Jannat Al-Tohr

جَنَّة الطُهر

A retreat from everyday life

Design vision

"Our aim is to create a relaxation place in which showering and bathing facilities will be available to residents. A way of escaping the camp and find themselves in a calming environment."

Our aim is to:

Reduce the waste water, provide it in **recreational places** (water usage)
Revive the former **cultural feature of hammam**
Improve the **hygiene situation**
Increase the **green spaces**
Create missing **relaxation areas**

Location

Selection of location based on:

- Density
- Walking distance

- Water
- Other recreation
- Topology

suitable non-suitable

Our plot

We selected a location in district 10.

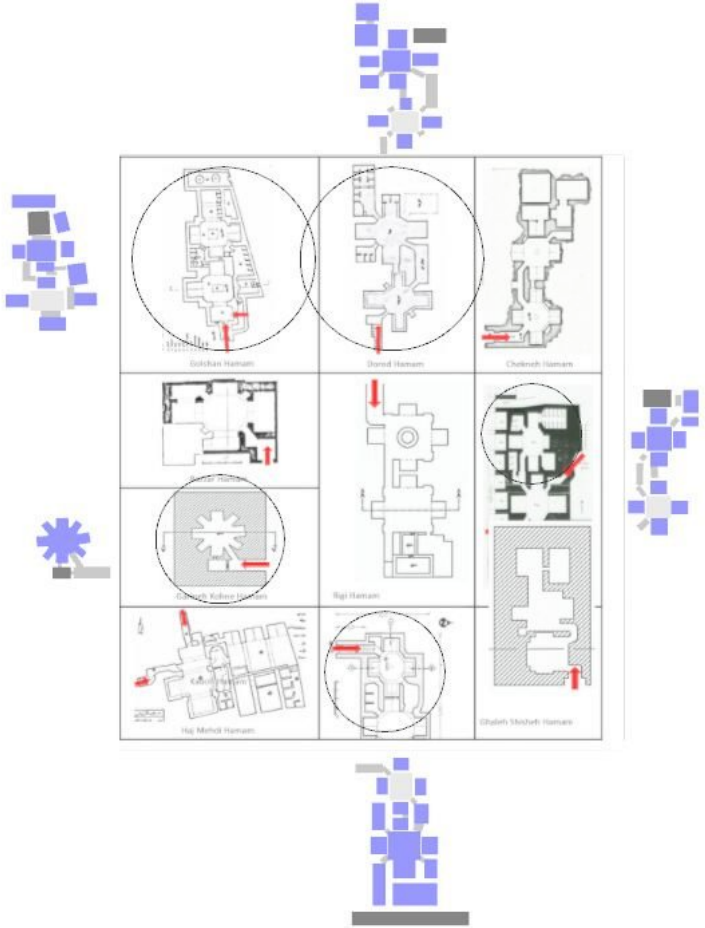
Size of the plot is

25 x 50m

Existing Hammam

We analysed existing hammam to look how they work

Base for our spaces and how we make the bubble diagram

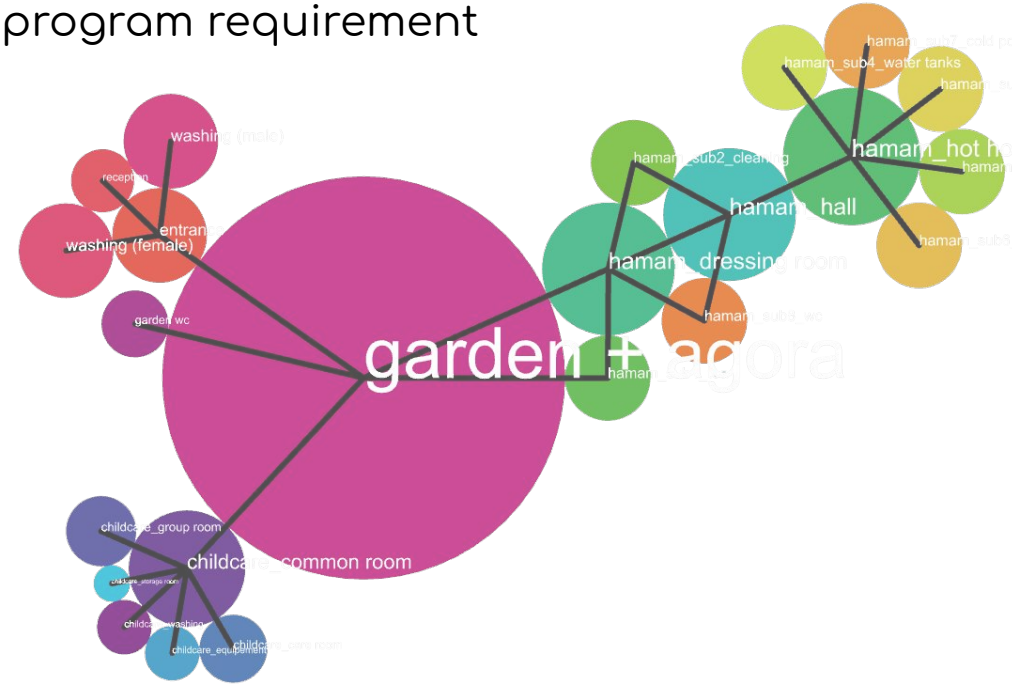


Spatial configuration of different hammam

	Garineh Kohne Hamam	total area	Golshan Hamam	total area	Dorod Hamam	total area	Chekneh Hamam	total area	Kaboli Hamam	total area	% percentages
		9		16		17		13		24	100%
		% of total area		% of total area		% of total area		% of total area		% of total area	% percentages
corridors		19		12		15		12		7	13
dressing room		24		12		10		12		7	13
hot house		24		11		11		13		12	14
subsidary spaces		26		55		56		53		54	49
pool		7		9		8		11		19	11

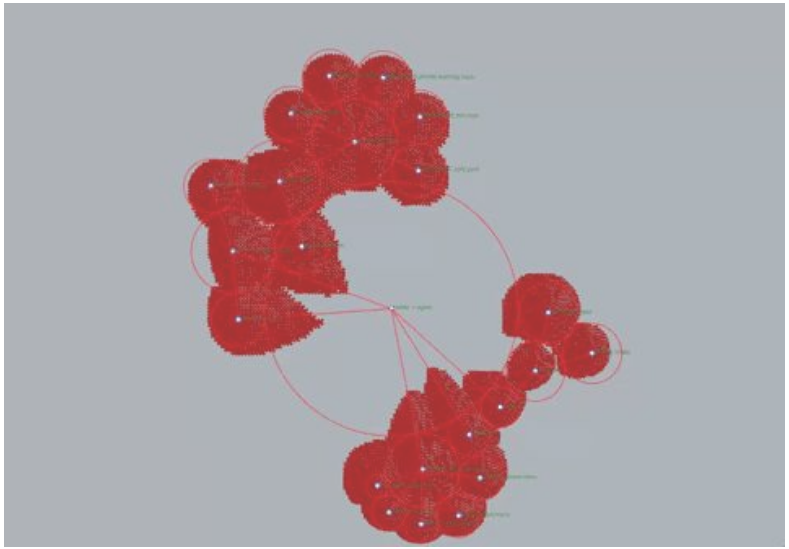
Program of requirements, bubble diagram

The analysis of the different historical hammams resulted in the program requirement

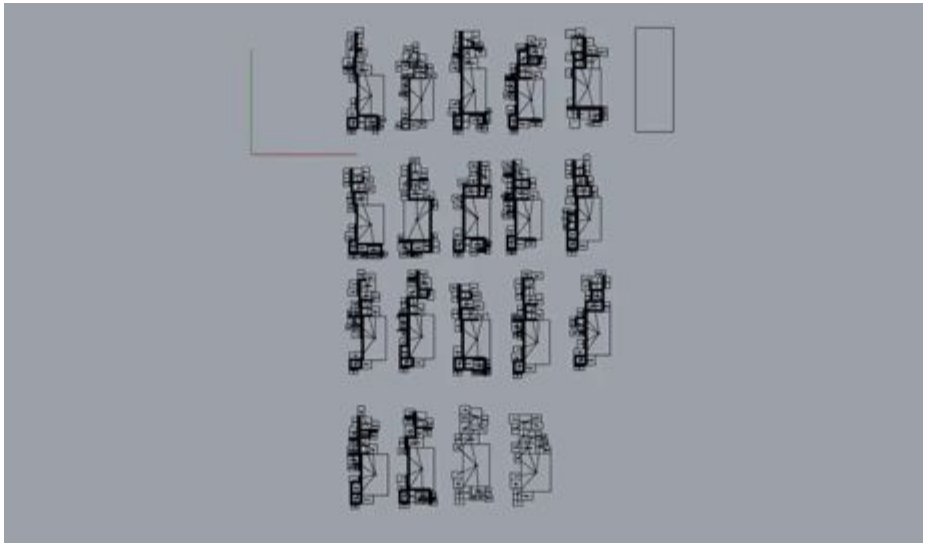


0: entrance, 26sqm
1: reception, 12sqm
2: washing (female), 26sqm
3: washing (male), 26sqm
4: garden + agora, 488sqm
5: garden wc, 14sqm
6: childcare_washing, 8sqm
7: childcare_common room, 40sqm
8: childcare_group room, 14sqm
9: childcare_care room, 14sqm
10: childcare_equipement, 8sqm
11: childcare_storage room, 4sqm
12: hamam_hall, 52sqm
13: hamam_dressing room, 52sqm
14: hamam_hot house, 56sqm
15: hamam_sub1_tea, 22sqm
16: hamam_sub2_cleaning, 22sqm
17: hamam_sub3_tech, 22sqm
18: hamam_sub4_water tanks, 22sqm
19: hamam_sub5_private washing room, 22sqm
20: hamam_sub6_hot pool, 22sqm
21: hamam_sub7_cold pool, 22sqm
22: hamam_sub8_wc, 22sqm
1026

