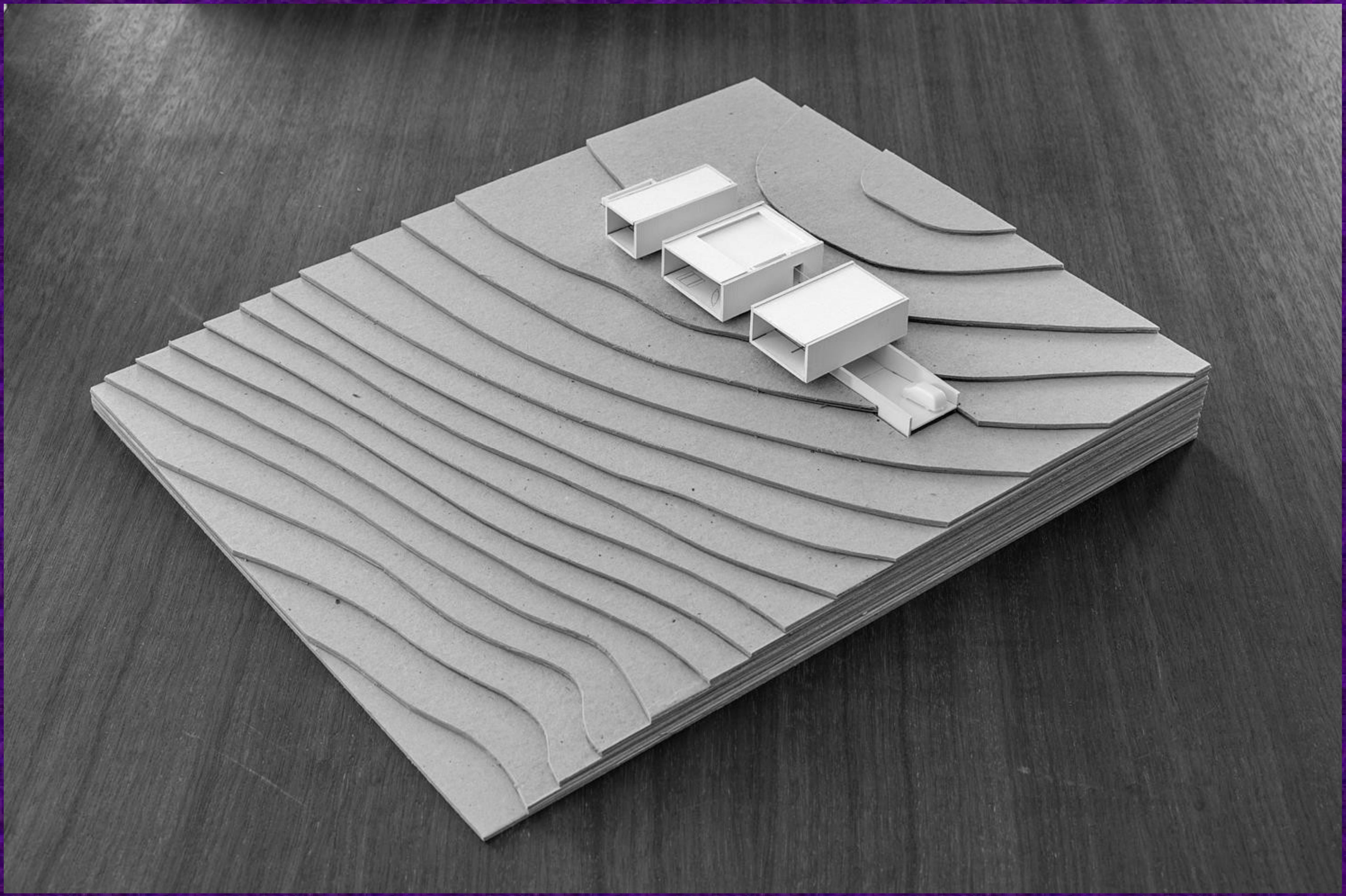


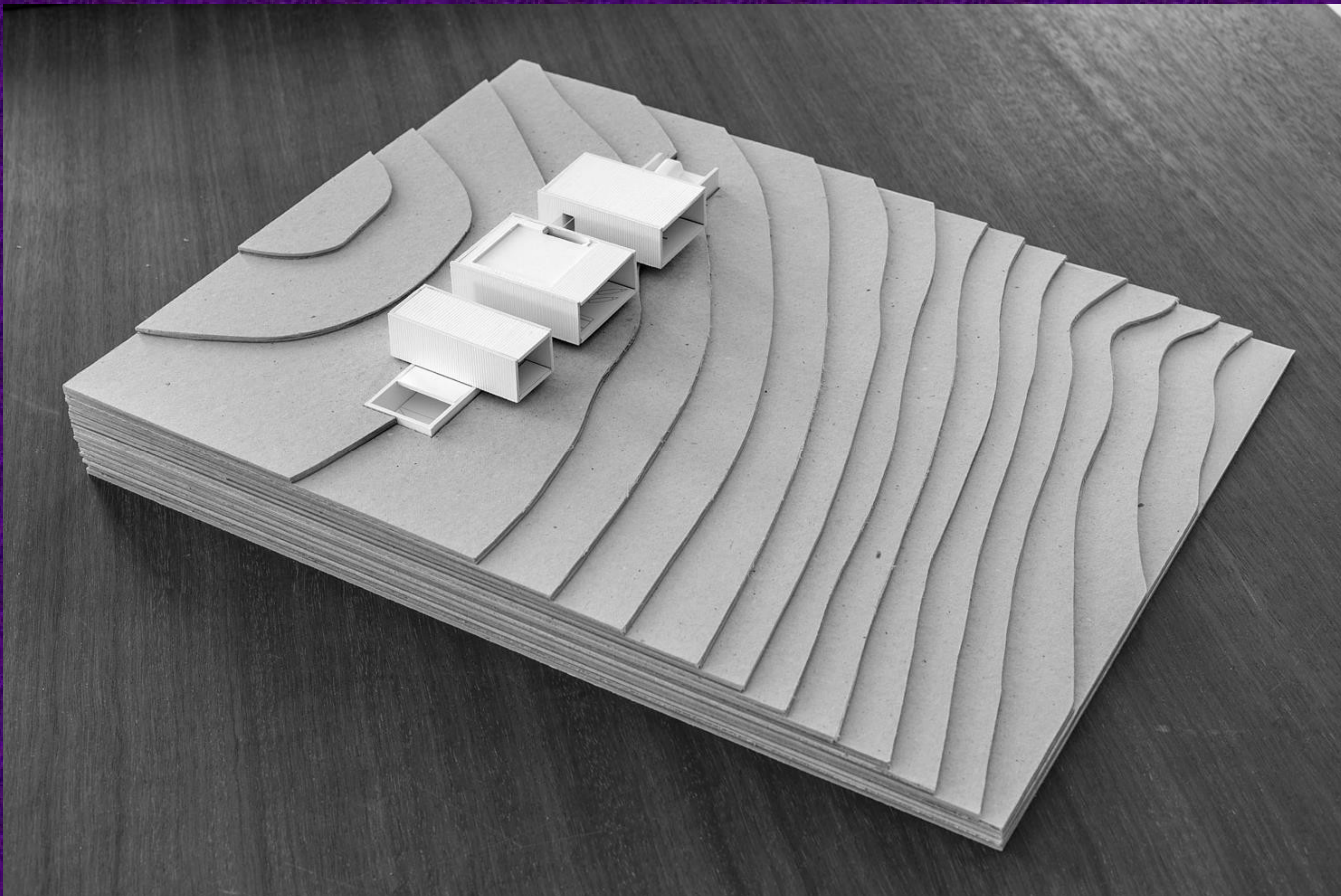
Understand the Spatial Relationships

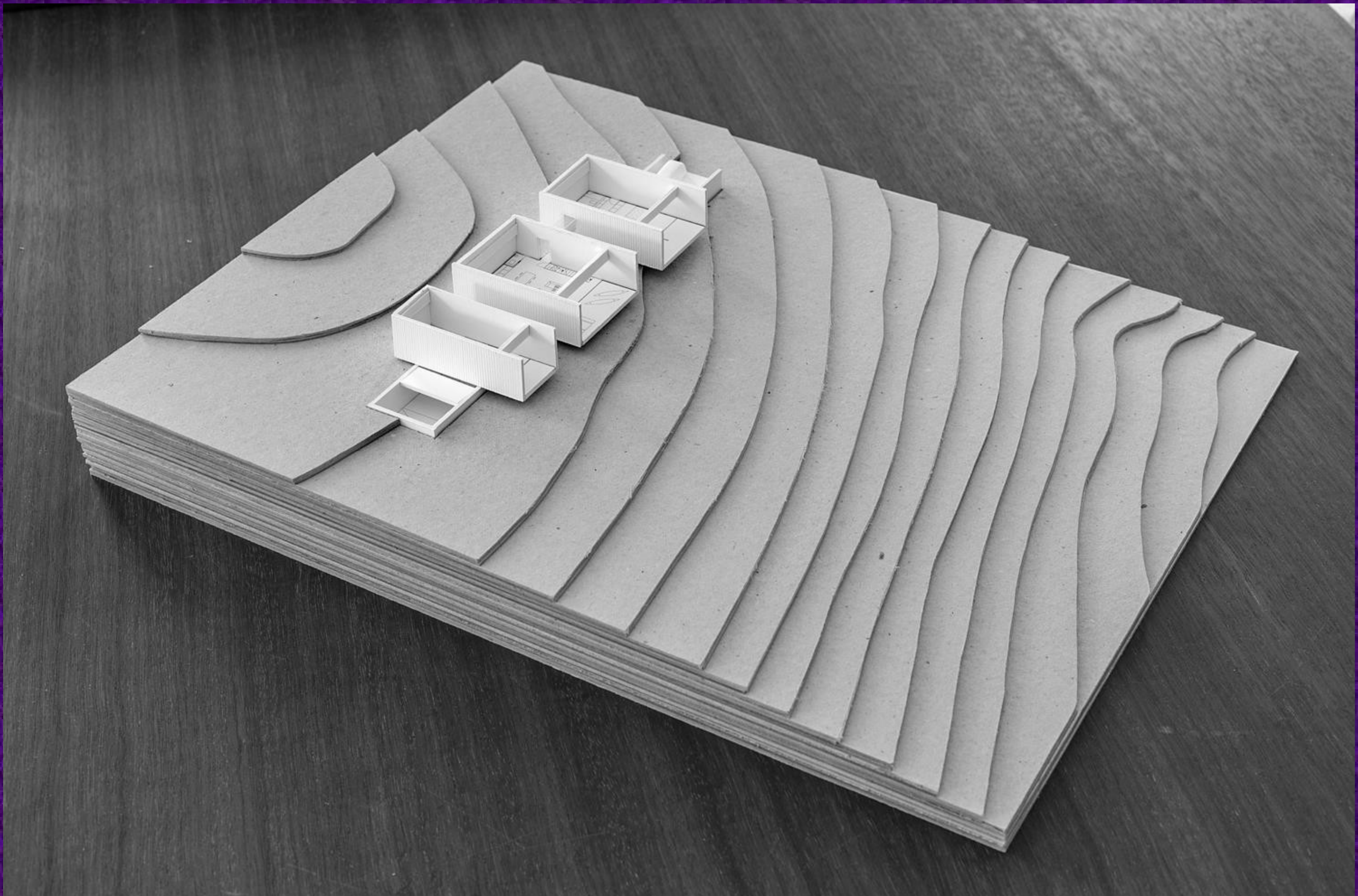


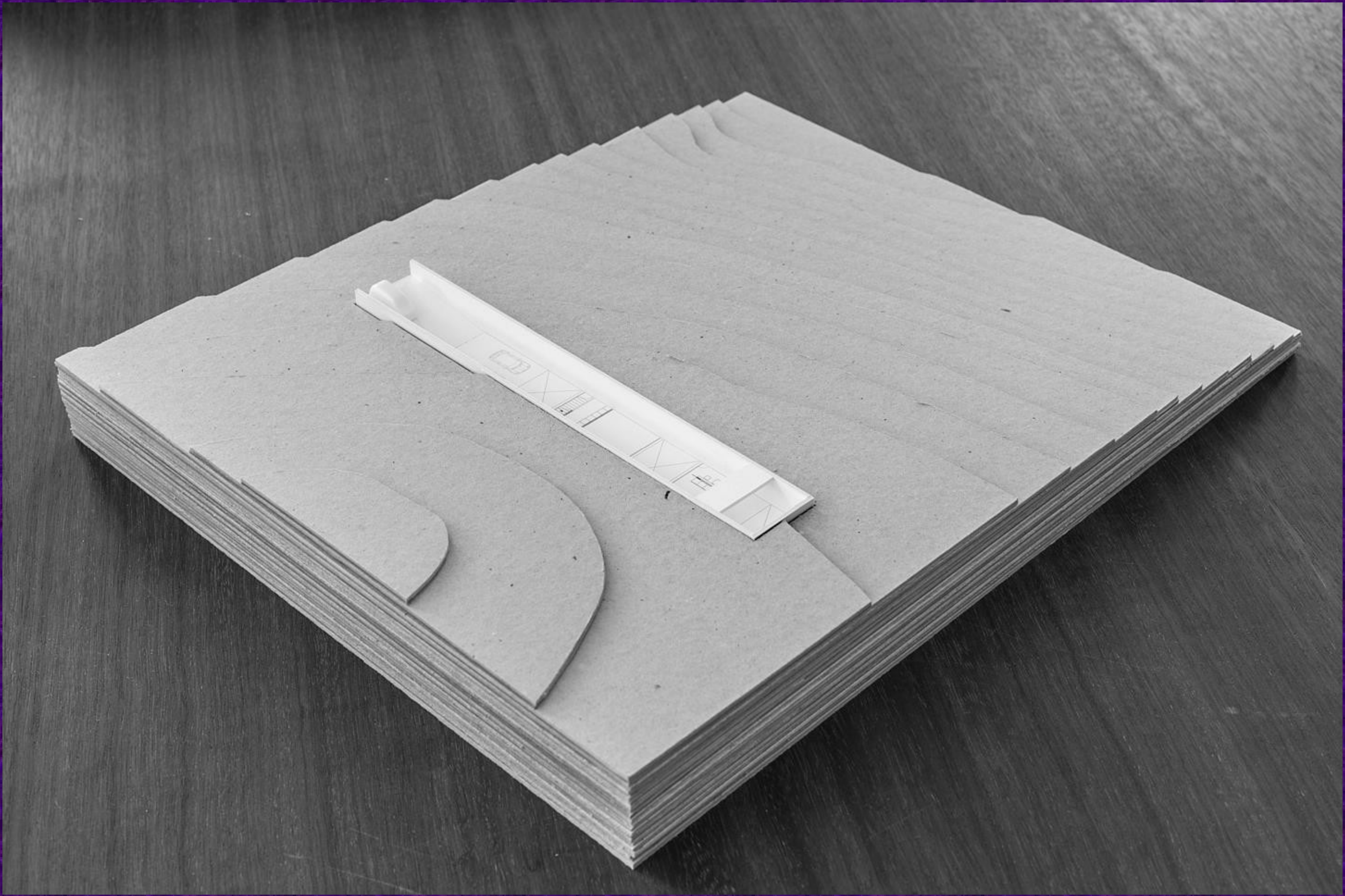
Spatial Organisation, Spatial Relationships

