

RAHA

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Recreational Activity Hub Actuator

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0 - Problem statement

The zaatari camp houses a large number of syrian refugees. Although the camp was set-up as a short-term accommodation the ongoing war has prolonged the duration to a latent permanency.

As a result, long-term solutions are required not only in accommodation but also by **providing adequate and culturally relevant community** based facilities that also work towards informally addressing underlying issues related to the **holistic well-being of the refugees**.

Intervention

The proposed intervention is to introduce a “**recreation hub**” including **a tea house, a hammam, a play area for children and connecting courtyards with herbal gardens**.

The proposed function is a culturally relevant community based “recreation hub” where the spaces allow for various levels of human interaction, activities and informal counseling.

0 - Design Vision

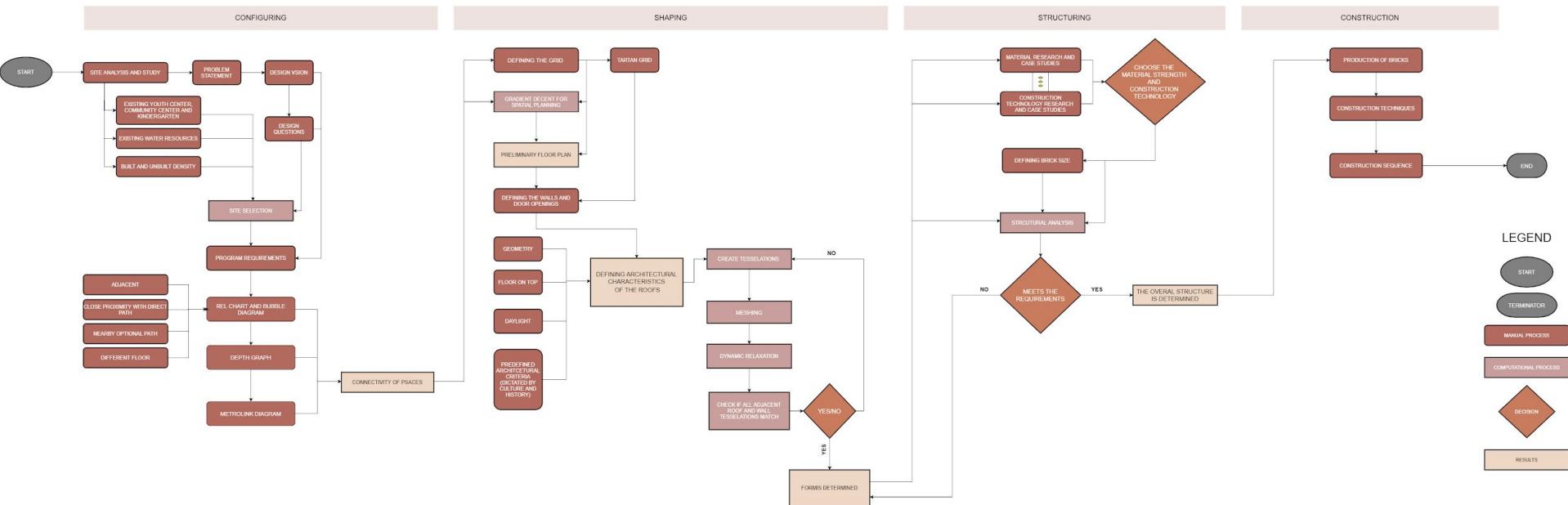
The design vision is to create a “**recreation hub**” hosting **social spaces** with partly interchangeable functions, which have comfortable indoor climates by learning from **vernacular architecture** and utilizing appropriate building technology that allows for efficient use of space, limited resources and ease of constructability.

Design questions

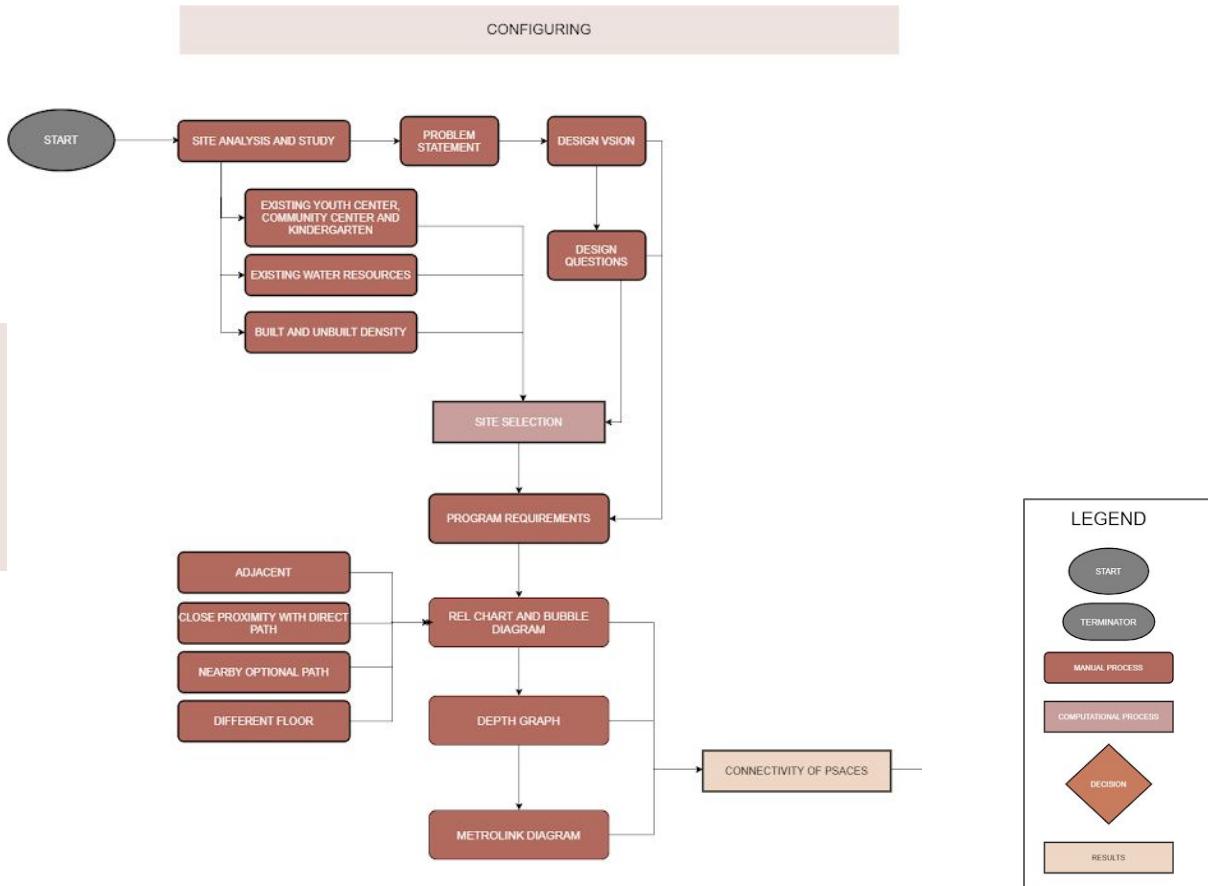
- What are the site conditions?
 - what is the climatic condition?
 - what is the population size?
- Where should the “recreation hub” be located?
 - what is the built-unbuilt relation?
 - what resources are available?
 - what facilities are present?