Computational approaches

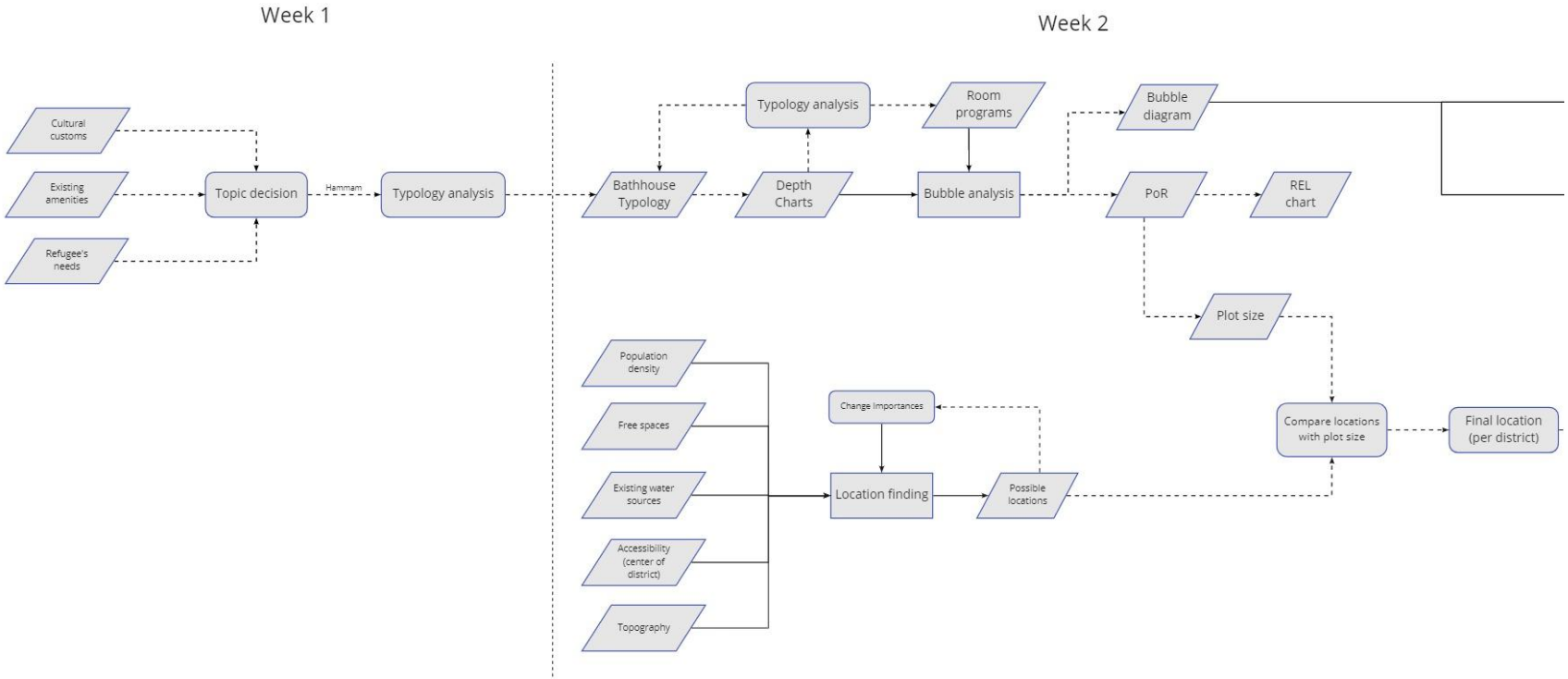


Literal take on the bubble diagram



Magnetizing tool as configuration

Flowcharts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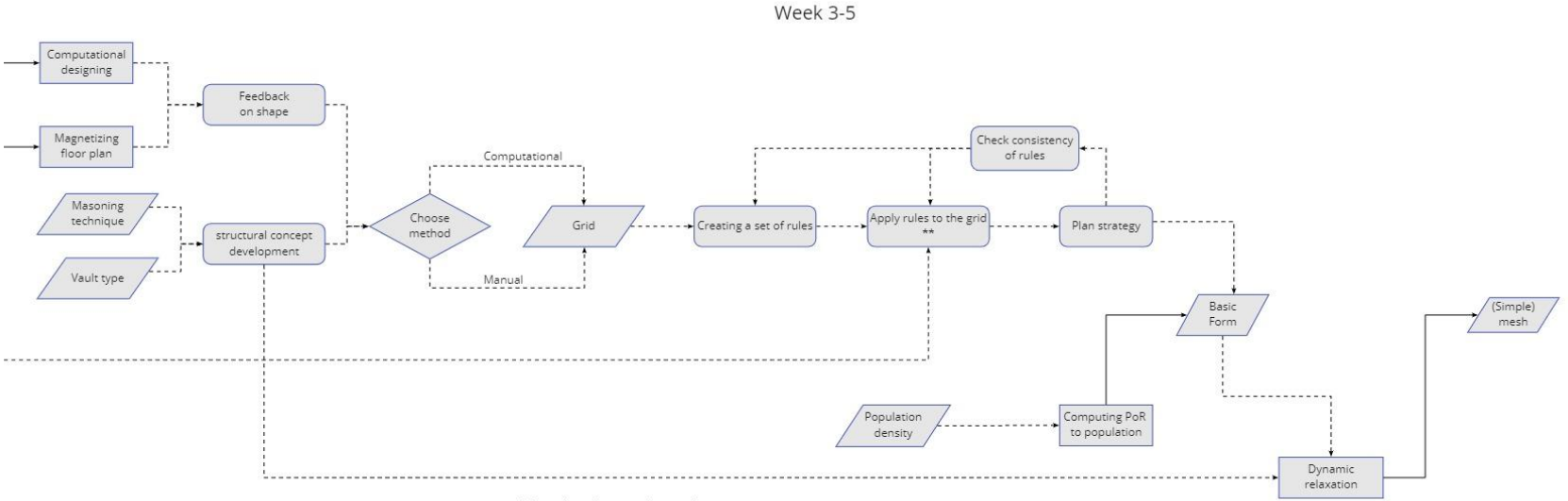
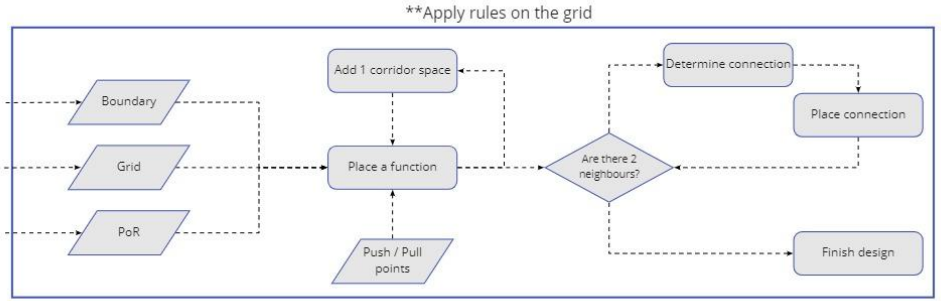
Week 2
Cultural customs
Existing amenities
Refugee's needs
Topic decision
Hammam
Typology analysis
Typology analysis
Room programs
Bubble diagram
Bathhouse Typology
Depth Charts
Bubble analysis
PoR
REL chart
Plot size
Population density
Free spaces
Existing water sources
Accessibility (center of district)
Topography
Change Importances
Location finding
Possible locations
Compare locations with plot size
Final location (per district)

Flowcharts





miro

Triangular grid

Hexagons

Compatible with domes shapes

Topology of Hammam, supports association of the refugees

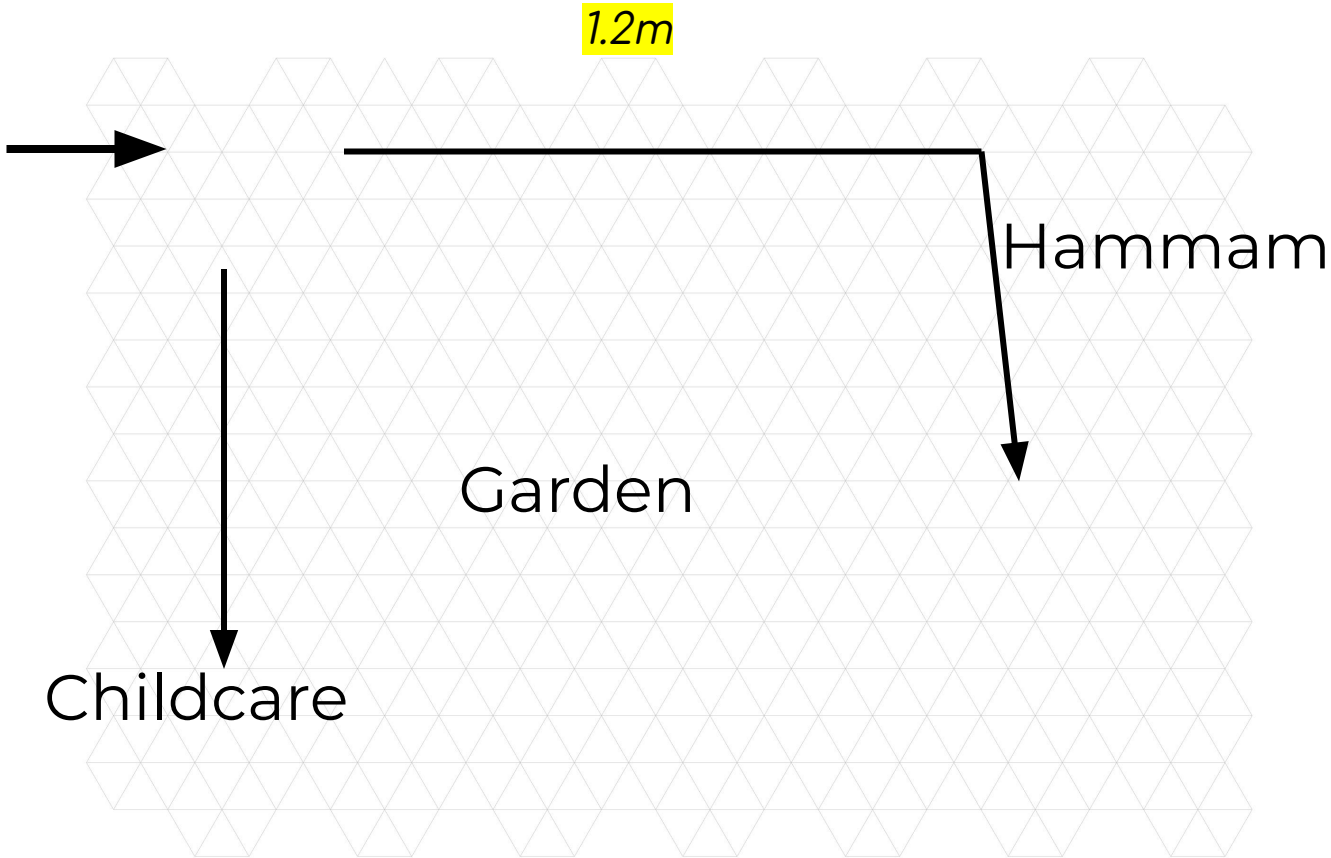
THE GAME

Rule n01:
Stay on the grid

Rule n02:
The entrance near the streets

Rule n03:
The childcare on the south and Hammam to the east

Rule n04:
As compact, court as big as possible



THE GAME

Continuous deformation with a hole requires a topological switch from a “ball” to a “mug with handle”