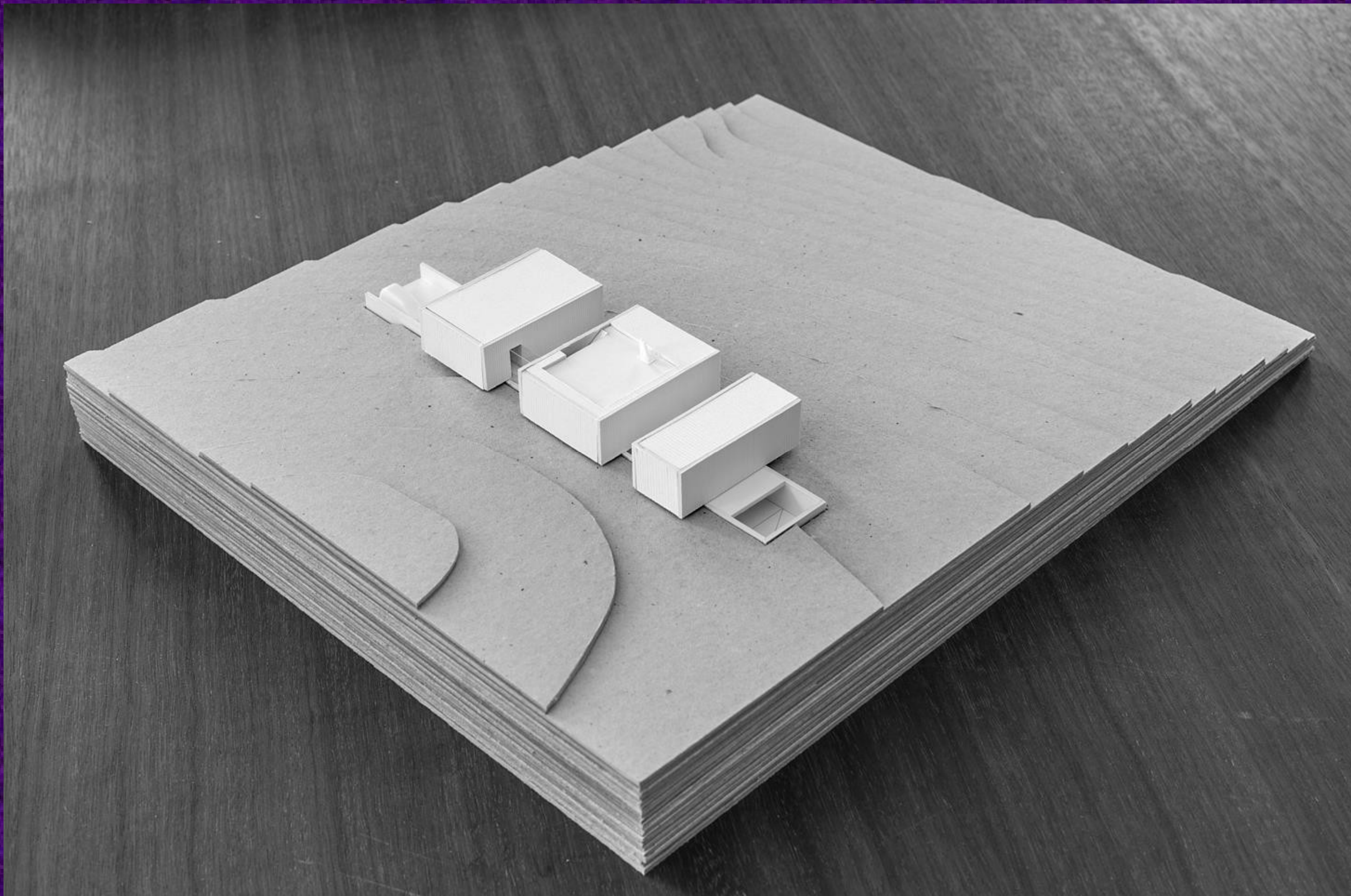


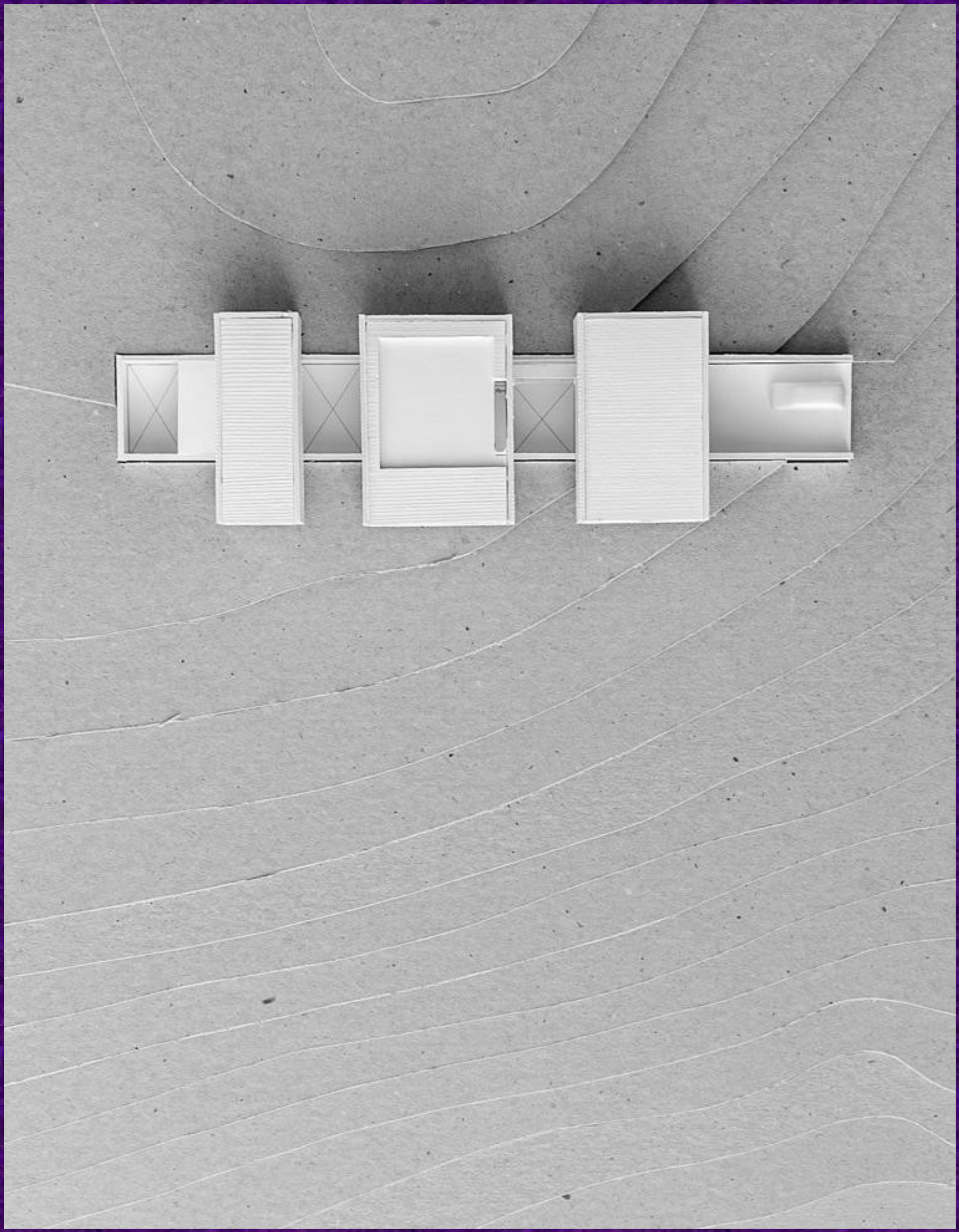












How Spaces are Related and Organized?

Part 3 – Consider spaces and spatial relationships

Spatial Relationships

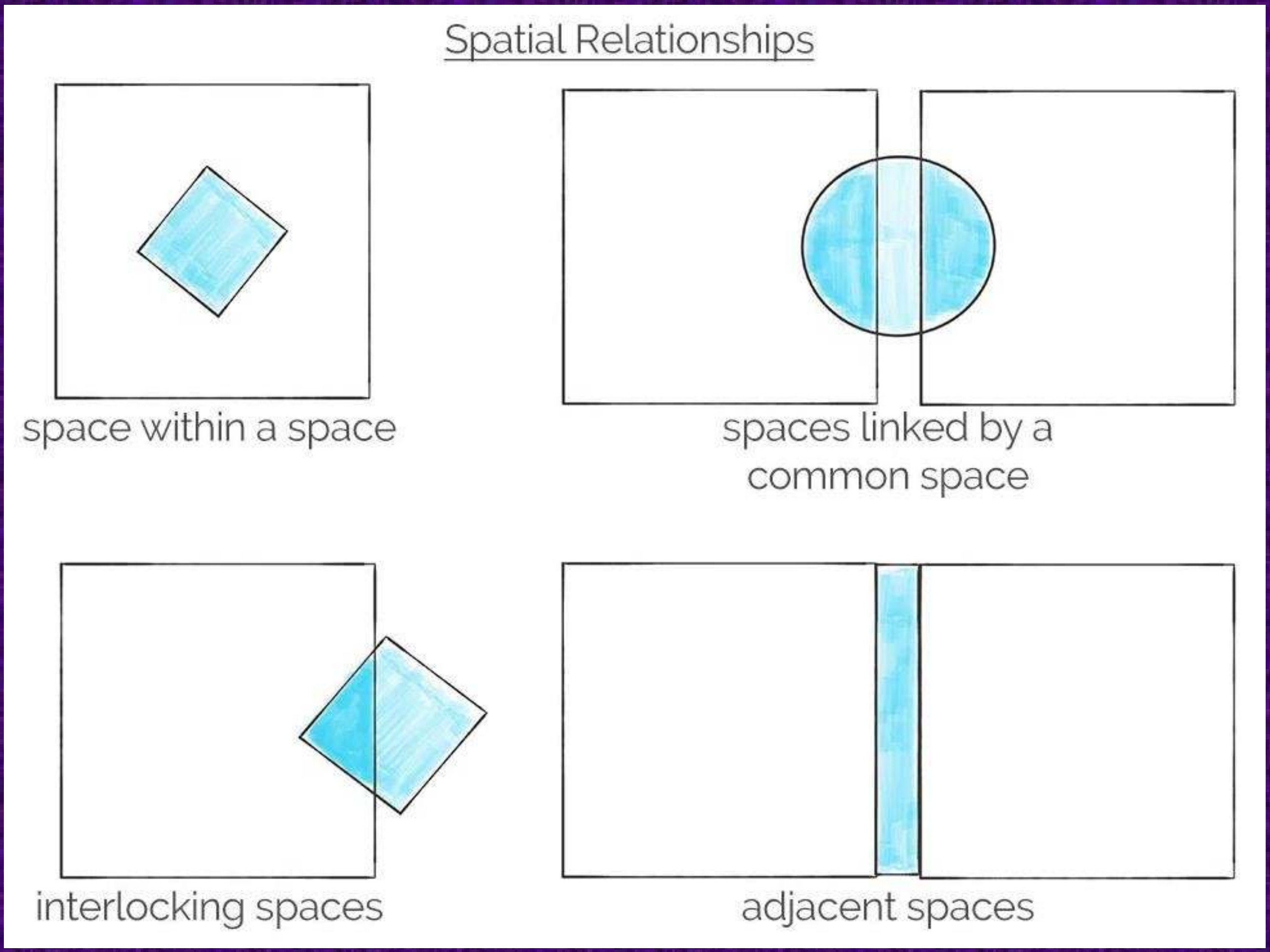
How can spaces be related to one another?