- What are the programmatic needs of the “recreation hub”?
 - which programs are culturally relevant and fit the site context?
 - what is the area requirement of each program?
- How should the different programs be spatially configured?
 - What is the public-private zoning requirement for each program?
 - What is the level of enclosure required for each program (closed, open, semi-open)?
 - What type of indoor comfort is required for each program?
 - What type of visual connection or circulation is required between different programs.

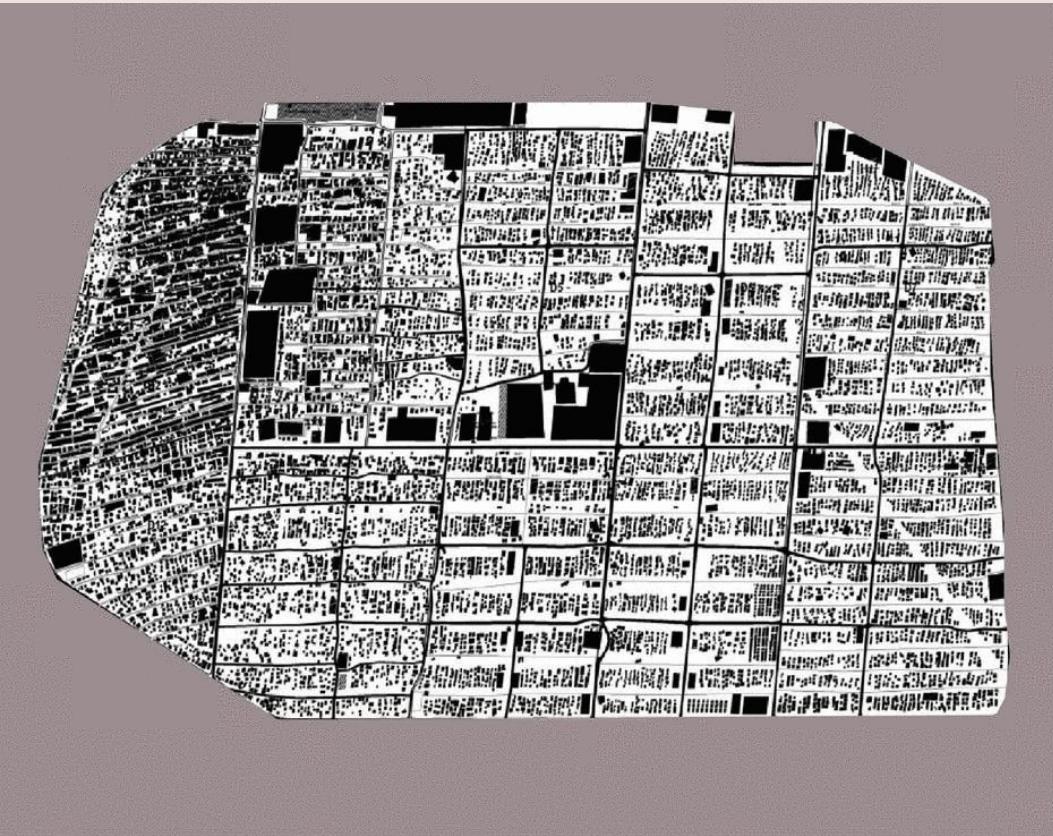
0 - The Process



1 - Configuring



1 - Site study and selection



LOCATION SELECTION

Built-Unbuilt space

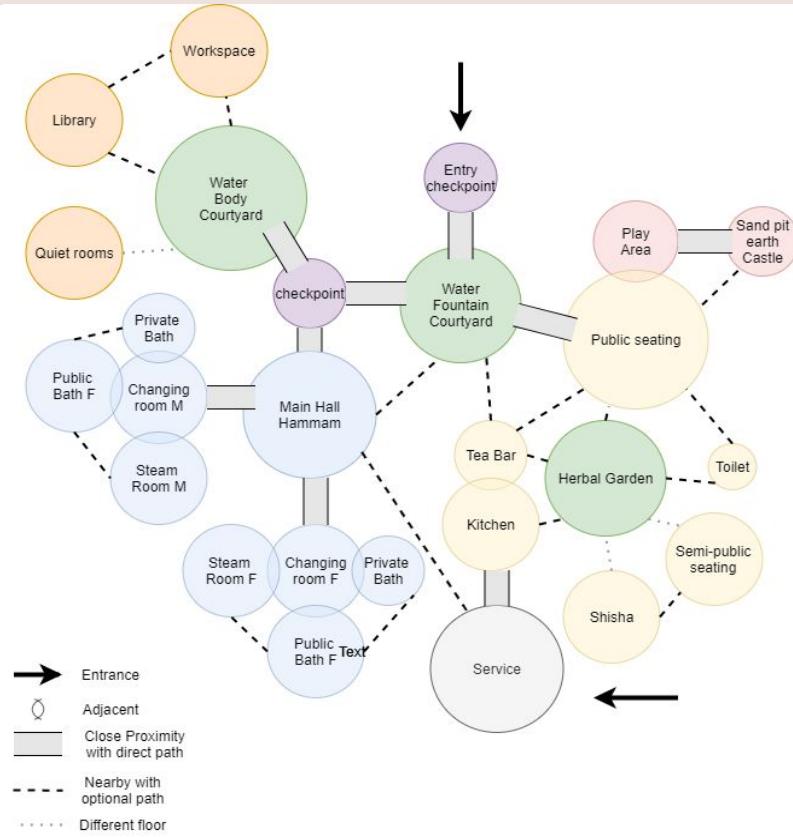
1 - Programme development

Space	Functions	Nature of the space		Area (sqm)	Capacity	Net Area (sq.m)	Quantity	Total Area (sq.m)	Min Clear heights (m)	Daylight	
										Necessity	Orientation
Tea house										Yes	South-East
		Seating spaces	semi-public public	closed semi-open	1.5-2 m2 / person 1.5-2 m2 / person	50 100	100 200	1 1	655 200		
		Sheesha	semi-public	semi-open	1.5-2 m2 / person	70	180	1	180		
		Tea bar	public	closed	5-10 m2 / service table	4	40	1	40		
		kitchen	private	closed	15-25% of total area	-	135	1	135		
Hanam house										Yes	West
		Main Hall	public	closed	190 m2	50	190	1	190		
		Bath space (male)	public private	closed closed	4.5-5 m2 / person	30	140	1	140		