Rule n04:
As compact, court as big as possible

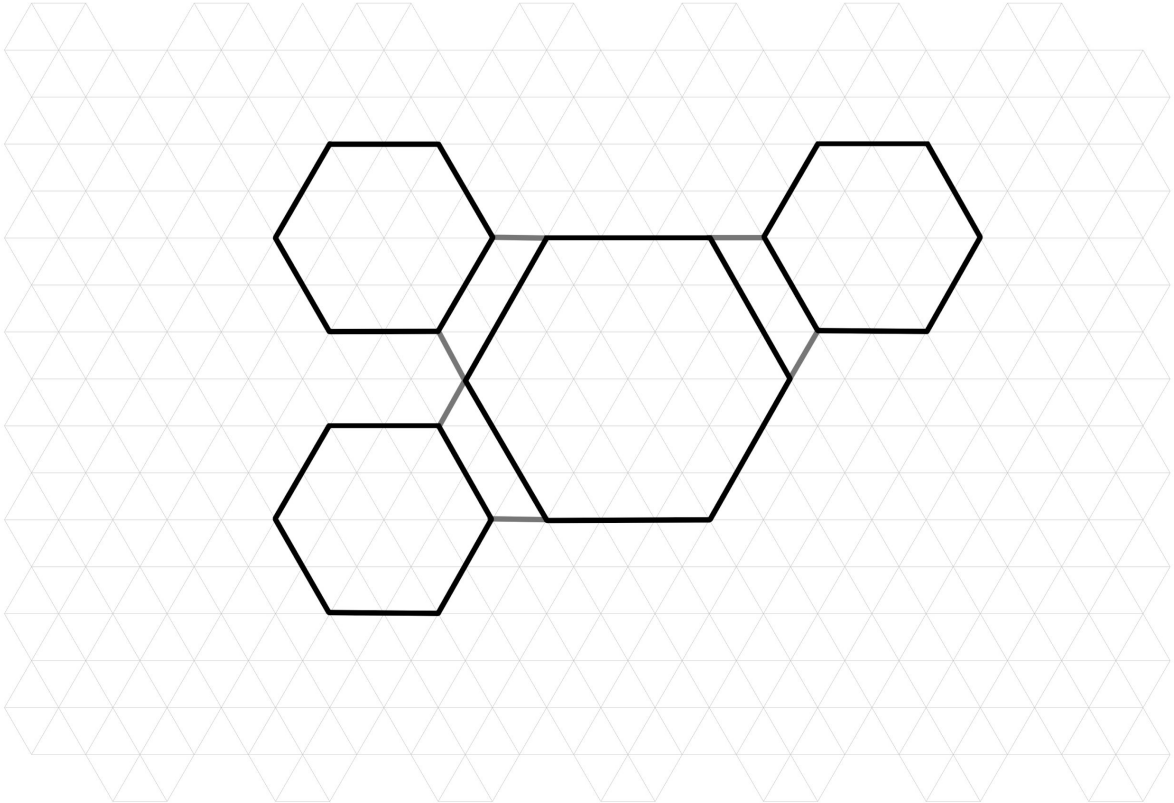
as compact :
Oliebollen

as compact but with a court:
Donut

THE GAME (Placing the rooms)

Rule n05:
After each room add 1 row of possible corridors

Rule n06:
Apply connections

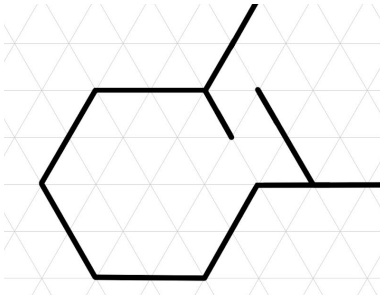


(Not on scale)

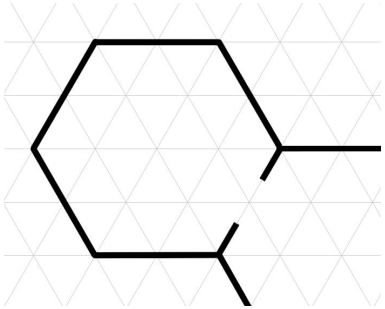
THE GAME (Placing the rooms)

Rule n05:
After each room add 1 row of possible corridors

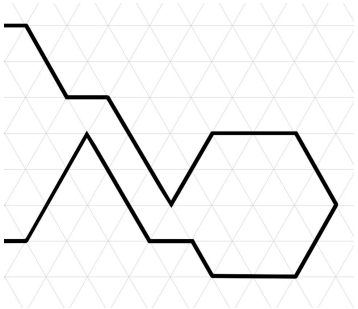
Rule n06:
Apply connections



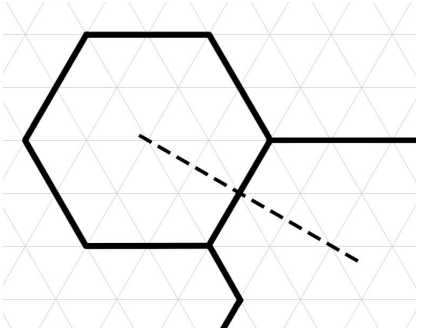
Thermal/privacy difference



Direct connection



Large distance

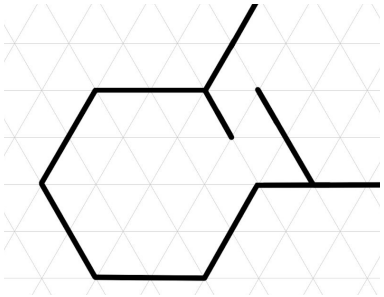


Optical connection

THE GAME (Placing the rooms)

Rule n05:
After each room add 1 row of possible corridors

Rule n06:
Apply connections



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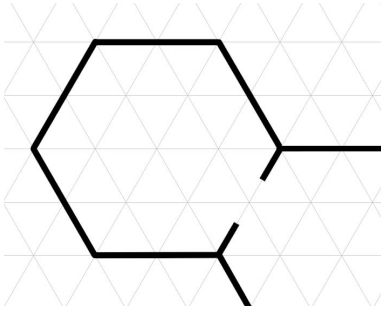

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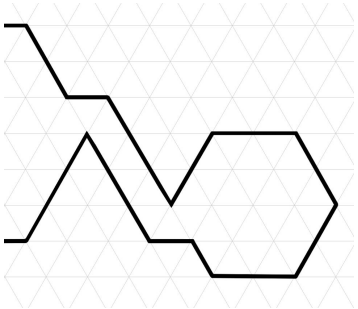
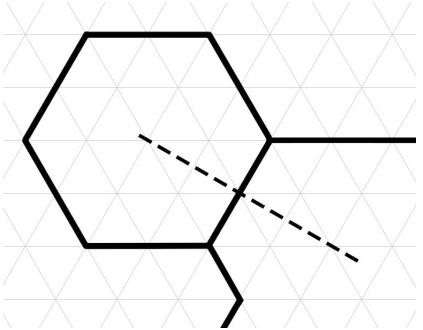


Large distance



Optical connection

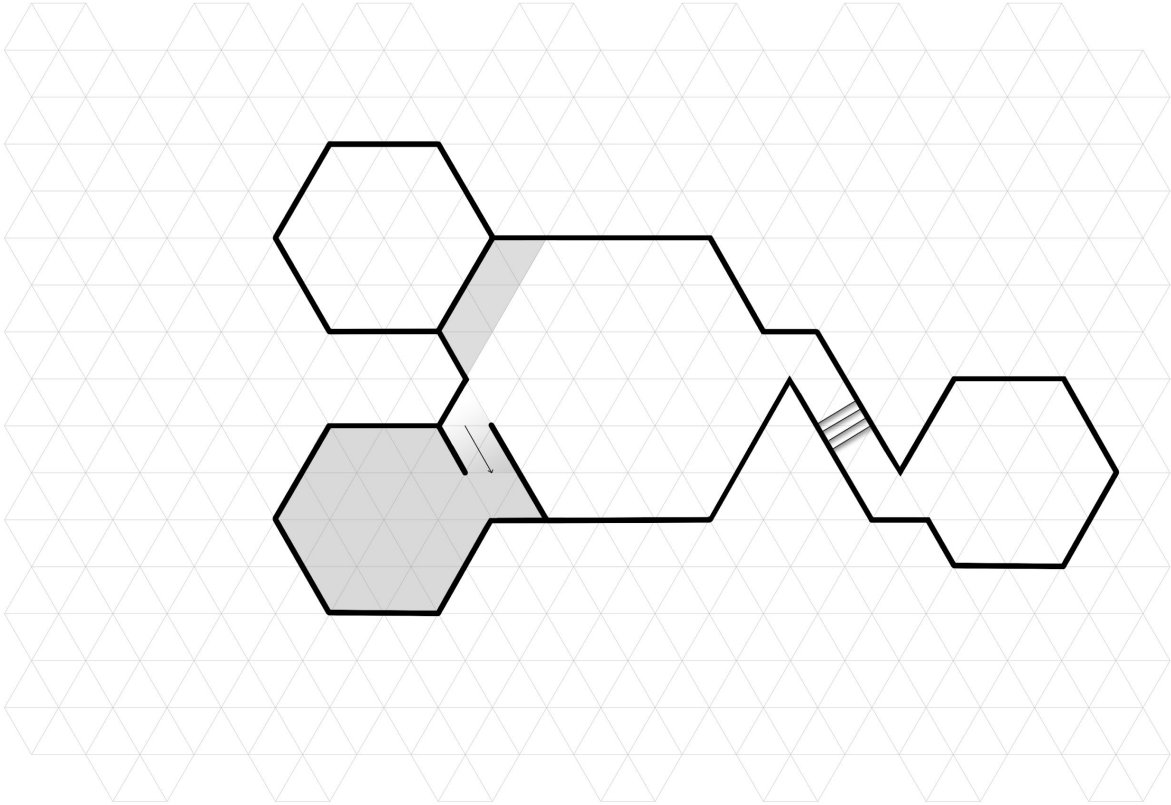
THE GAME (Placing the rooms)