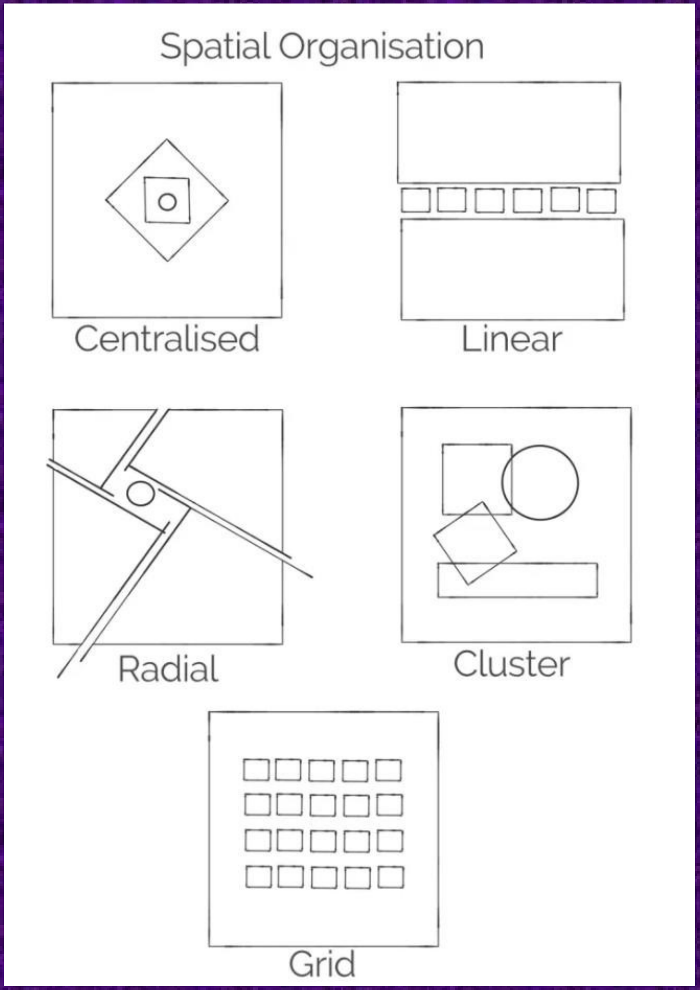
- Space within a space
- Interlocking spaces
- Spaces linked by a common space
- Adjacent spaces

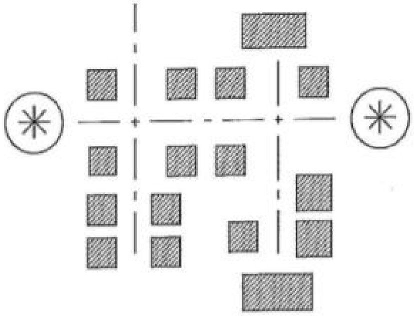
Organising the space

- You can consider a varying forms of spatial organisation, some of which are more naturally suited to particular uses than others:

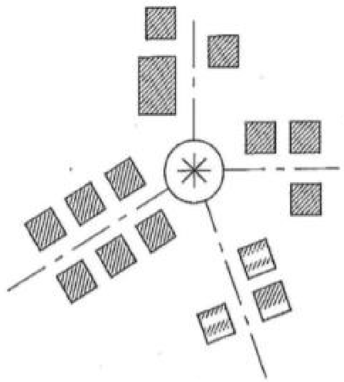
- Centralised organisation
- Linear organisation
- Radial organisation
- Clustered organisation
- Grid organisation



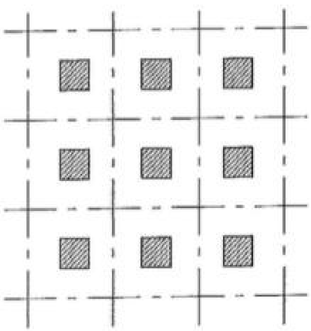




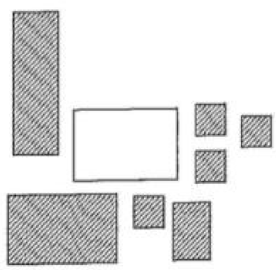
(b) axial



(e) radial

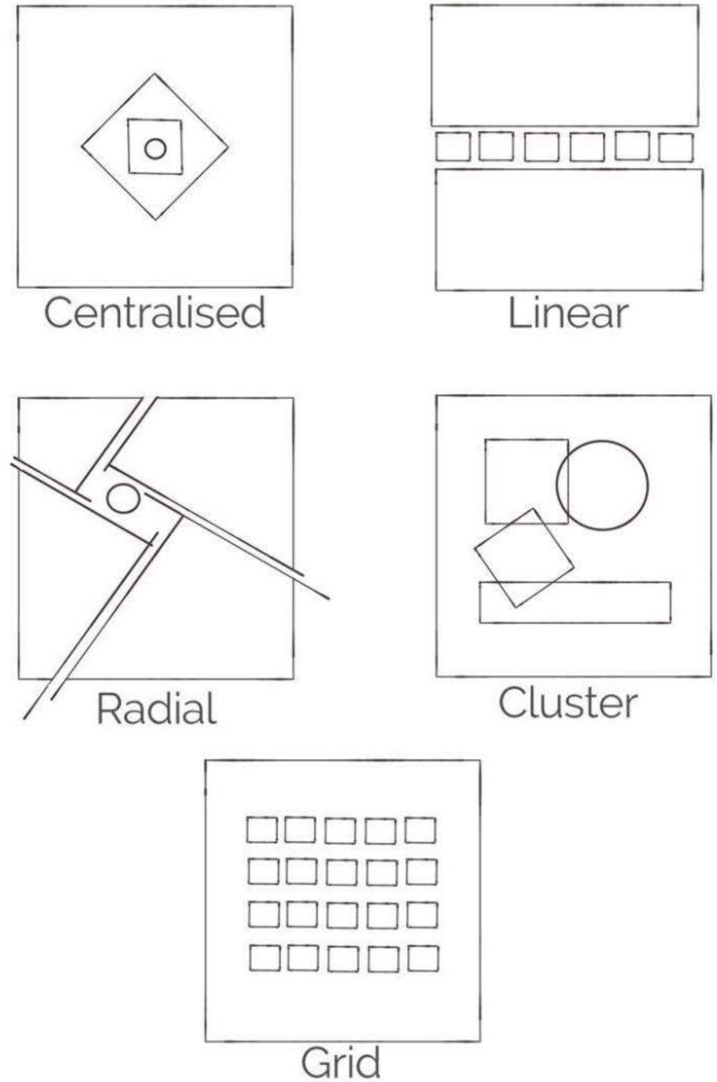


(c) grid

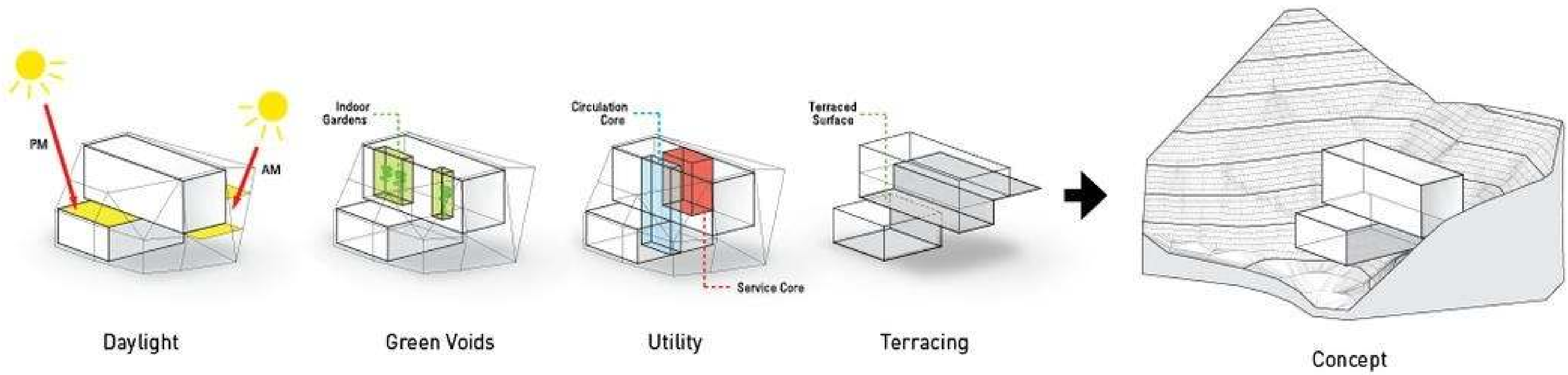


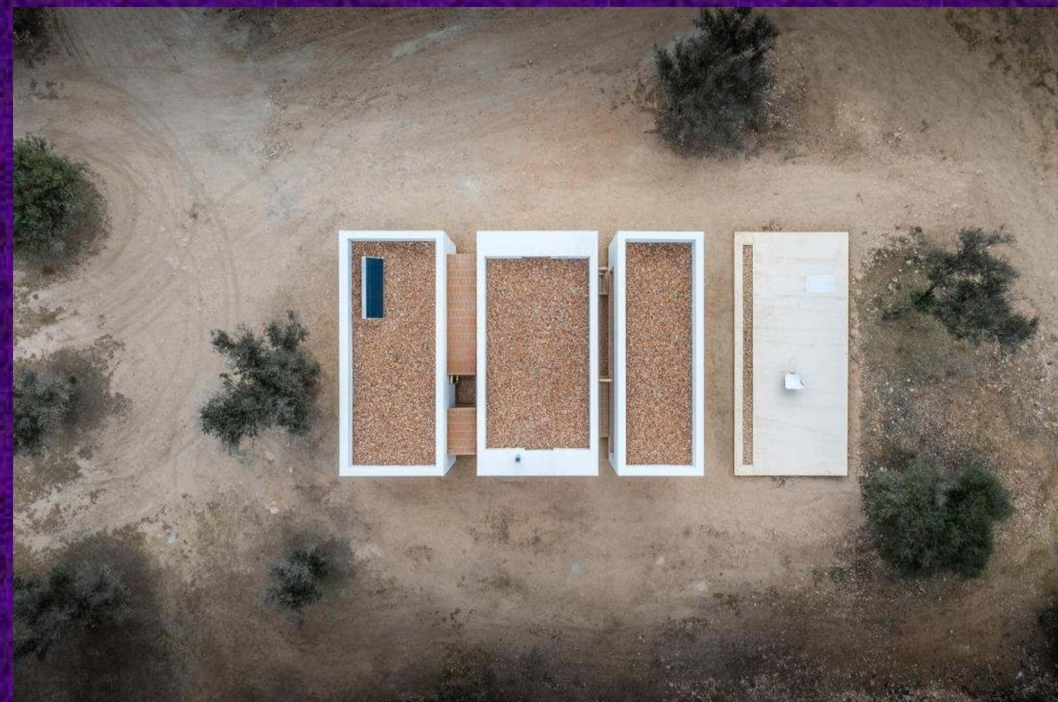
(f) clustered

Spatial Organisation



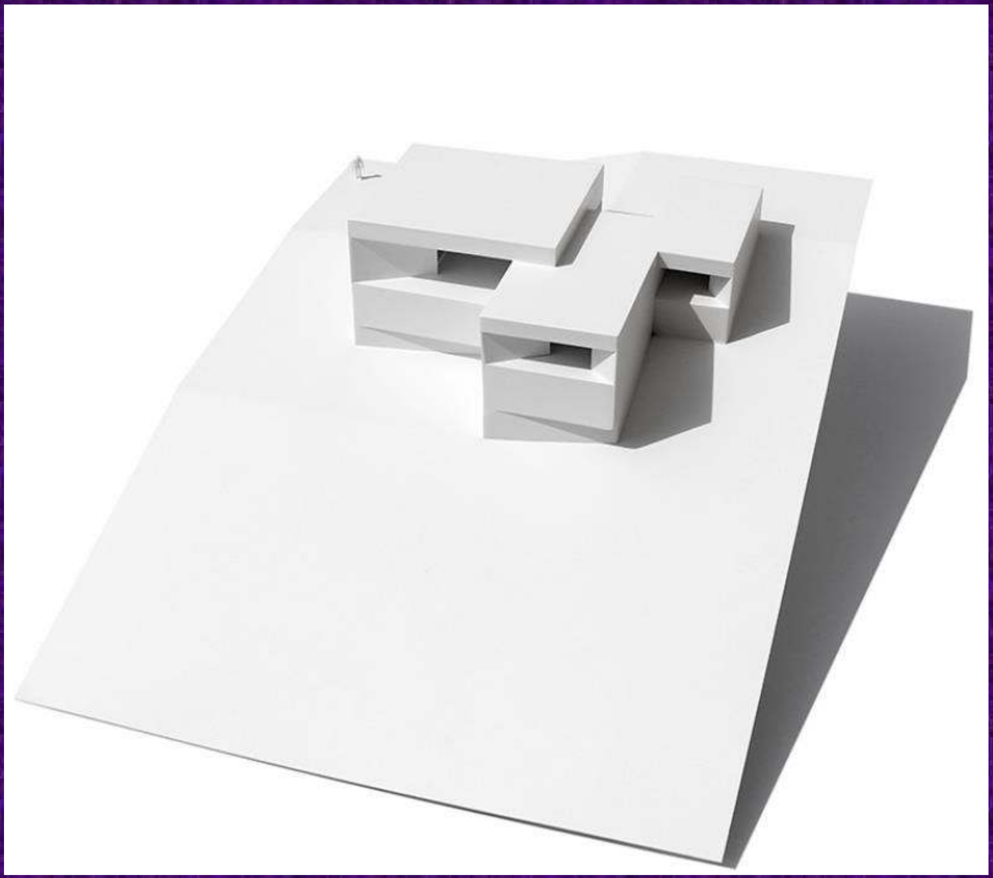
Zoning Geometry Views Program Massing





Space linked by a common space

Interlocking spaces



Interlocking spaces

- Space within a Space

Step by Step - Design …….