		Bath space (female)	public private	closed closed	4.5-5 m2 / person	30	140	1	140		
		steam room	private	closed	1.5-2 m2 / person	15	30	2	60		
		changing room (male)	private	closed	50 m2	-	50	1	50		
		changing room (female)	private	closed	50 m2	-	50	1	50		
Courtyard										Yes	Varies
		Connector to multiple spaces	public	open	120 m2	-	120	1	120		
		Herbal garden	public	open	60 m2	-	60	1	60		
		Water fountains	public	open	60 m2	-	60	1	60		
Multi-purpose Hall										Yes	North
		Quiet Room	private	closed	1.5-2 m2 / person	30	30	2	60		
		Workspaces	private	closed	1.5-2 m2 / person	24	8	6	48		
		Library	semi - public	closed	1.5-2 m2 / person	90	180	1	180		
Play area										Yes	North-East
		Children's play area	visually connected (public)	semi-open	1.5-2 m2 / person	30	60	1	60		
		Earth Castle	visually connected (public)	open	1.1-1.3m2 / person	35	50	1	50		
		Sand Pit	visually connected (public)	open	1.1-1.3m2 / person	35	50	1	50		
Toilets	male	private	closed	10m2	-	20	2	40	2.7	No	Varies
	female	private	closed	10m2	-	20	2	40	2.7		
Service zone										No	Varies
	electrical room	private	closed	20m2	-	20	1	20	2.7		
	Water pump	private	closed	25m2	-	20	1	20	2.7		
	Water tank (UGT/OHT)	private	closed	25m2	-	20	1	20	2.7		
	Sewage tank (septic)	private	closed	25m2	-	20	1	20	2.7		
	Back entrance (loading/unloading)	private	closed	20m2	-	20	1	20	2.7		
	Garbage room	private	closed	20m2	-	20	1	20	2.7		
	Store rooms	private	closed	20m2	-	20	1	20	2.7		