Rule n05:
After each room add 1 row of possible corridors

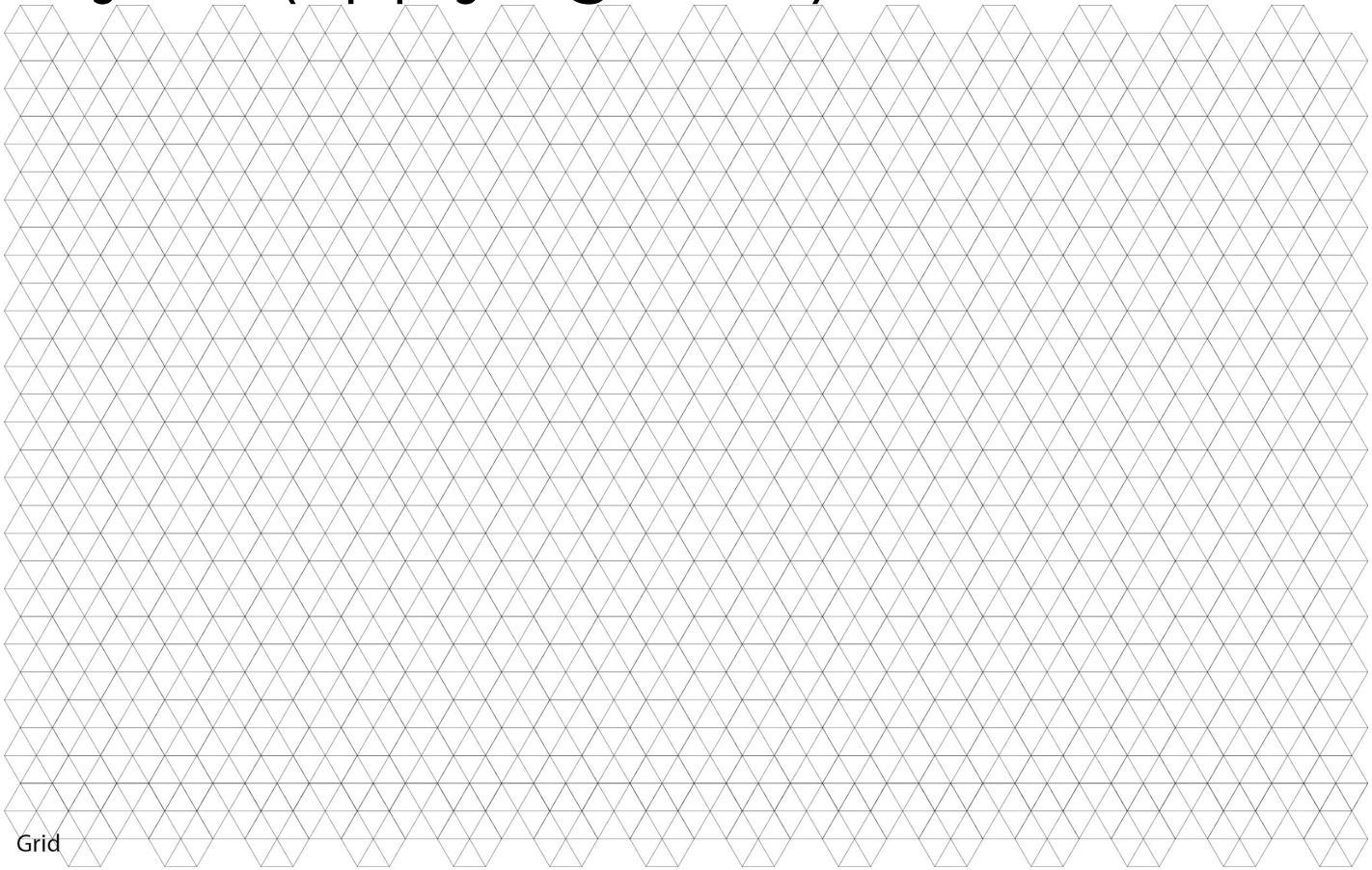
Rule n06:
Apply connections

Rule n07:
Extend adjacent rooms

Rule n08:
Adjust corridors towards heights

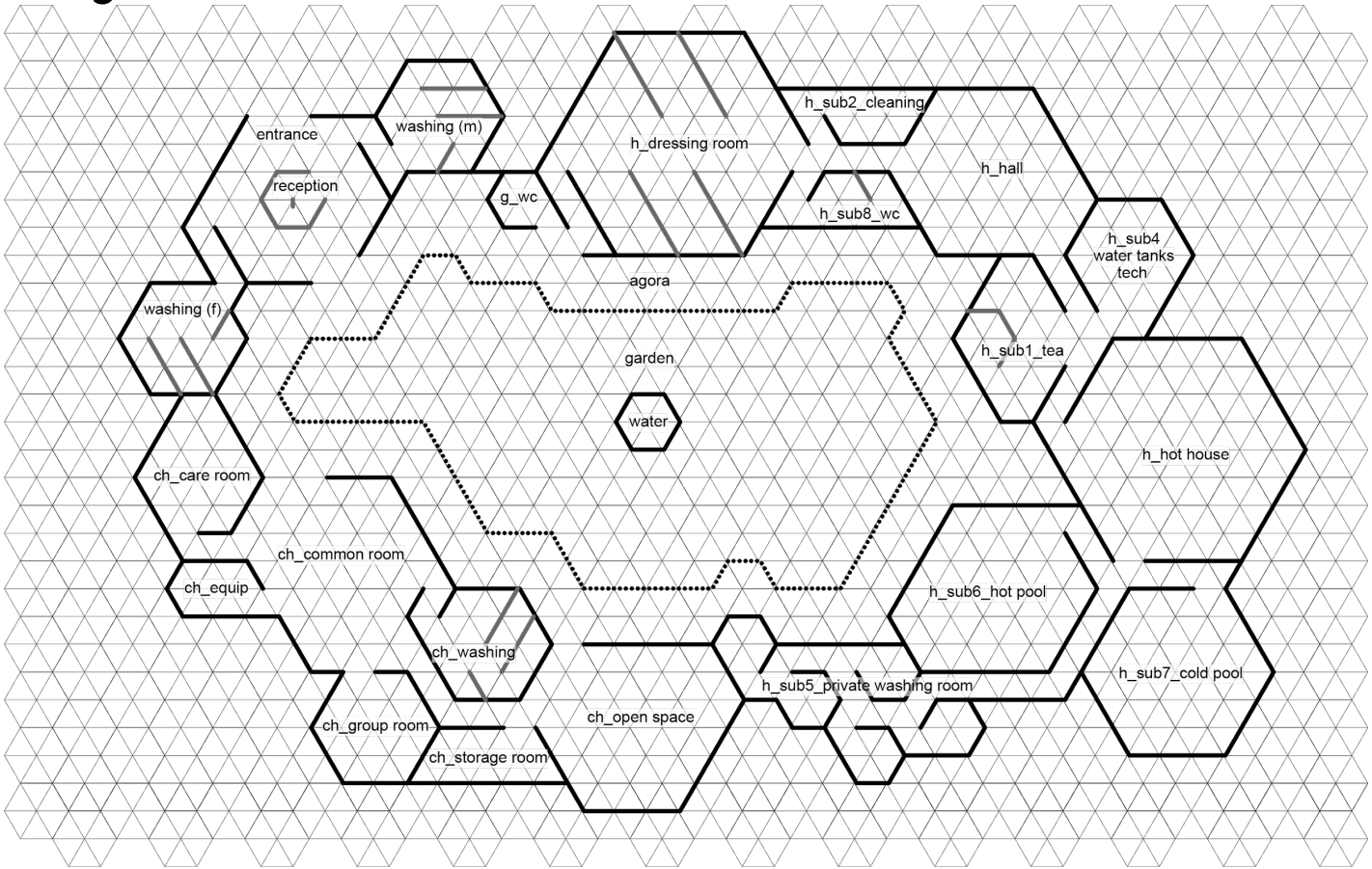


Final layout (applying rules)