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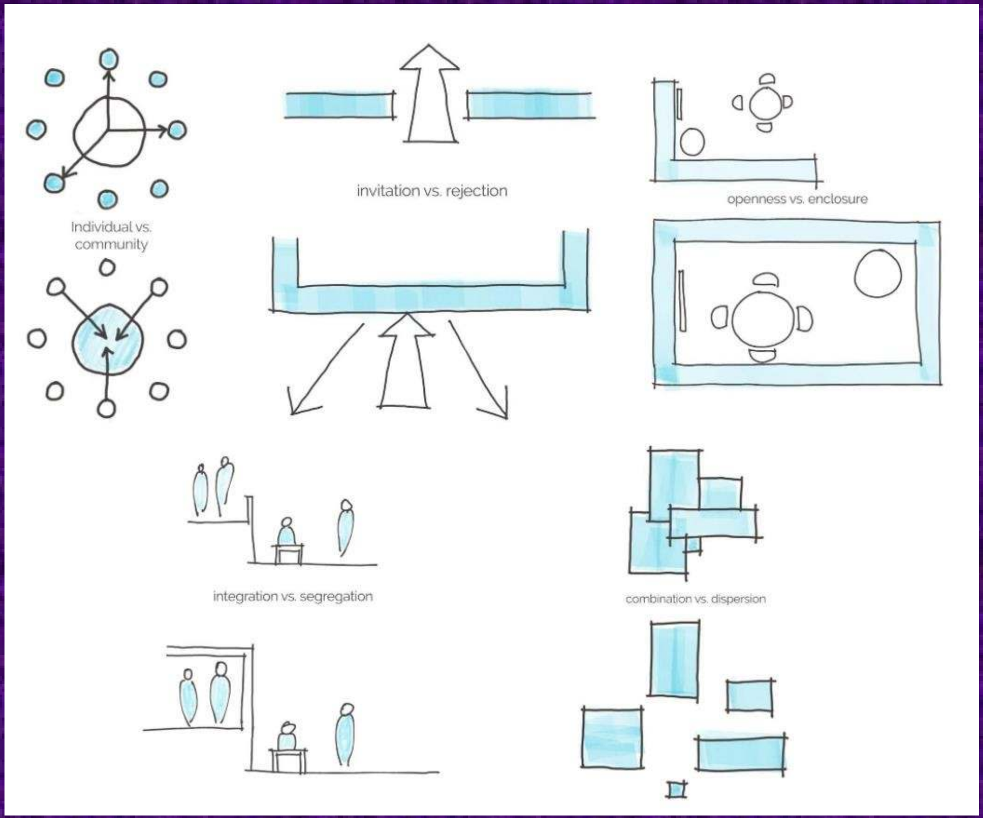

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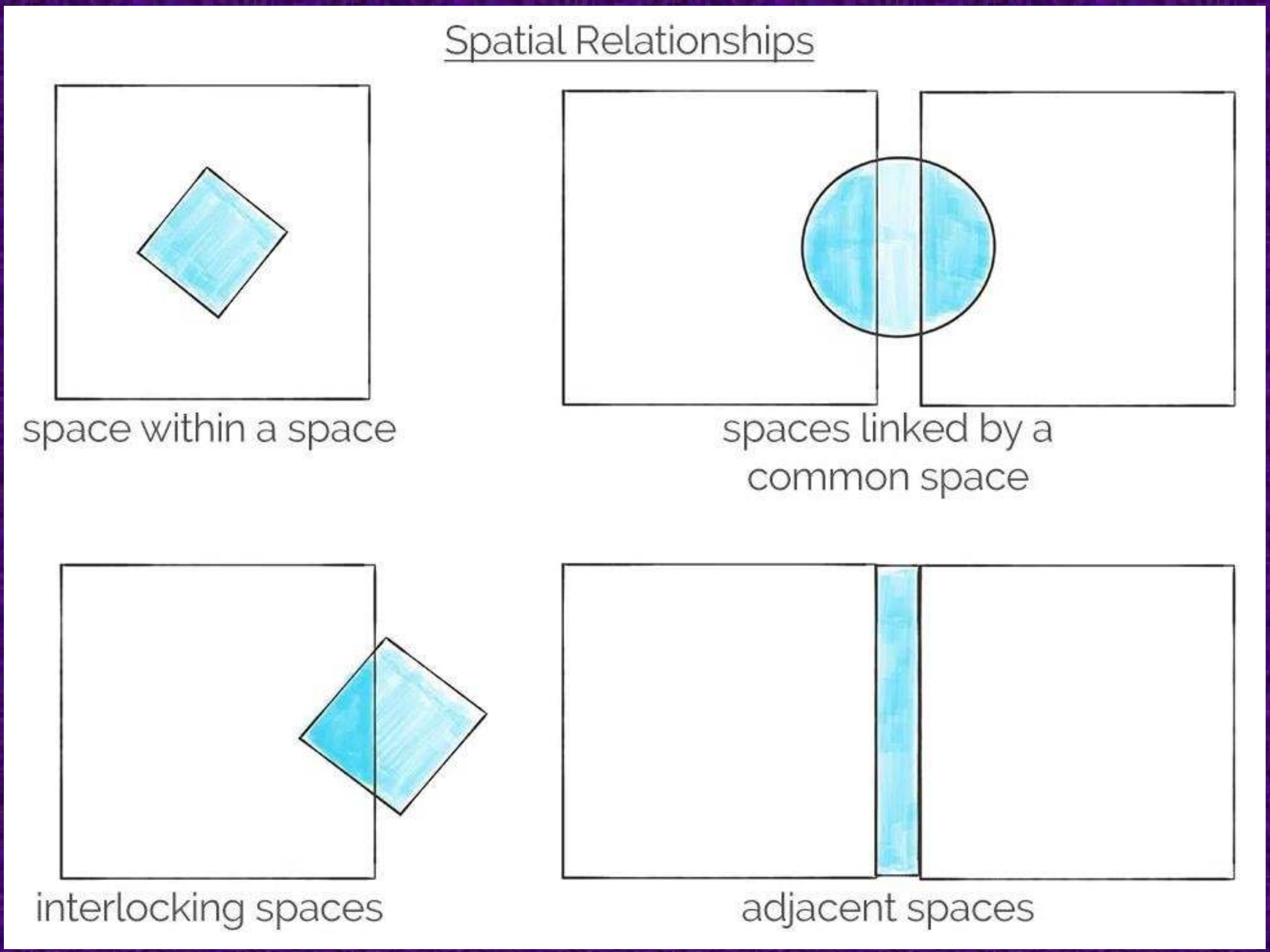

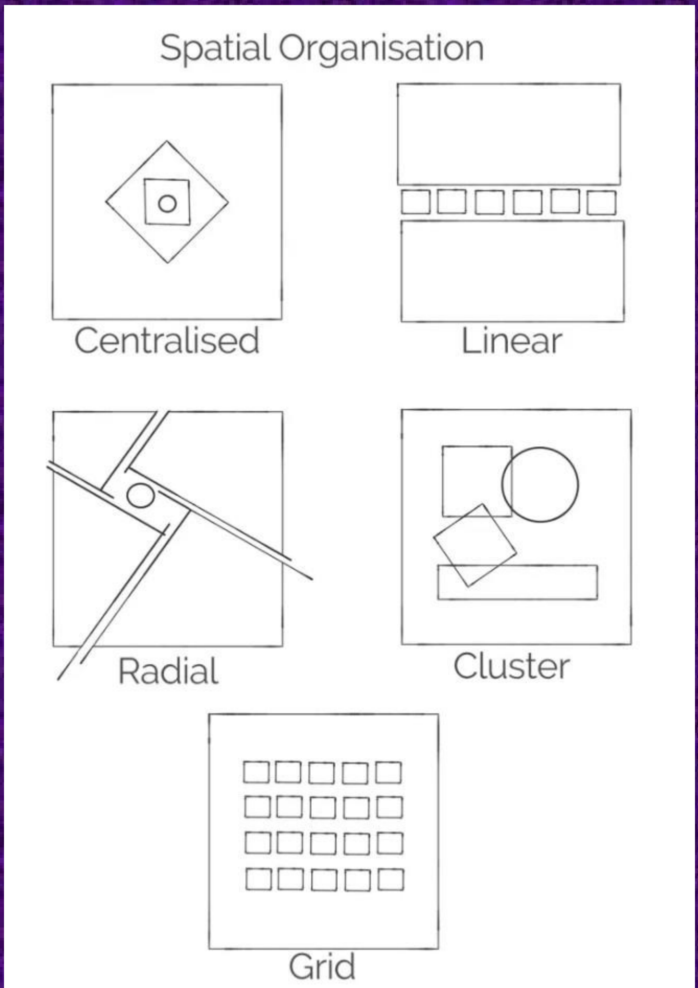

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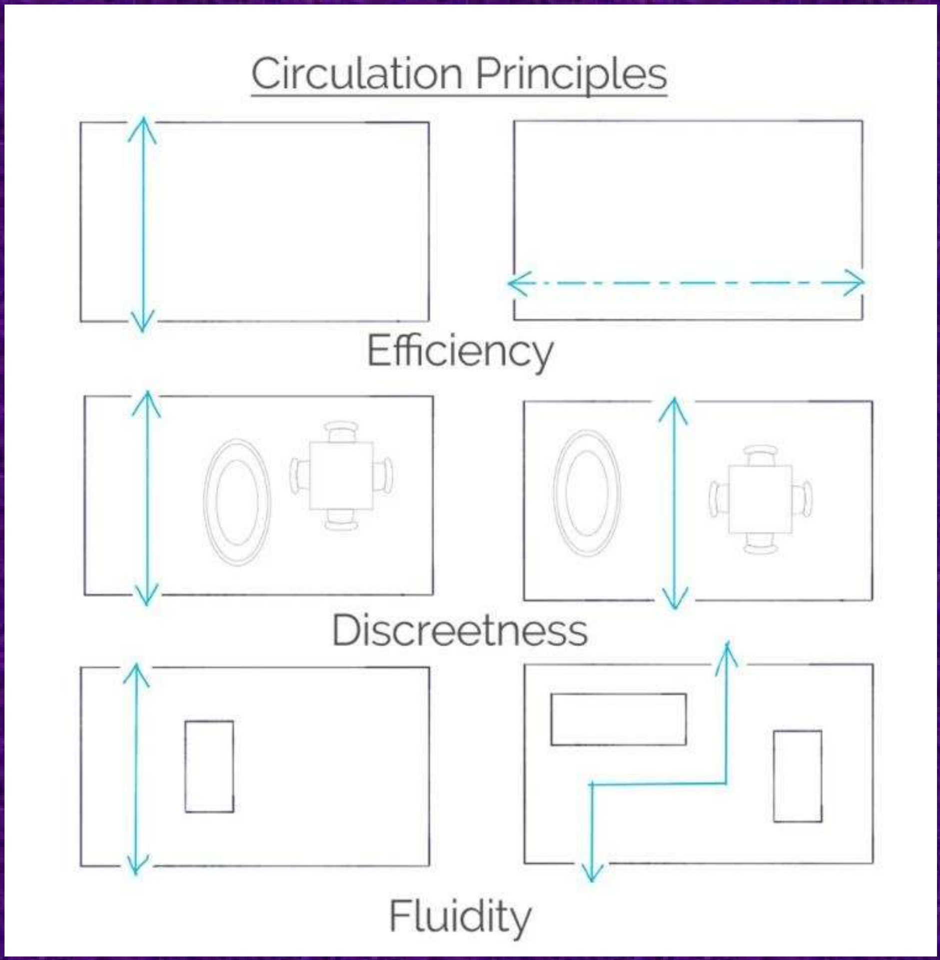

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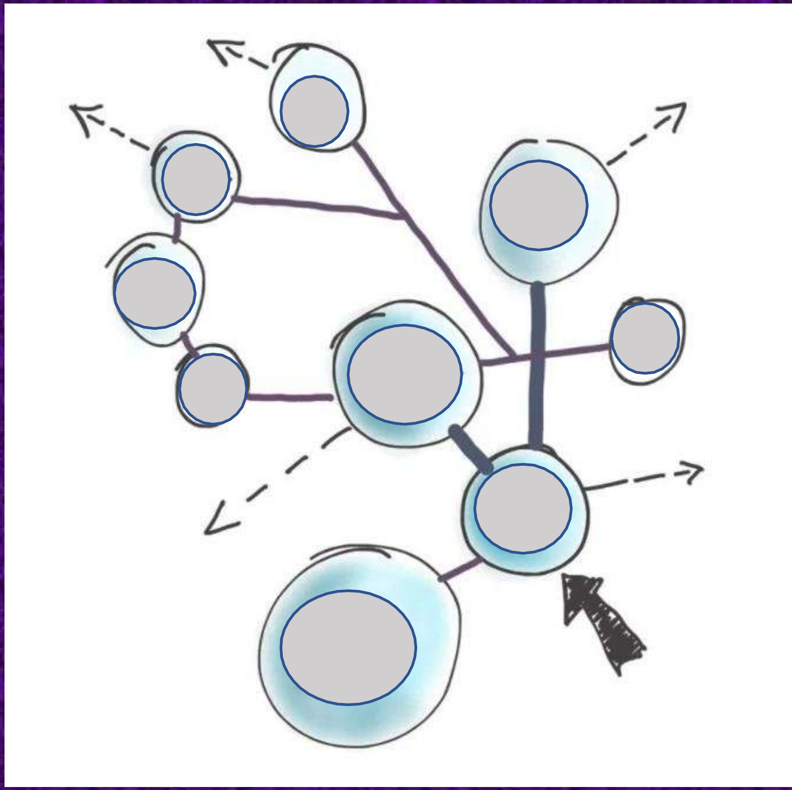
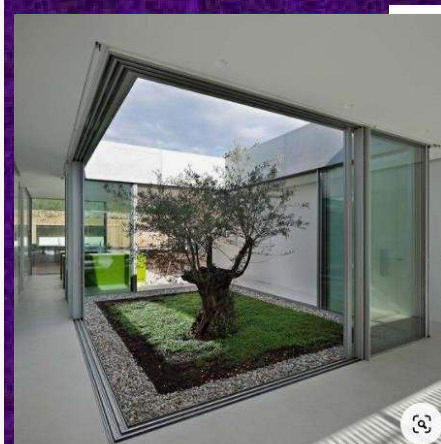



5.30
15.60
1.30
5.30
HS
U/M
DM
KÖK
20.8 m²
K
F
MATPLATS
18.7 m²
VARDAGSRUM
20.8 m²
(ÖS)
VVB VP
TVÄTT
7.0 m²
TT TM G
BAD/RELAX
17.1 m²
KLK/
BASTU
2.7 m²
ATRIUM
25.0 m²
SOVRUM
8.0 m²
5.00
5.00
W-I-C
7.6 m²
ST
G
ALLRUM
7.9 m²
WC/D
3.7 m²
G
ENTRÉ
11.6 m²
KPR
2.3 m²
SOVRUM
14.4 m²
SOVRUM
7.6 m²
KLK
1.5 m²
1.30