1 - REL - Chart

Room		Entrance	Entrance/Checkpoint	Entrance/Checkpoint	Teahouse	Children's Paradise	Quite Area	Hammam	Services
	Functions		Water fountain courtyard	Herbal garden					
Entrance	Entrance/Checkpoint	0	1	0	Water fountain courtyard				
	Water fountain courtyard	1	0	1	Herbal garden				
	Herbal garden	0	1	0	Water body courtyard				
	Water body courtyard	0	0	0	Teabar				
	Teabar	0	1	1	Kitchen				
	Kitchen	0	1	0	Public seating				
	Public seating	0	1	1	semi-public seating				
	semi-public seating	0	0	1	sheesha				
	sheesha	0	0	1	teahouse toilets male				
	teahouse toilets male	0	0	1	teahouse toilets female				
	teahouse toilets female	0	0	1	play area				
Teahouse	play area	0	0	0	sand pit and earth castle				
	sand pit and earth castle	0	0	0	quiet area buffer zone				
	quiet area buffer zone	0	0	0	library				
	library	0	1	0	workspaces				
	workspaces	0	0	1	quieter rooms				
	quieter rooms	0	0	1	main hall Hammam				
Children's Paradise	main hall Hammam	0	0	0	changing room male				
	changing room male	0	0	0	private bath male				
	private bath male	0	0	0	public bath male				
	public bath male	0	0	0	steamroom male				
	steamroom male	0	0	0	changing room female				
	changing room female	0	0	0	private bath female				
	private bath female	0	0	0	public bath female				
	public bath female	0	0	0	steamroom female				
	steamroom female	0	0	0	steamroom female				
Quite Area	steamroom female	0	0	0	steamroom female				
	steamroom female	0	0	0	steamroom female				
	steamroom female	0	0	0	steamroom female				
	steamroom female	0	0	0	steamroom female				
Hammam	steamroom female	0	0	0	steamroom female				
	steamroom female	0	0	0	steamroom female				
	steamroom female	0	0	0	steamroom female				
	steamroom female	0	0	0	steamroom female				
	steamroom female	0	0	0	steamroom female				
Services	Service zone	0	0	0	1	0	0	0	0
	Service zone	0	0	0	1	0	0	0	0

1 - Manual bubble diagram



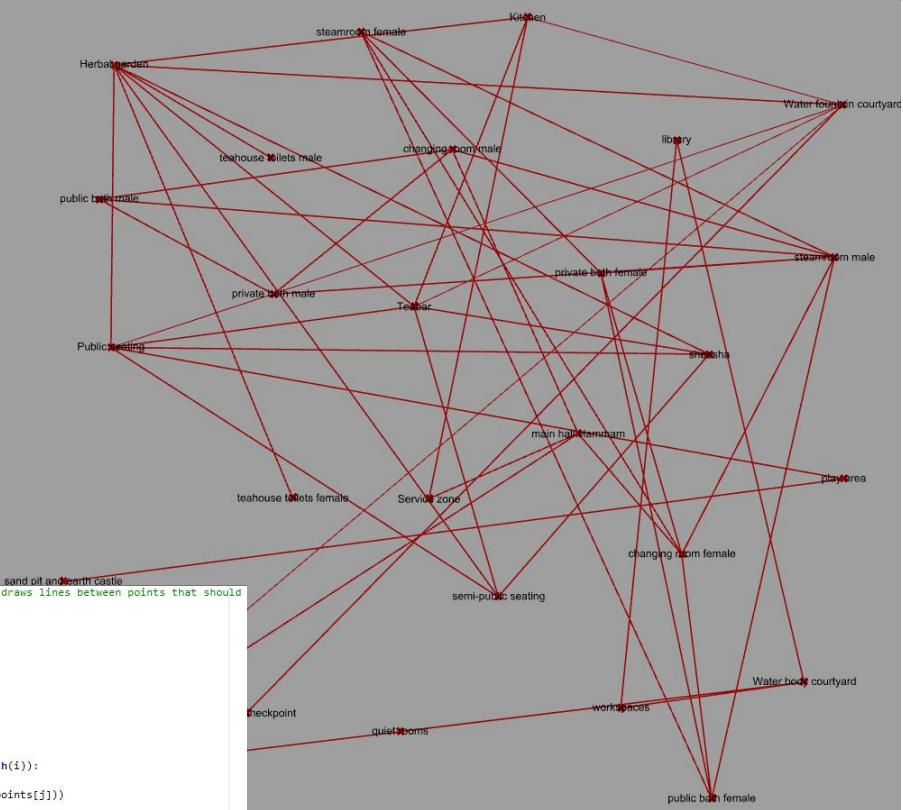
1 - Bubble diagram



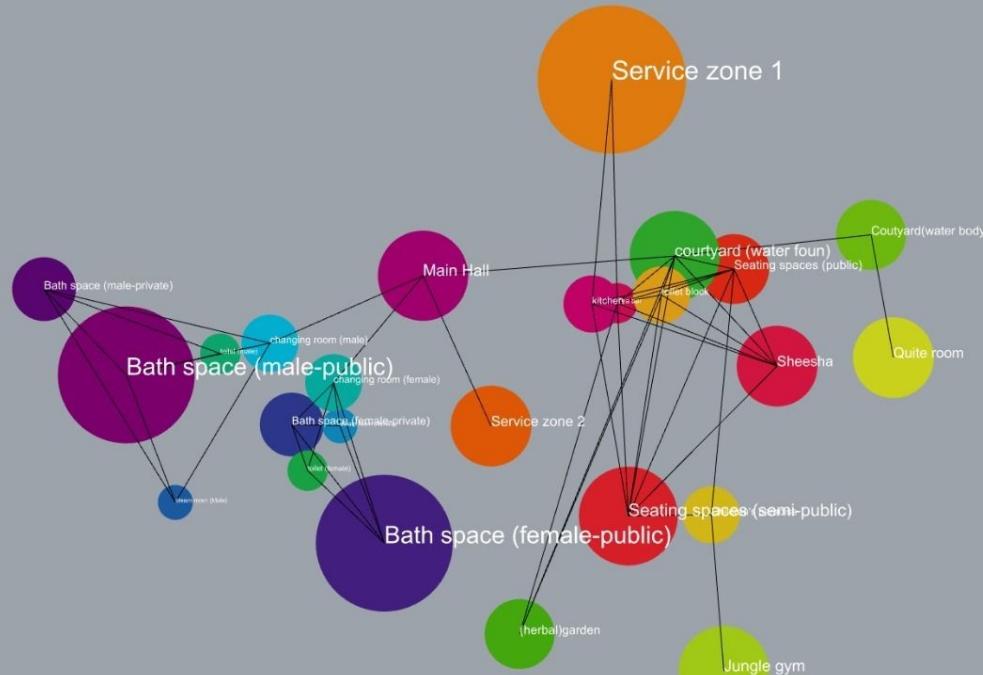
```

1  """Imports connections of the REL-Chart and draws lines between points that should
2  be connected"""
3
4  __author__ = "Thijmen"
5  __version__ = "2020.09.14"
6
7  import rhinoscriptsyntax as rs
8  import Rhino.Geometry as rg
9
10 list_lines1 = []
11
12 for i,b in enumerate(bpoints):
13     for j,con in enumerate(connections.Branch(i)):
14         if con == 1:
15             list_lines1.append(rg.Line(b, bpoints[j]))
16
17 a = list_lines1