Grid

Final layout



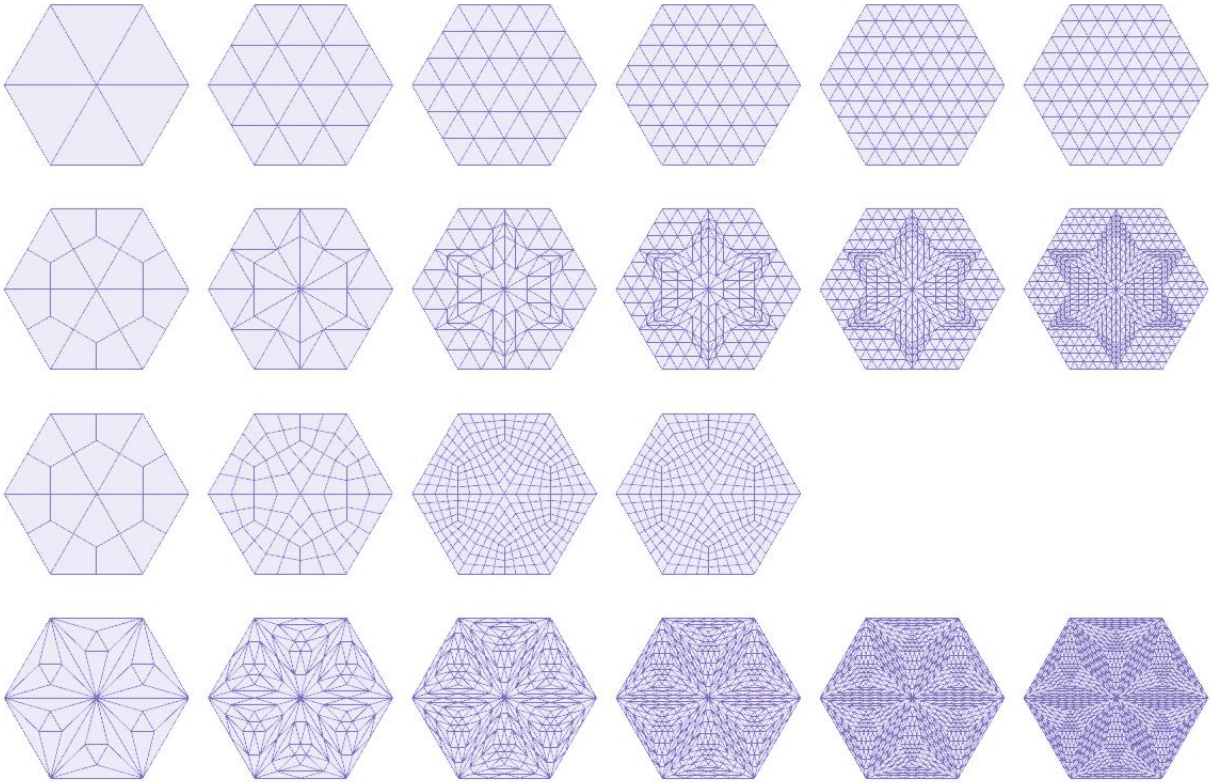
Tessellation

all triangulate

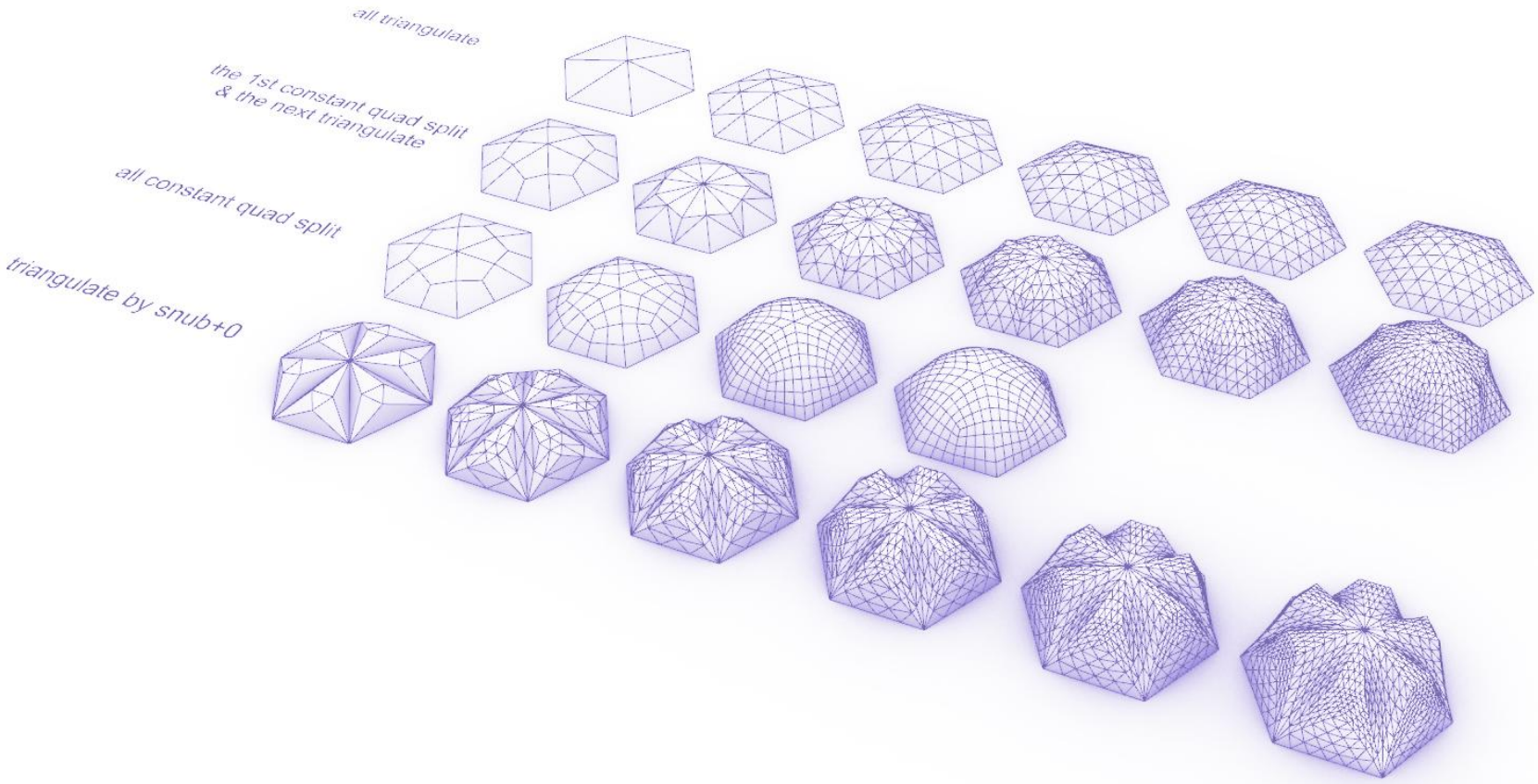
the 1st constant quad split
& the next triangulate