Organiz ation

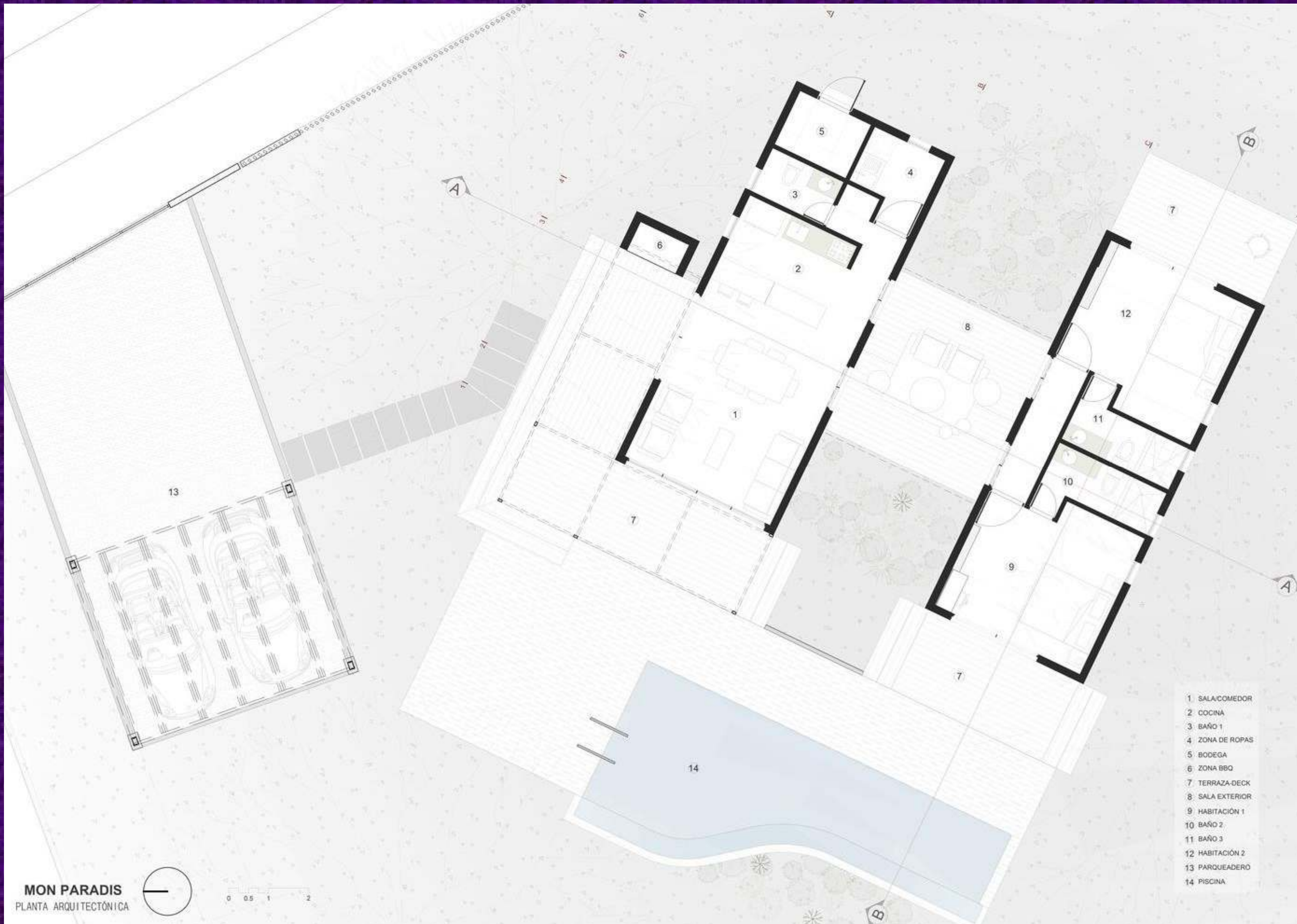
Grid Organization

Radial Organization

Clustered Organization

Radial Organization

Clustered Organization


1
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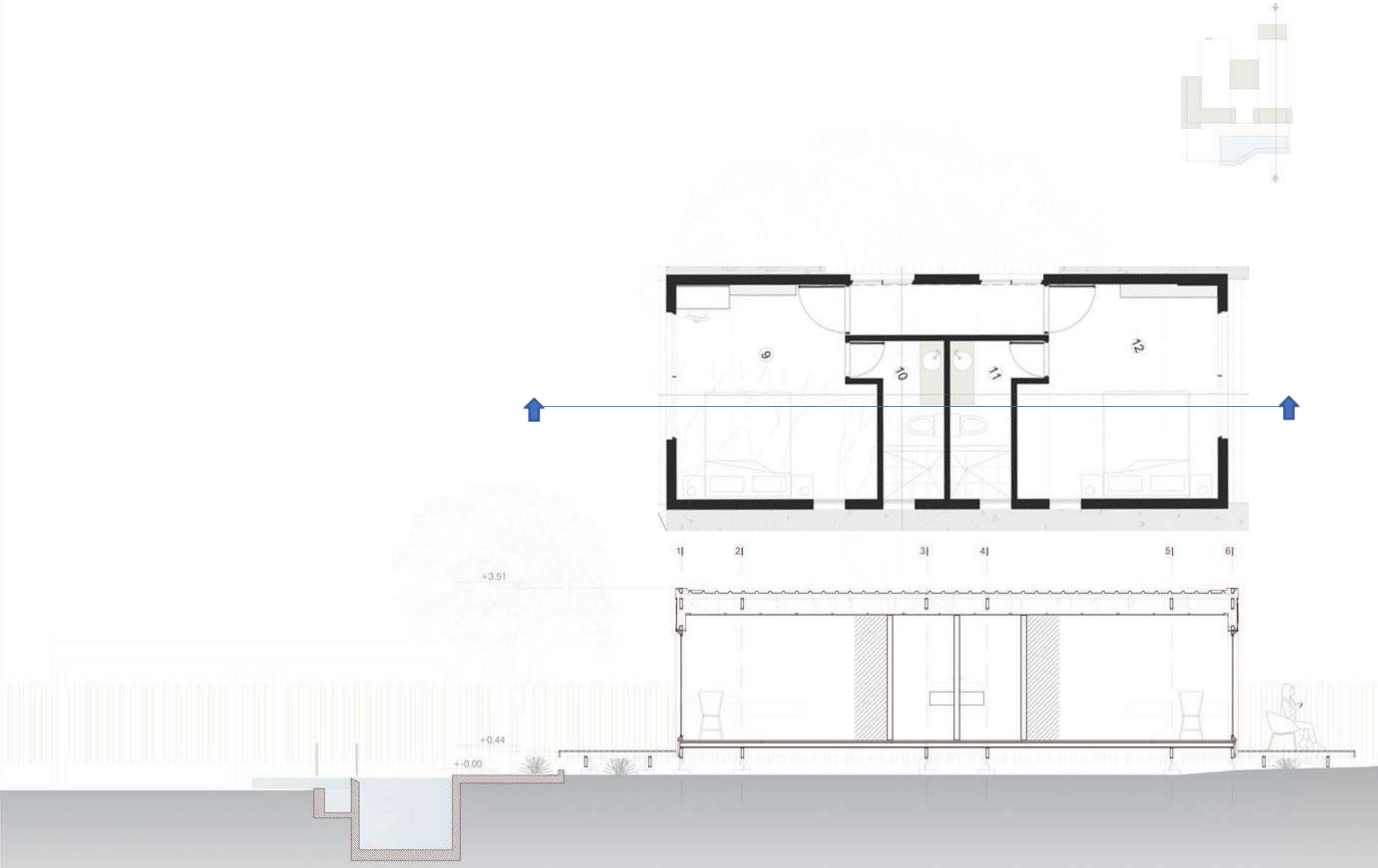
A
B
1 SALA/COMEDOR
2 COCINA
3 BAÑO 1
4 ZONA DE ROPAS
5 BODEGA
6 ZONA BBQ
7 TERRAZA-DECK
8 SALA EXTERIOR
9 HABITACIÓN 1
10 BAÑO 2
11 BAÑO 3
12 HABITACIÓN 2
13 PARQUEADERO
14 PISCINA
MON PARADIS
PLANTA ARQUITECTÓNICA
0 0.5 1 2

MON PARADIS
FACHADAS

0 0.5 1 2 **FACHADA (F1)**



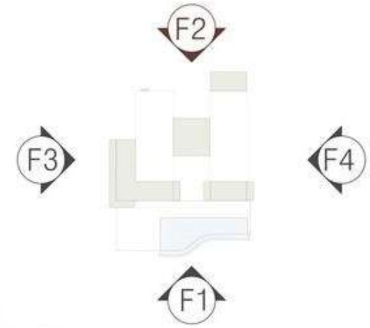
MON PARADIS

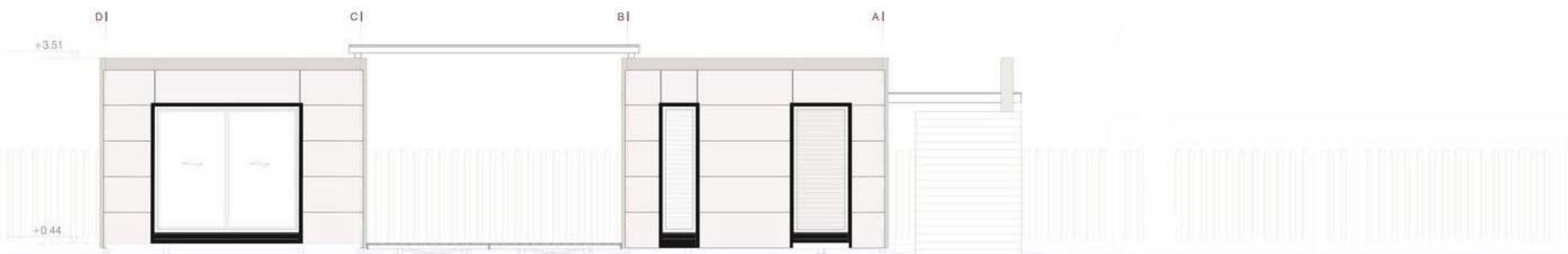
SECCIÓN

0 0.5 1 2 SECCIÓN (B-B)

FACHADA (F4)