```

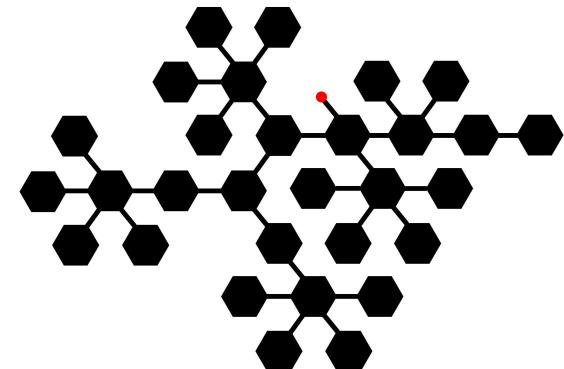
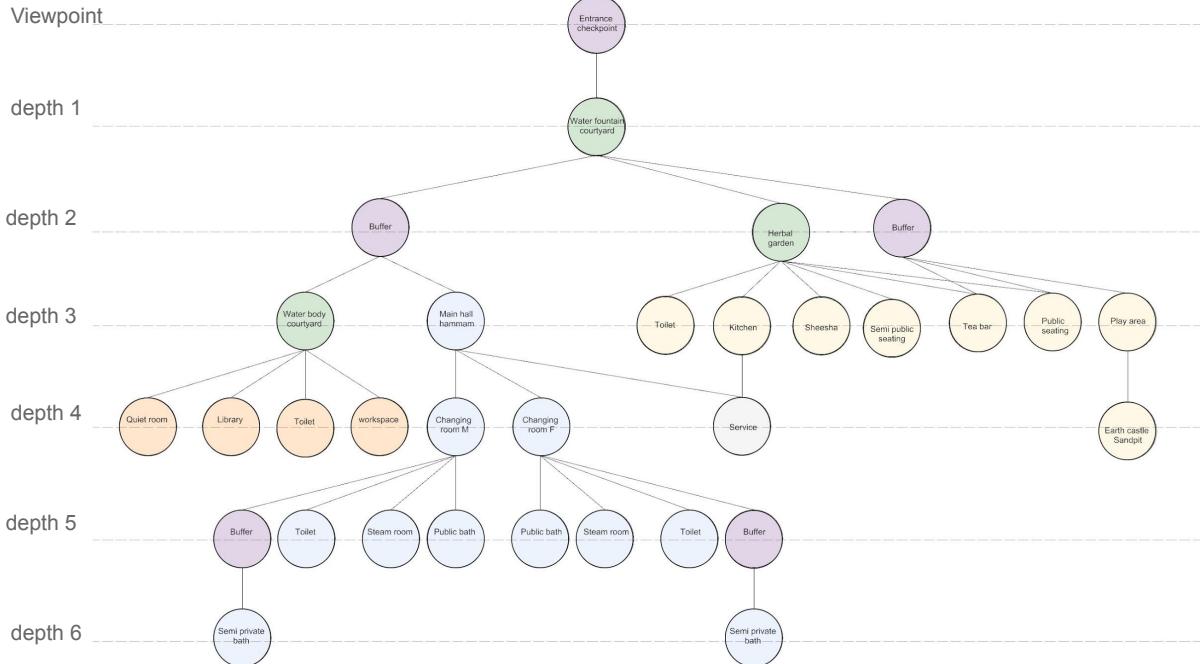