all constant quad split

triangulate by snub+0



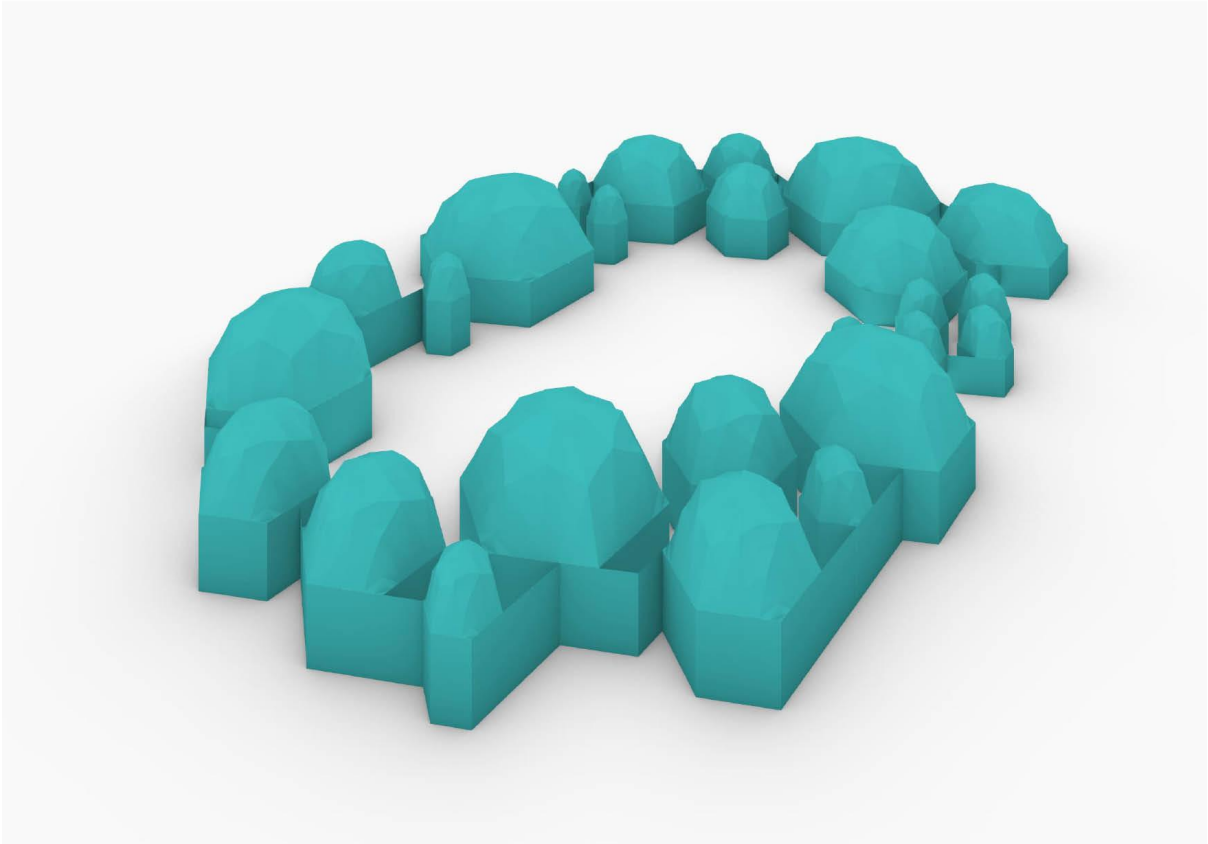
Tessellation



Final layout

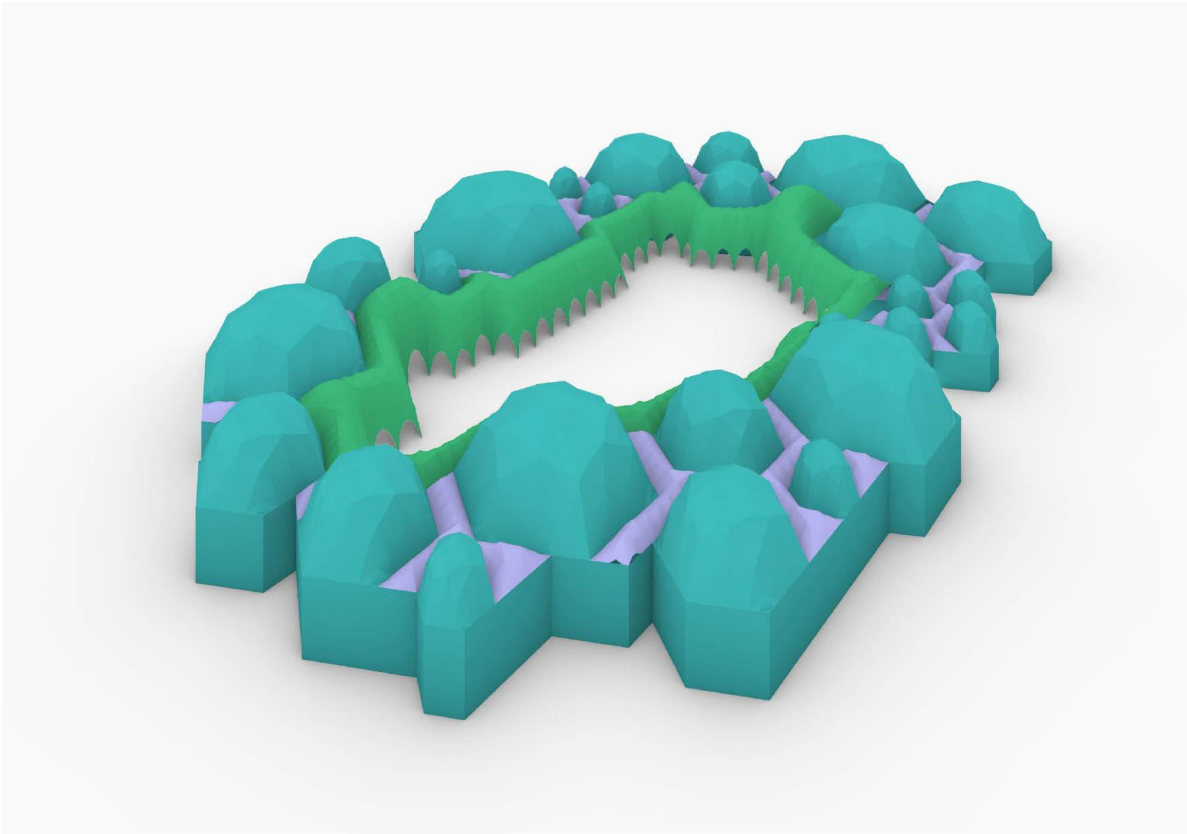
Domes

The main room structure will be constructed with domes



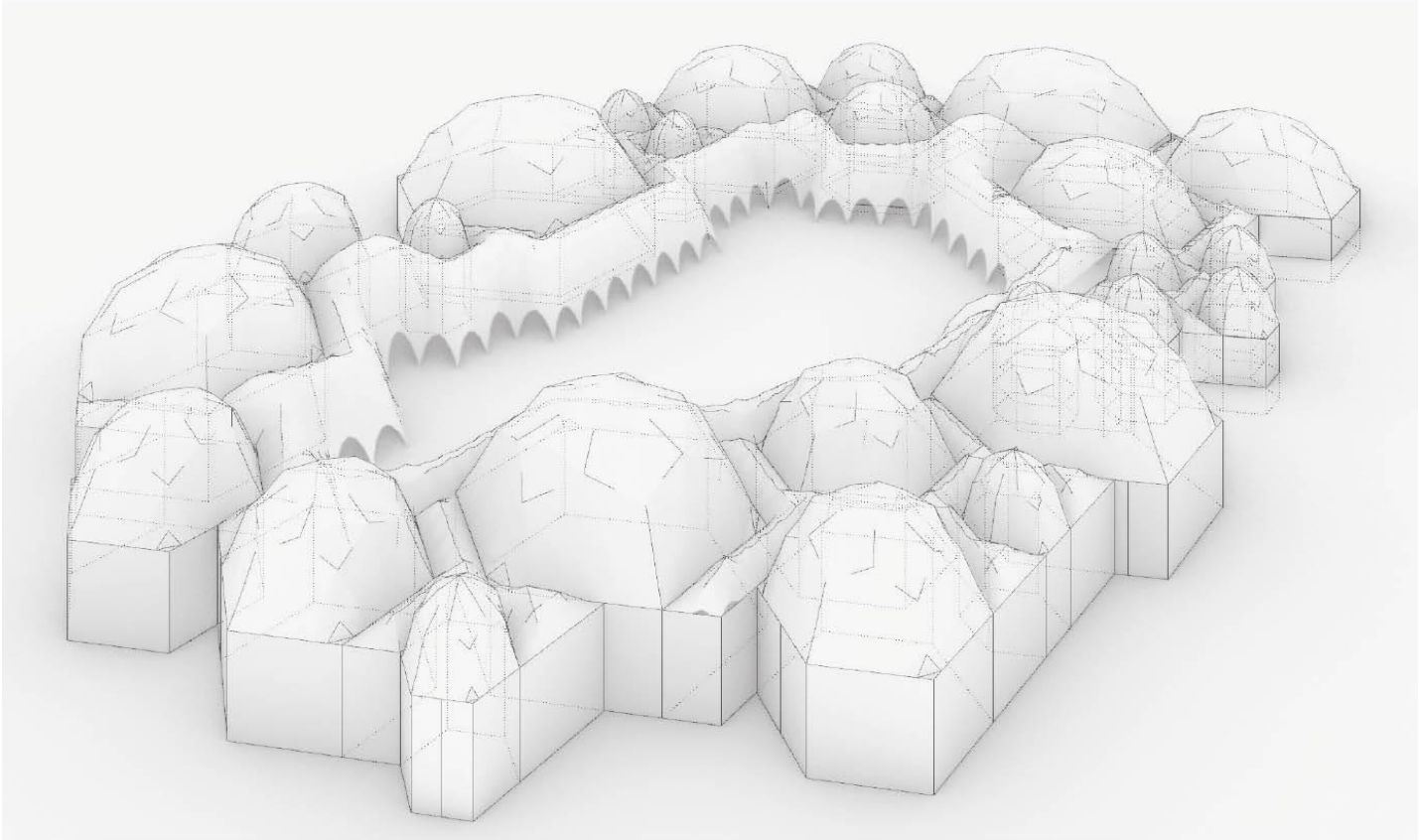
Vaults

The connectional spaces and room extensions will be structured with vaults



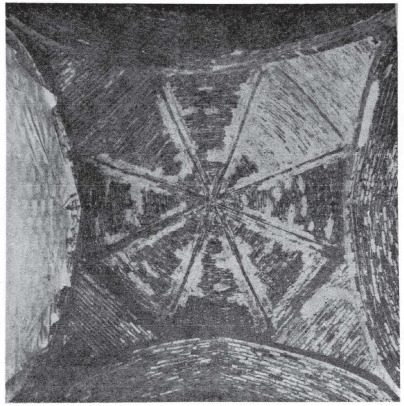
Stoa

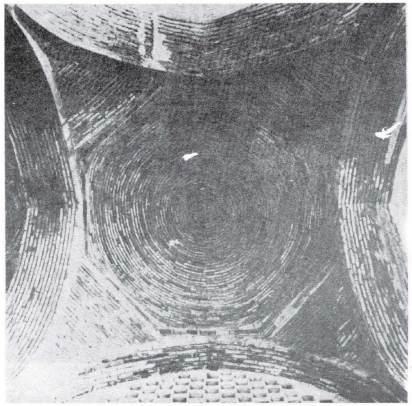
Final mesh

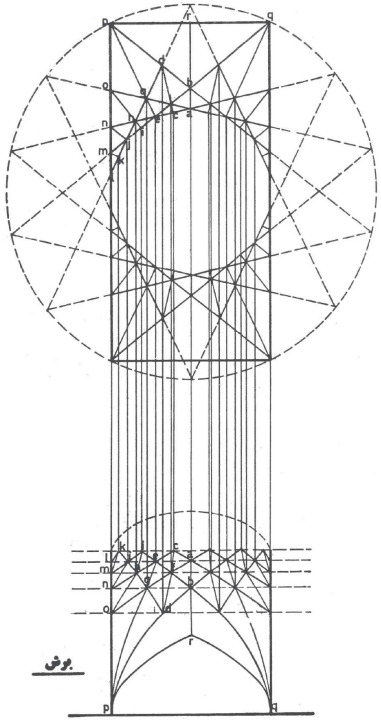


Section and different heights

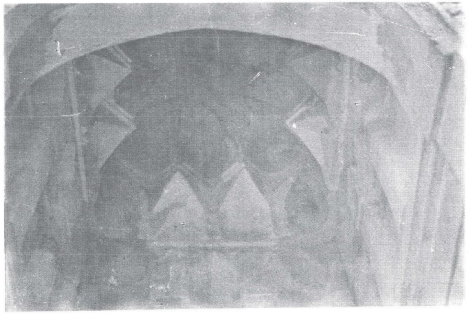
How to make it possible?