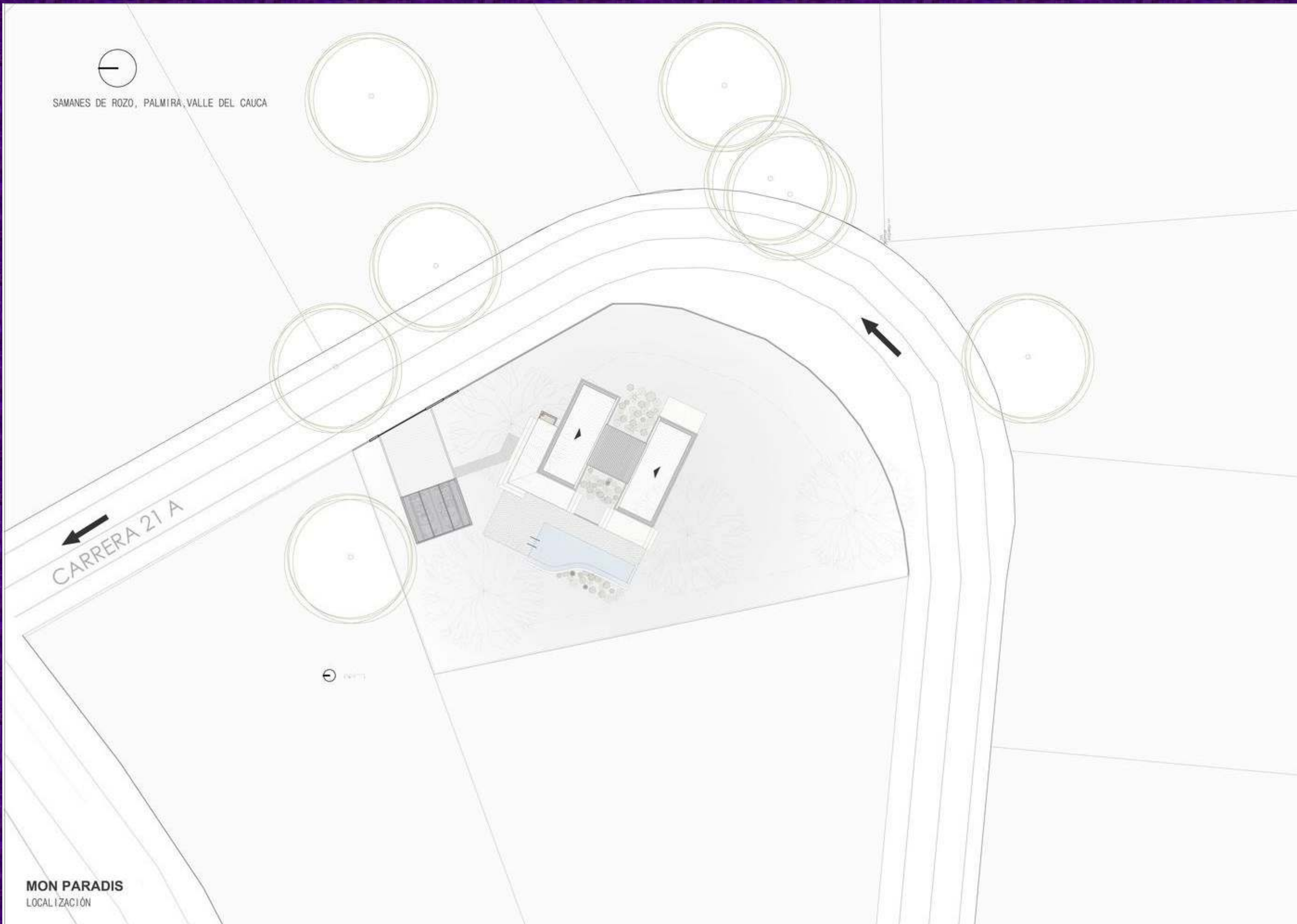
MON PARADIS
FACHADAS





MON PARADIS
FACHADAS

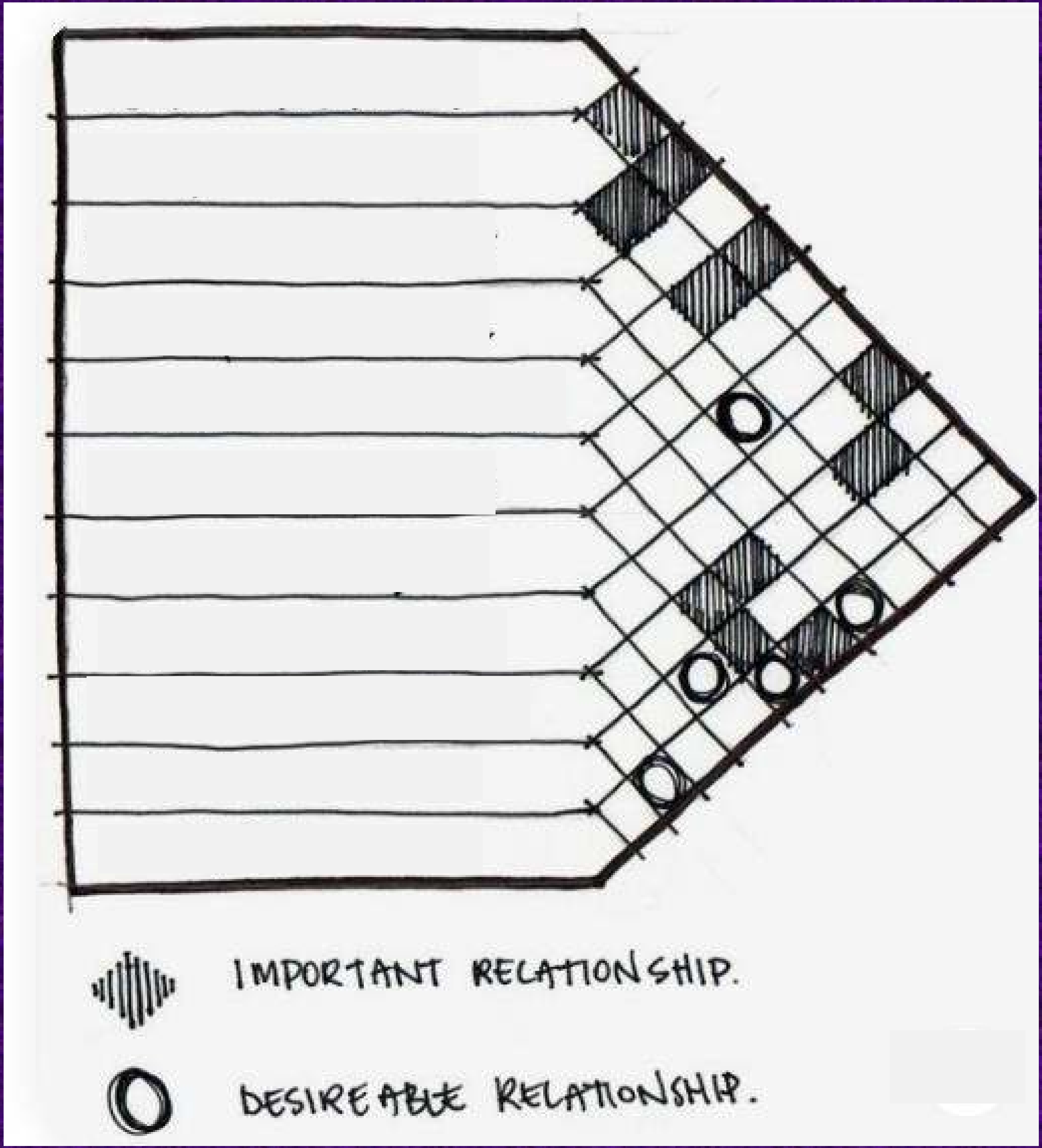
0 0.5 1 2 FACHADA (F2)