1 - Bubble diagram

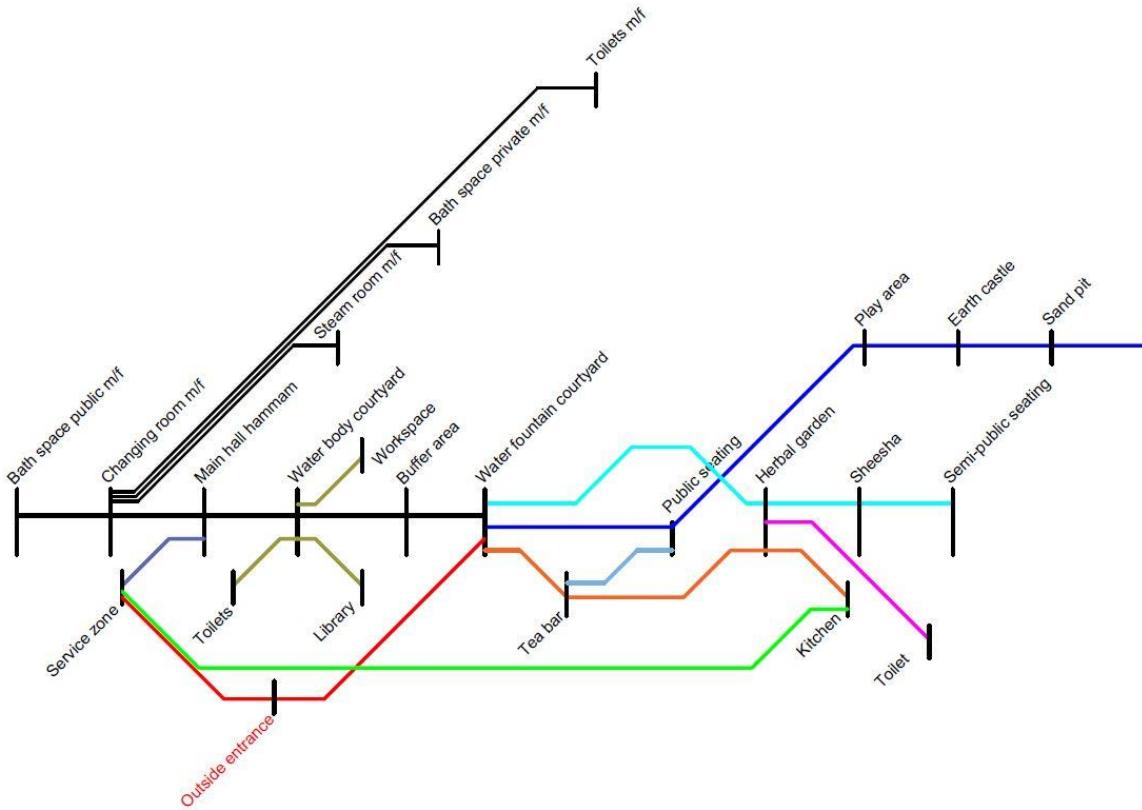


Bubble diagram made using the syntax tool

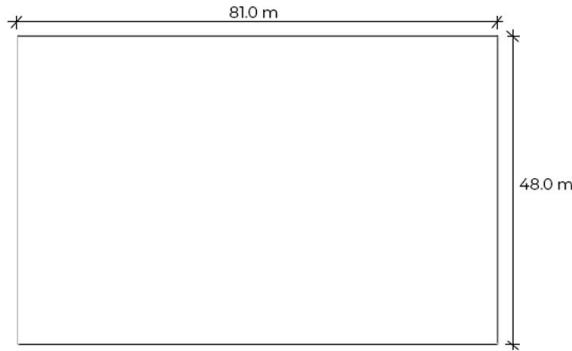
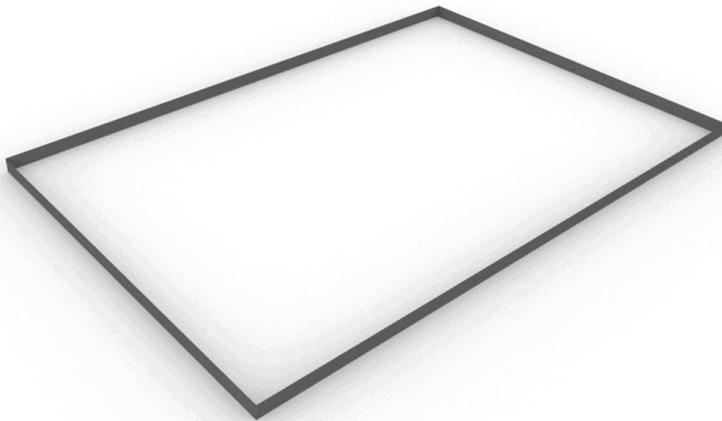
1 - Hierarchy of spaces