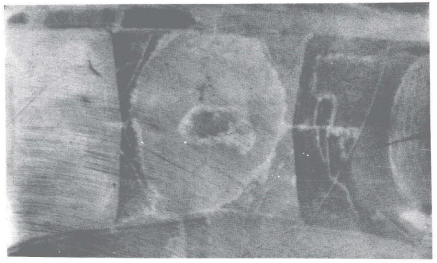




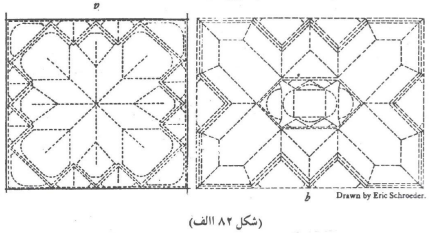


(شکل ۸۰)





(تصویر ۸۲)



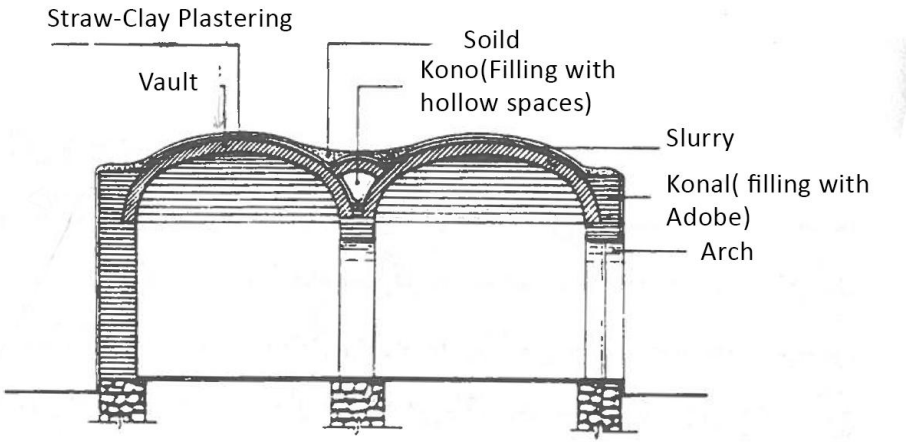
(شکل ۸۲ الف)

Source: G.Memarian, 1988, vaulted structures in islamic architecture,

How to make it possible?

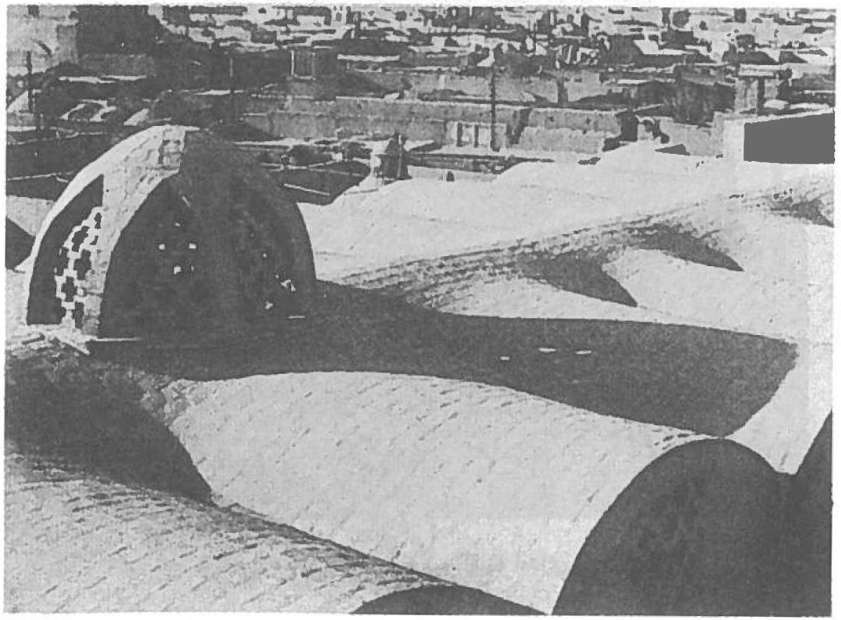
Source: www.sau.ac.ir

How to make it possible?

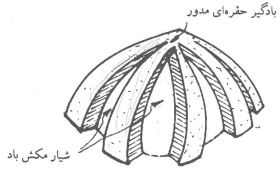


Source: Right:H.Houban & H.Guillard, Earth Construction handbook
Left: H.Zomorshedi, 1995, Construction with traditional building materials

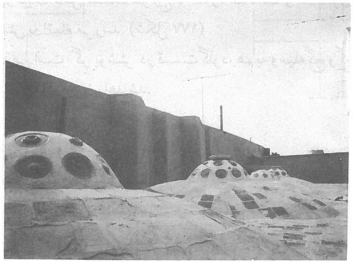
How to make it possible?



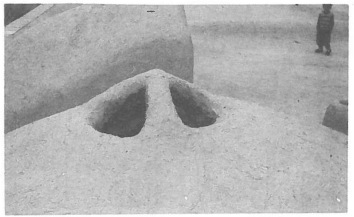
Perforated Wind Catcher for ventilation



Ventilation dome



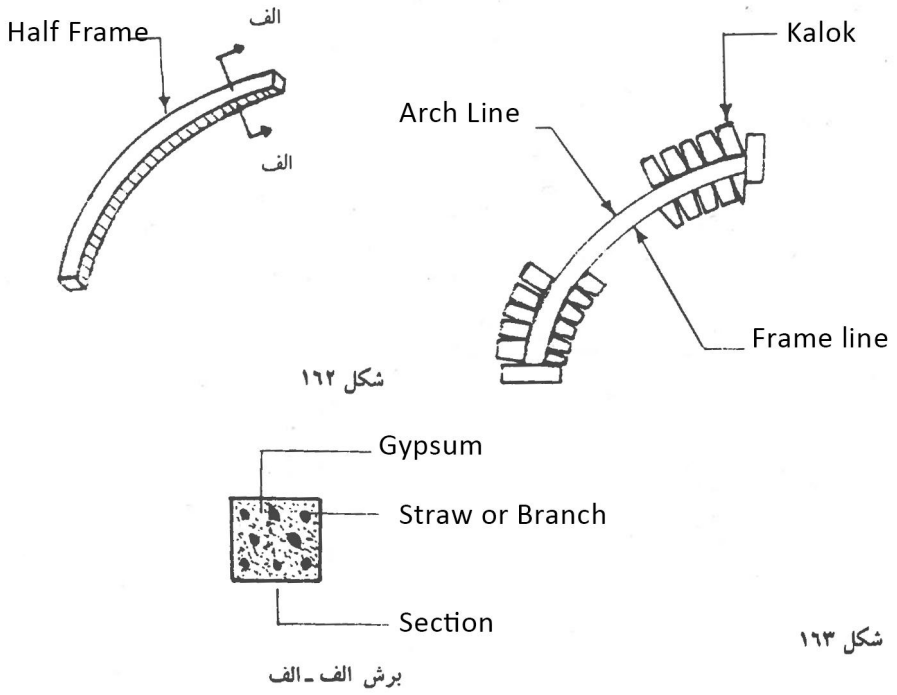
Roof light



Ventelation hole

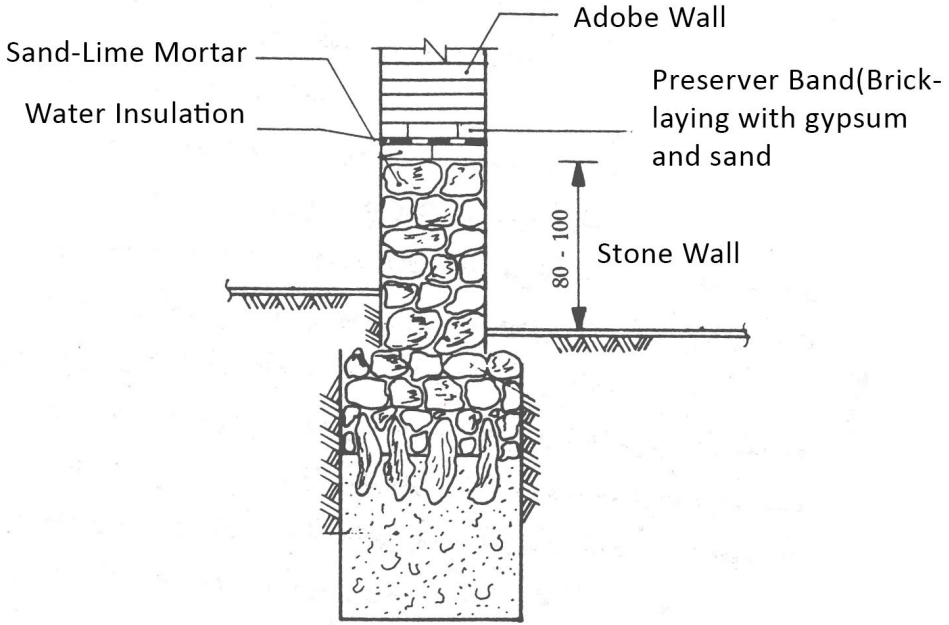
Source: H.Zomorshedi, 1995, Construction with traditional building materials

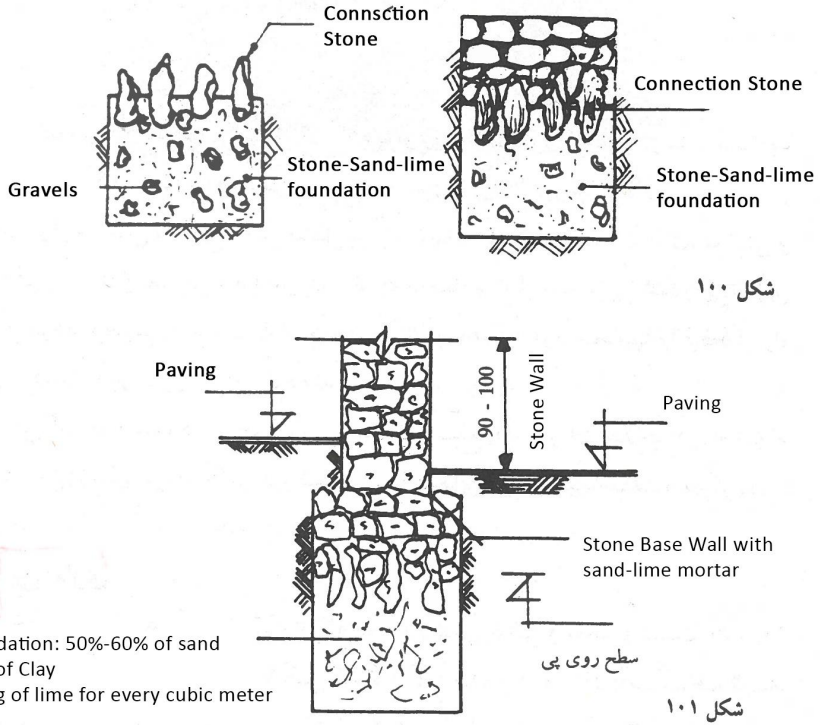
How to make it possible?