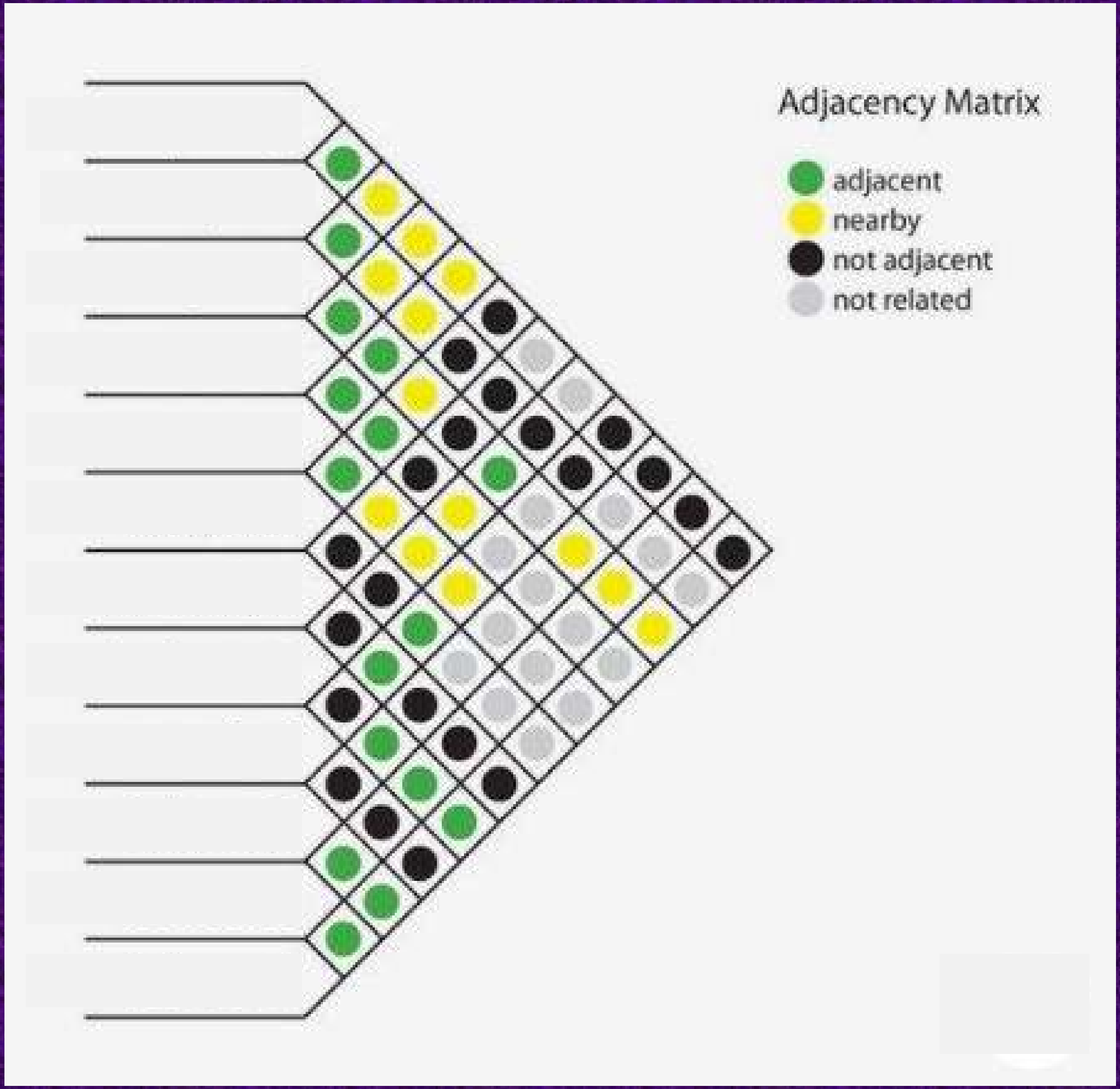
MON PARADIS

LOCALIZACIÓN

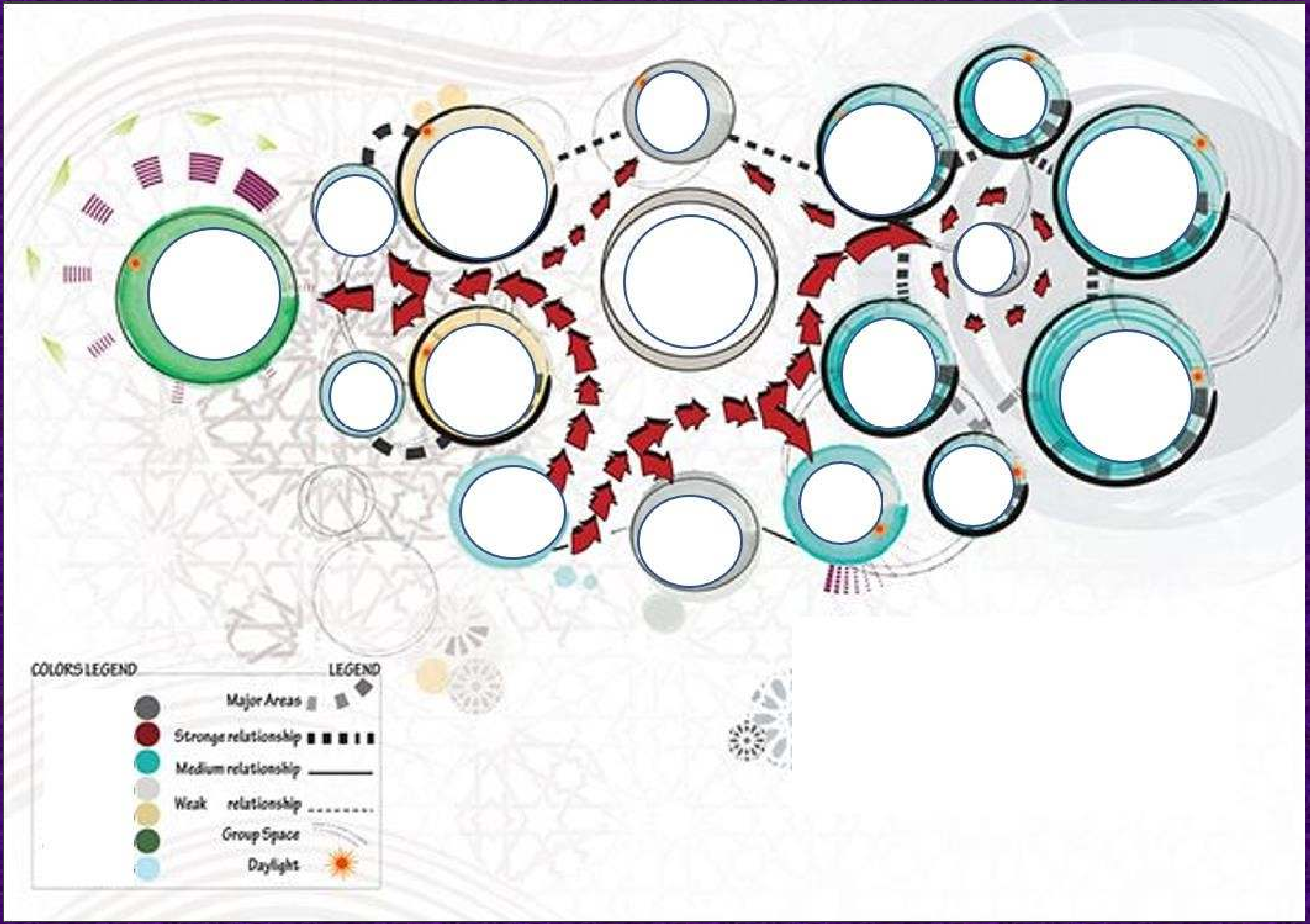
Proximity Chart



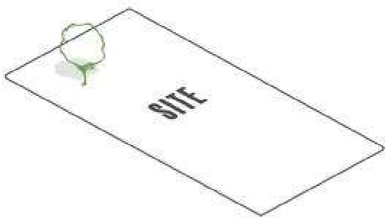
Proximity Chart



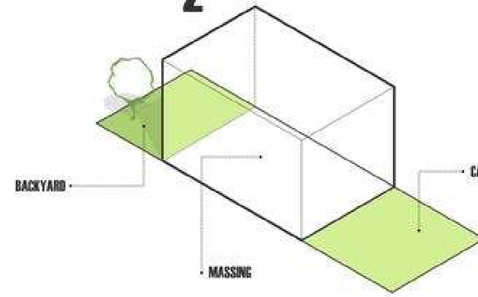
Bubble Chart



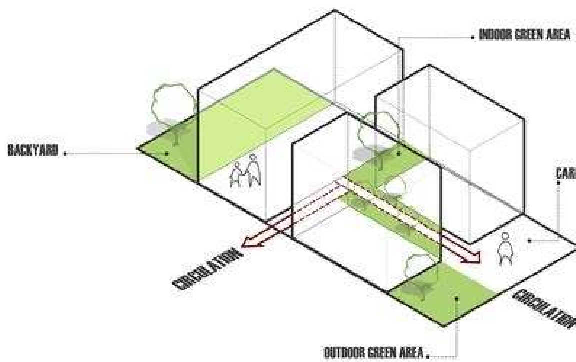
1 SITE



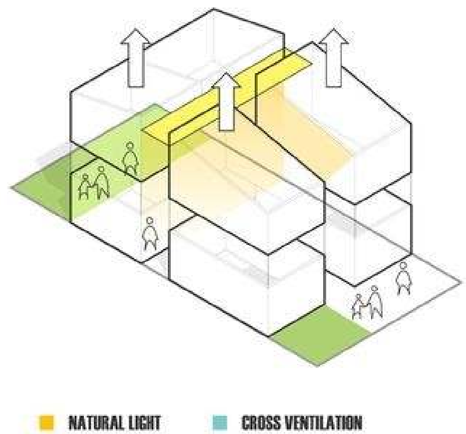
2 CENTERING THE MASS



3 FRAGMENTED THE MASS FOR GREEN AREA

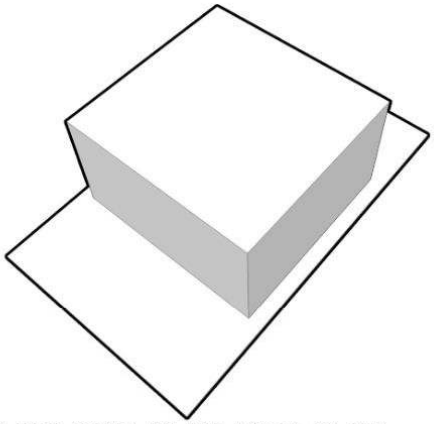


4 FRAGMENTED THE MASS FOR PASSIVE DESIGN

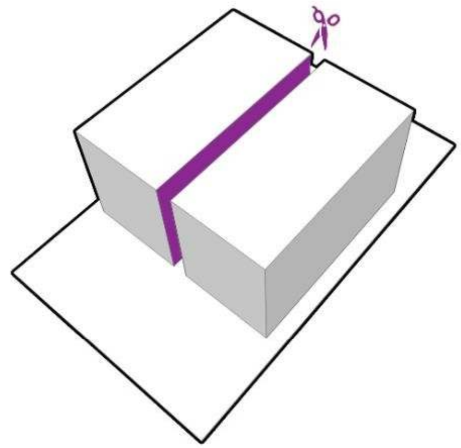


CONCEPT

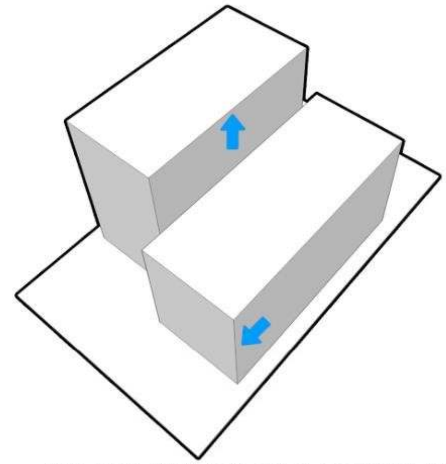
MASSING AND PROGRAMMING



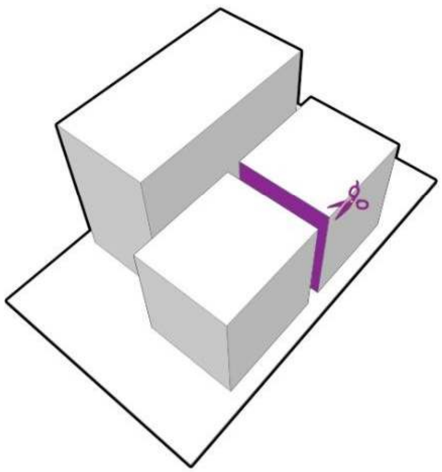
THE MASS STANDS ON THE 365.56 M2 SITE.



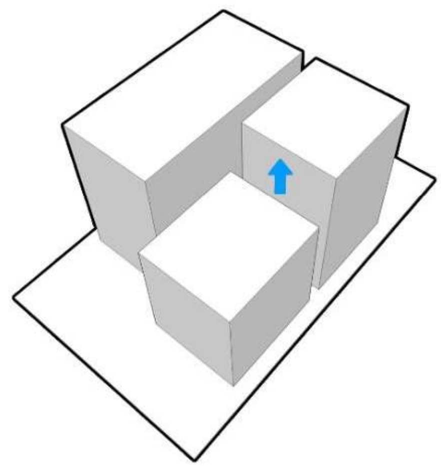
THE SINGLE MASS WAS SPLITTED INTO TWO DIFFERENT MASSES BY THE CORRIDORS IN BETWEEN. THE CORRIDORS WILL THEN BE FUNCTIONED AS A CROSS VENTILATION IN THE BUILDING.



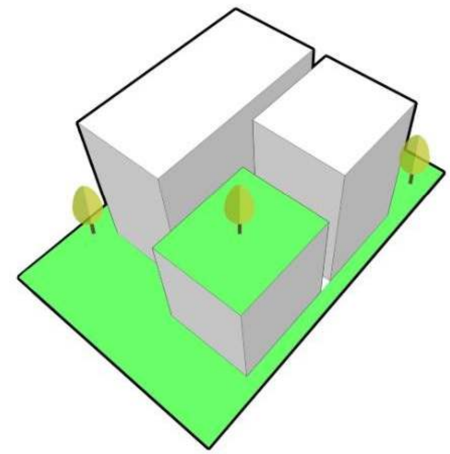
THE LEFT MASS WAS BUILT TYPICALLY VERTICAL, MEANWHILE THE RIGHT MASS WAS BUILT FRONT-WARDS REPRESENTING "THE CONDUCTOR'S HANDS" MASSING CONCEPT.



THE RIGHT MASS WAS AGAIN SPLITTED INTO TWO MORE DIFFERENT MASSES ALSO BY THE CORRIDORS TO CREATE THE TRIPLE CROSS VENTILATION EFFECT AT THE BUILDING.

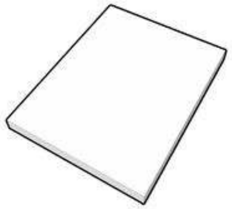


THE BACK SIDE OF THE RIGHT MASS WAS ALSO BUILT TYPI-CALLY VERTICAL AS IT HAS MOSTLY TYPICAL IN FUNCTION.

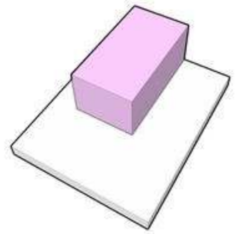


THE WHOLE MASS CREATES SOME OPEN SPACES THAT POTENTIALLY USE AS A GREEN SPACES.

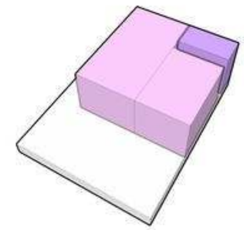
MASSING AND PROGRAMMING



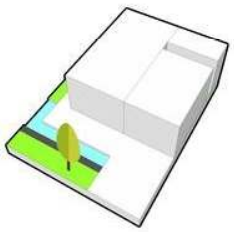
THE MASS STANDS ON THE 150 M2 SITE



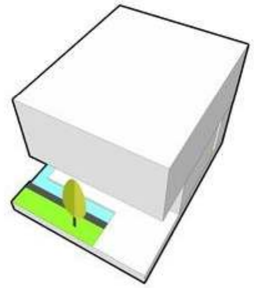
THE FIRST FLOOR FUNCTIONED MOSTLY FOR LIVING AREA WITH NO PARTITION



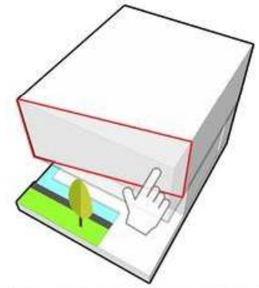
THE LIVING AREA FEELS EVEN LARGER BECAUSE IT'S CONNECTED TO THE RELAXING AREA. FOR THE OTHER FUNCTION, THERE ARE KITCHEN ON THE BACK, PANTRY AND ONE BATHROOM.



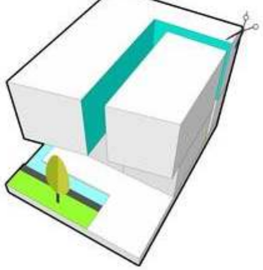
THERE ARE A COMBINATION OF GREENERY AND A POND TO CREATE A GOOD AIR CIRCULATION INSIDE THE BUILDING



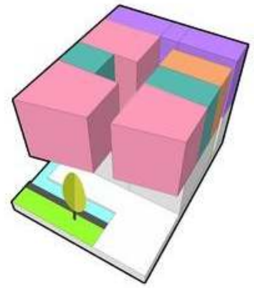
THERE IS A CANTILEVER ON THE SECOND FLOOR



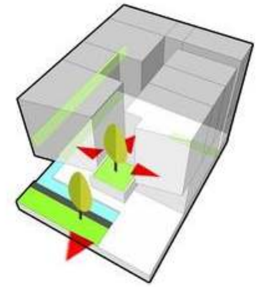
WE PUSH THE SECOND FLOOR'S FACADE BACKWARDS TO MINIMIZE THE SUN RADIATION FROM THE WEST SIDE.



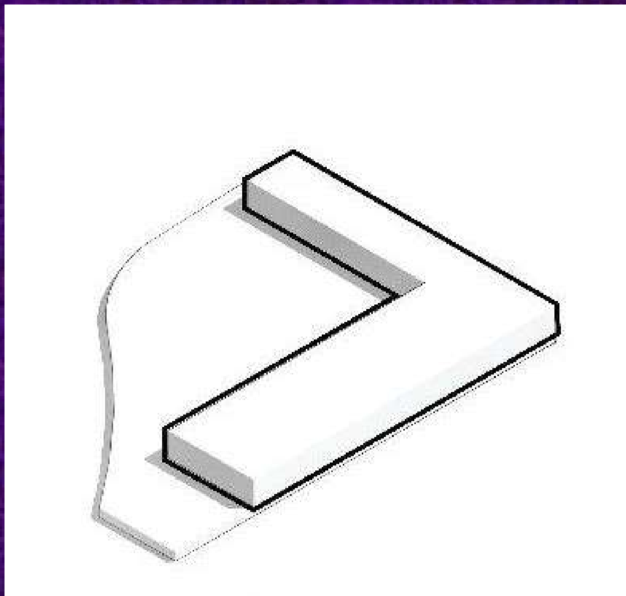
THE SECOND FLOOR MASSING WAS CUT TO CREATE A CORRIDOR AND A VOID TO OPTIMIZE THE AIR CIRCULATION.

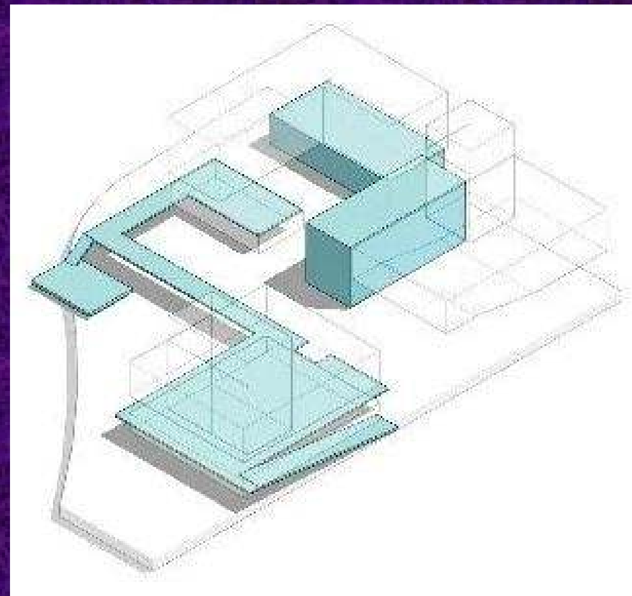


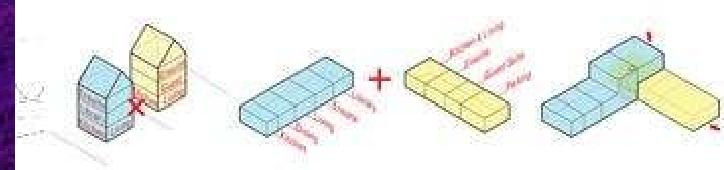
THE SECOND FLOOR FUNCTIONED FOR BEDROOM AREA AND A SERVICE AREA ON THE BACK.



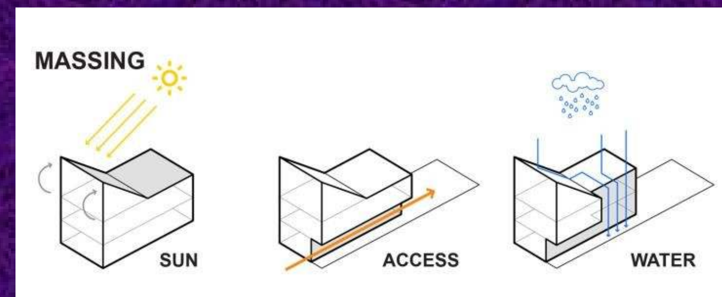
FOR THE GREENERY, WE ADD A FLOATING GARDEN THAT CAN BE SEEN FROM 4 SIDES.

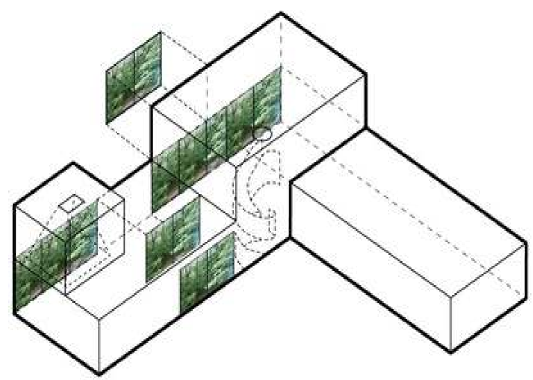




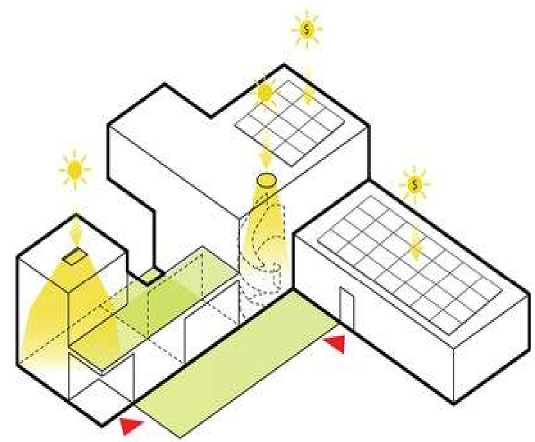


Two houses on two sites are a low density solution. The program of each home is reconfigured and combined into a single form that crosses and stacks at the corner. The resulting home for a couple and their ageing parents constructs a scenario for living that allows for autonomy while mutually benefitting from proximity.