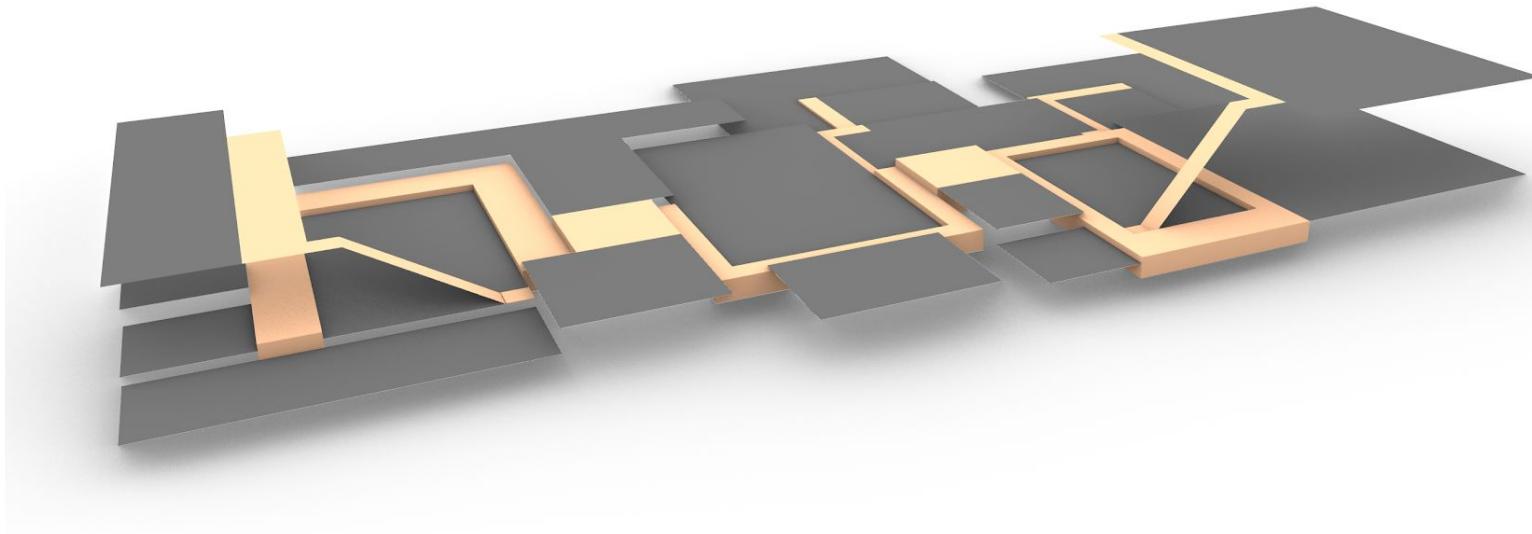
1 - Metrolink diagram



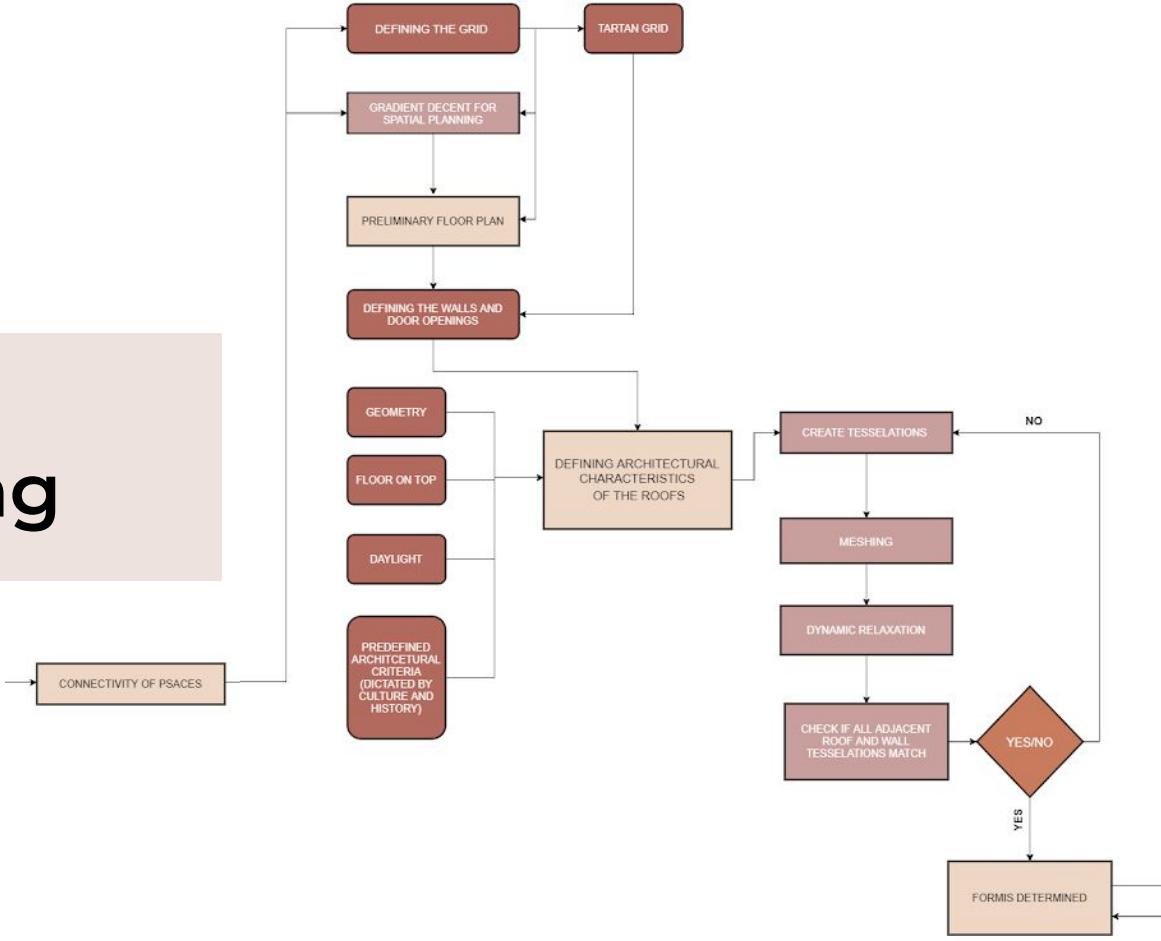
1 - Connectivity of spaces



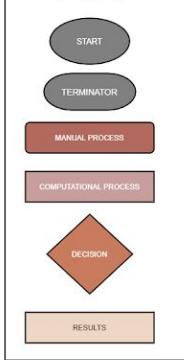
1 - Connectivity of spaces