Source: Right: H.Zomorshedi, 1995, Construction with traditional building materials
Left: http://memarima.ir

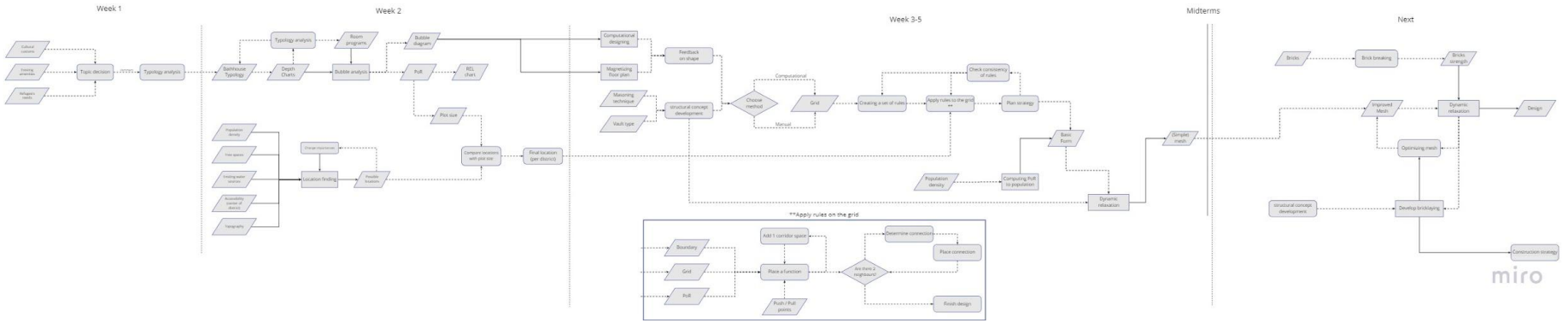
How to make it possible?





Source: H.Zomorshedi, 1995, Construction with traditional building materials

What next?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Final location (per district)
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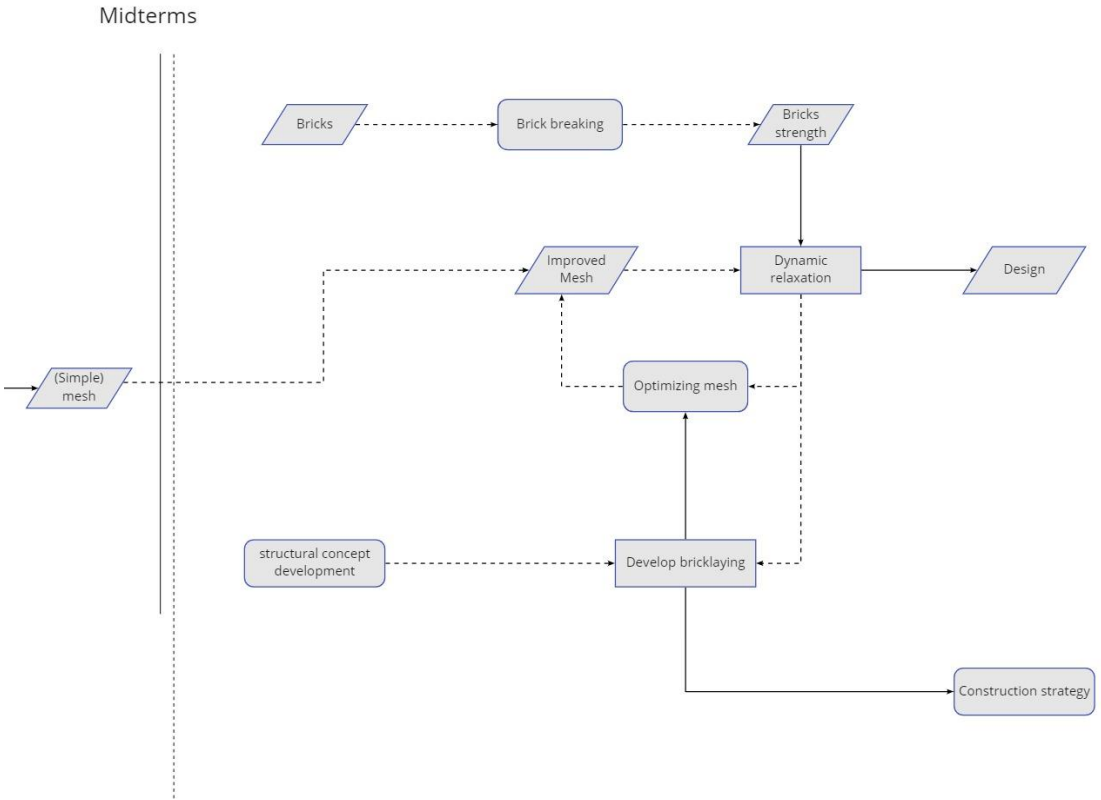
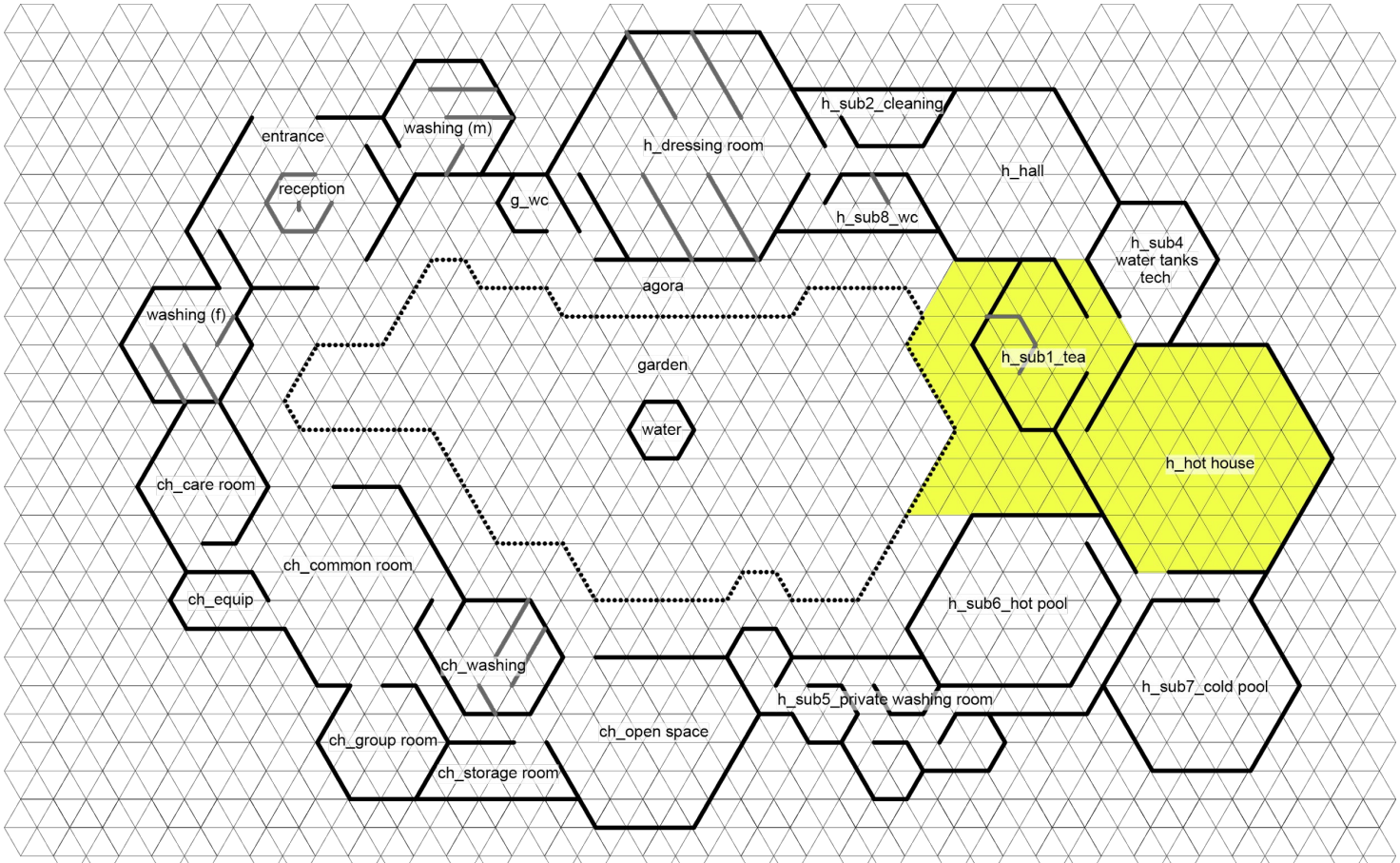
Magnetizing floor plan
Feedback on shape
Massining technique
Vault type
structural concept development
Choose method
Computational
Manual
Grid
Creating a set of rules
Check consistency of rules
Apply rules to the grid
Plan strategy
Population density
Computing PoR to population
Basic Form
Dynamic relaxation
Sampled mesh
**Apply rules on the grid
Boundary
Grid
PoR
Add 1 corridor space
Place a function
Push / Pull points
Are there 2 neighbours?
Determine connection
Place connection
Finish design
Bricks
Brick breaking
Bricks strength
Improved Mesh
Dynamic relaxation
Design
Optimizing mesh
structural concept development
Develop bricklaying
Construction strategy
miro

What next?


Midterms
Bricks
Brick breaking
Bricks strength
Improved Mesh
Dynamic relaxation
Design
(Simple) mesh
Optimizing mesh
structural concept development
Develop bricklaying
Construction strategy

Structural challenge