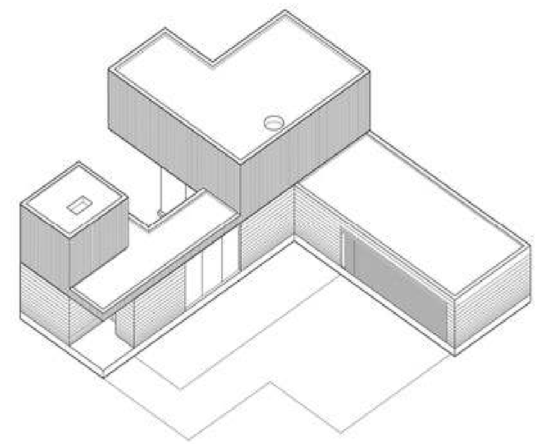




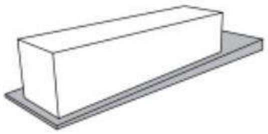
Primary rooms respond to views of the creek.



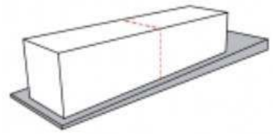
Natural light highlights the interior forms and powers a 10KVa solar array.



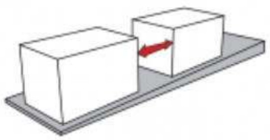
Axonometric view showing cladding and massing.



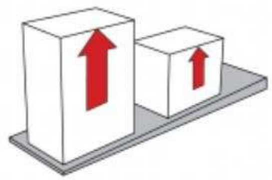
1. Extent of site massing to 23m height limit



2. Mass divided into two volumes

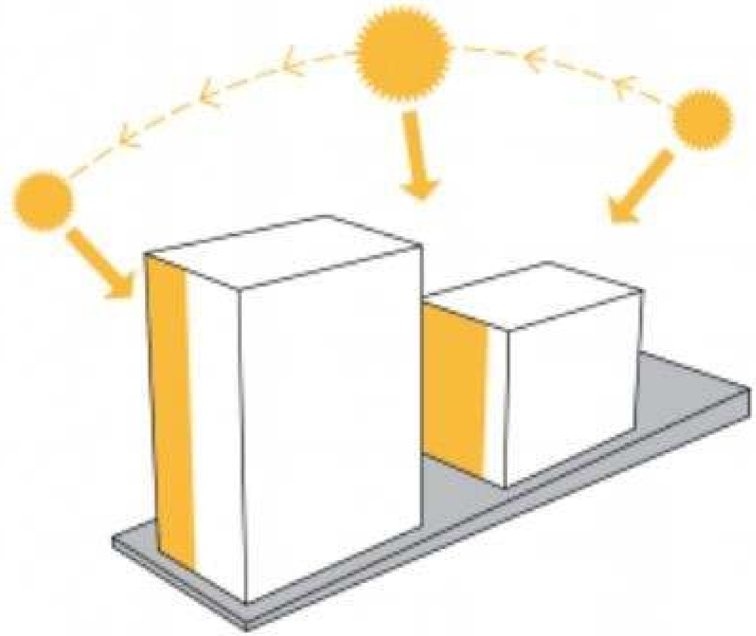


3. Volumes separated to allow for light, ventilation, circulation and green space

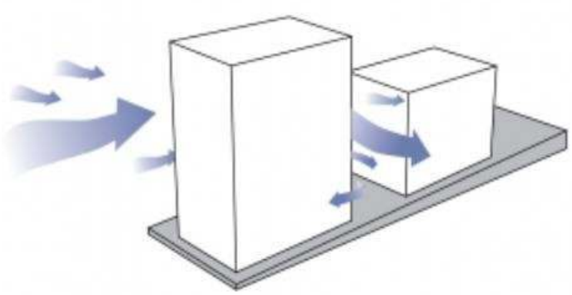


4. Smaller site footprint achieved through additional height in graduated tower forms

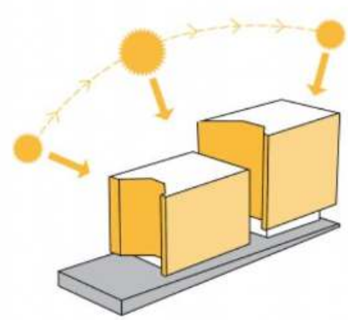
3. SITE MASSING



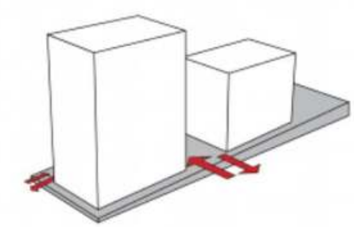
SITE MASSING: SOLAR ACCESS



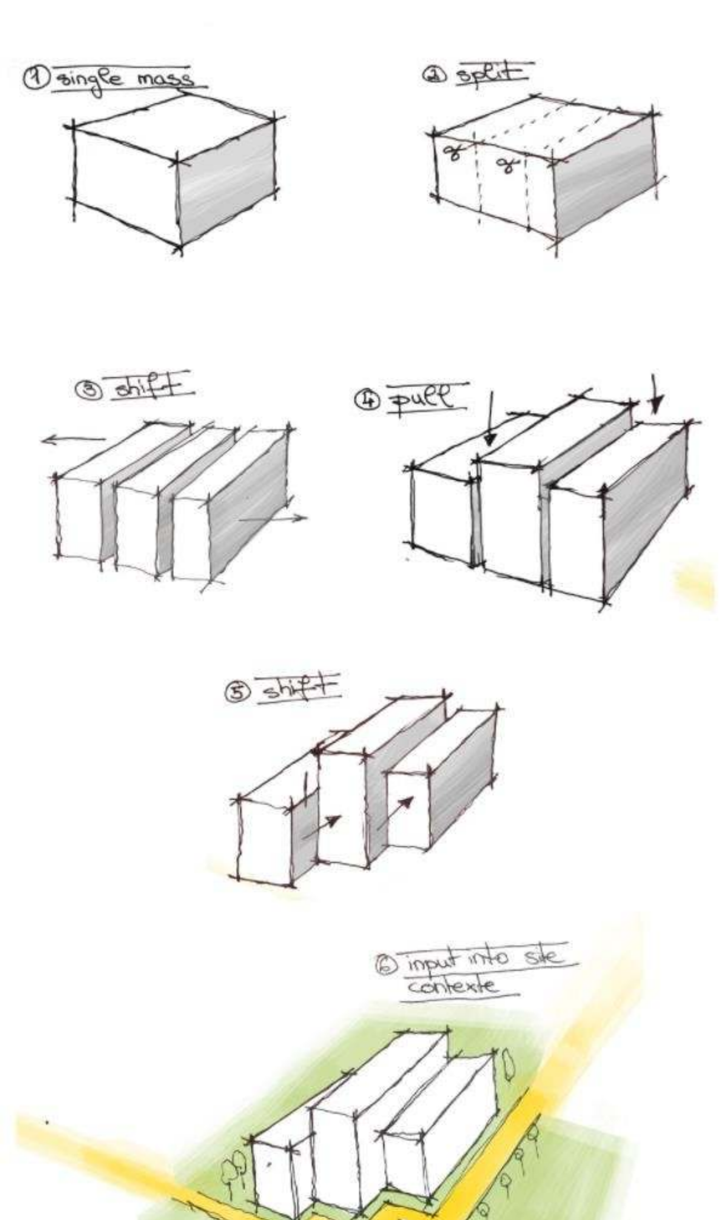
SITE MASSING: VENTILATION



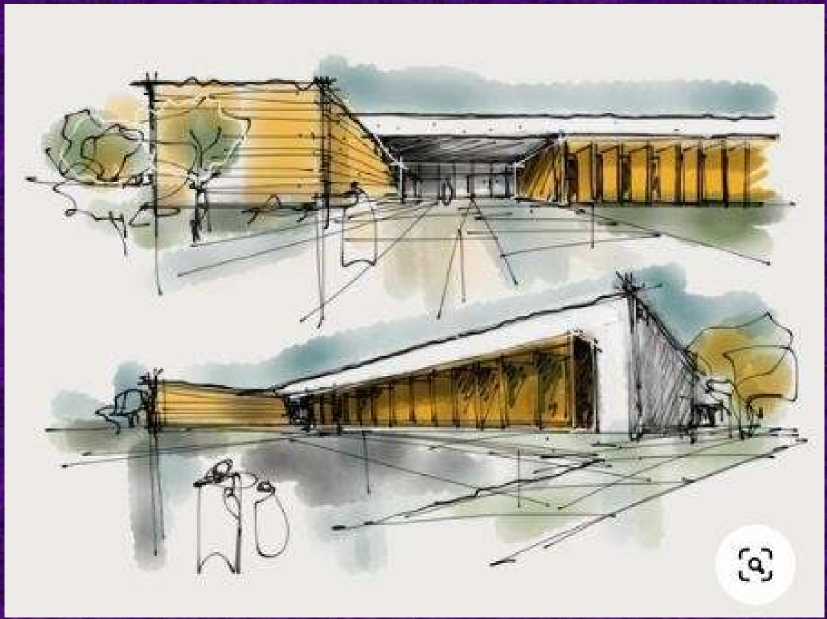
EMBRACING FORM: ALLOWS GREATER SOLAR ACCESS

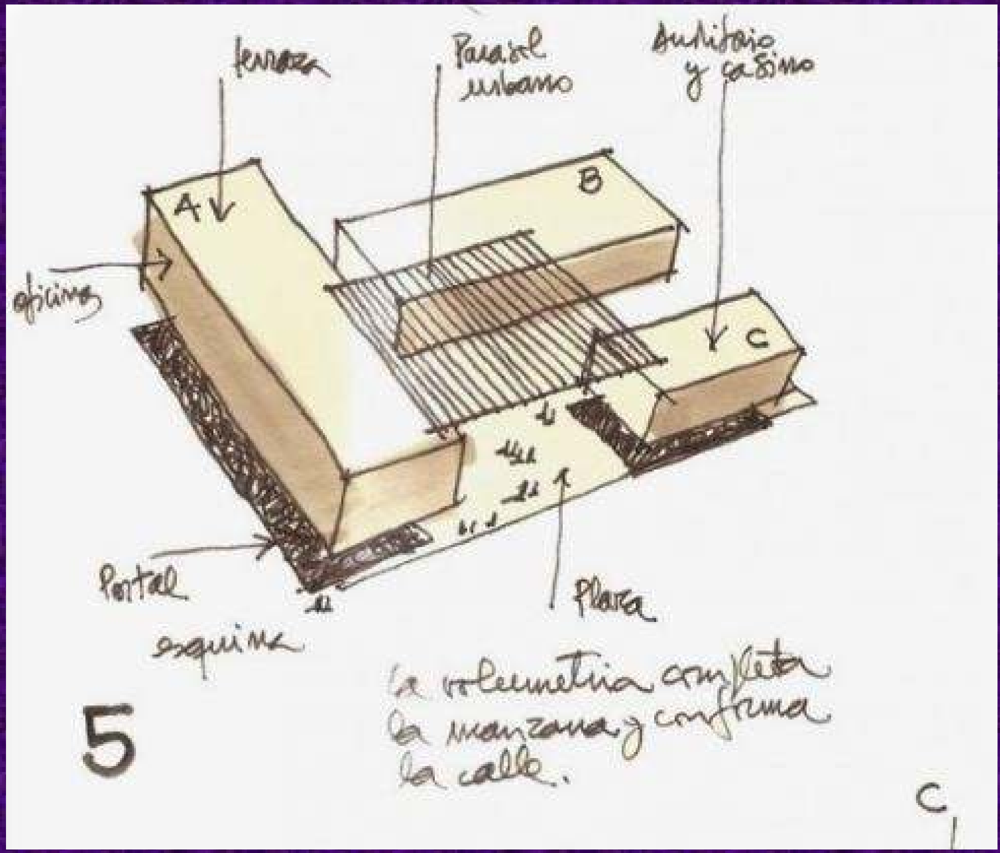


SITE MASSING: SITE ACCESS (VEHICLES)

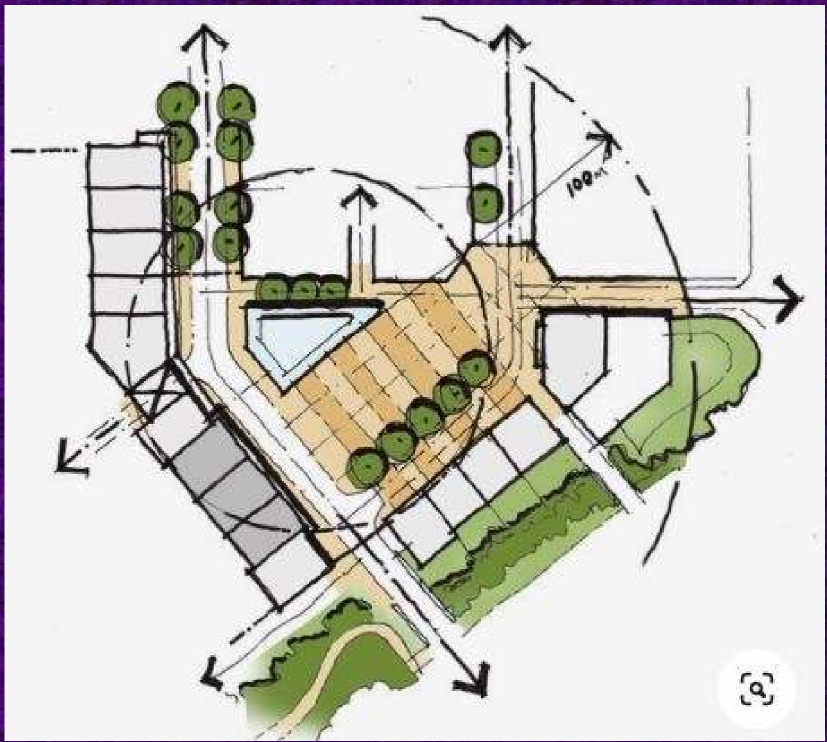


① single mass
② split
③ shift
④ pull
⑤ shift
⑥ input into site contexte





terraza
Parasol urbano
Auditorio y casino
A
B
C
oficinas
Portal esquina
Plaza
5
La volumetría completa la manzana y conforma la calle.



100m