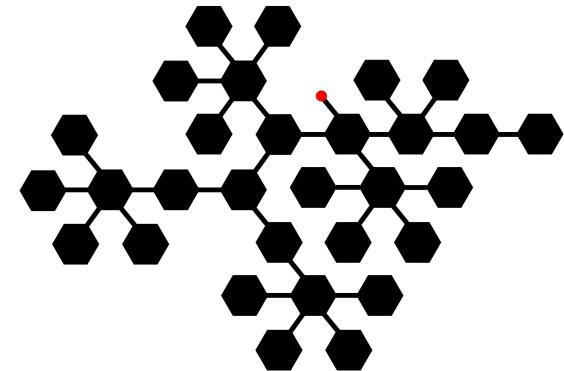
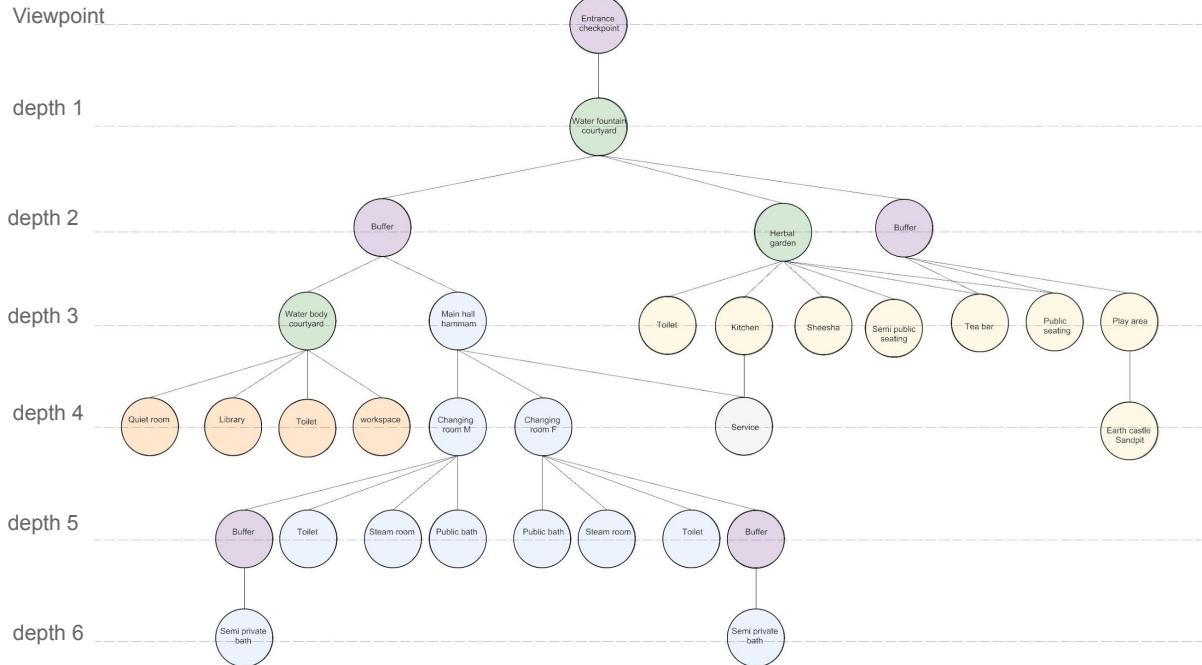
2 - Shaping



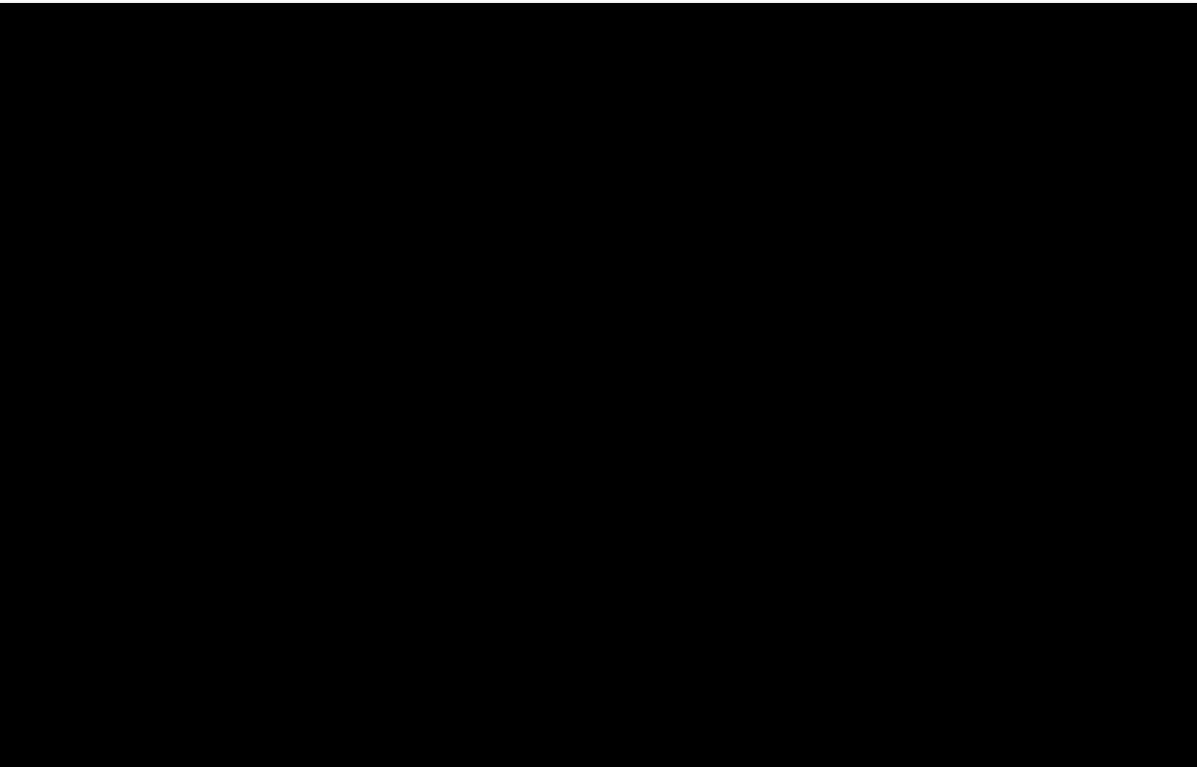
LEGEND



2 - Gradient descent spatial planning



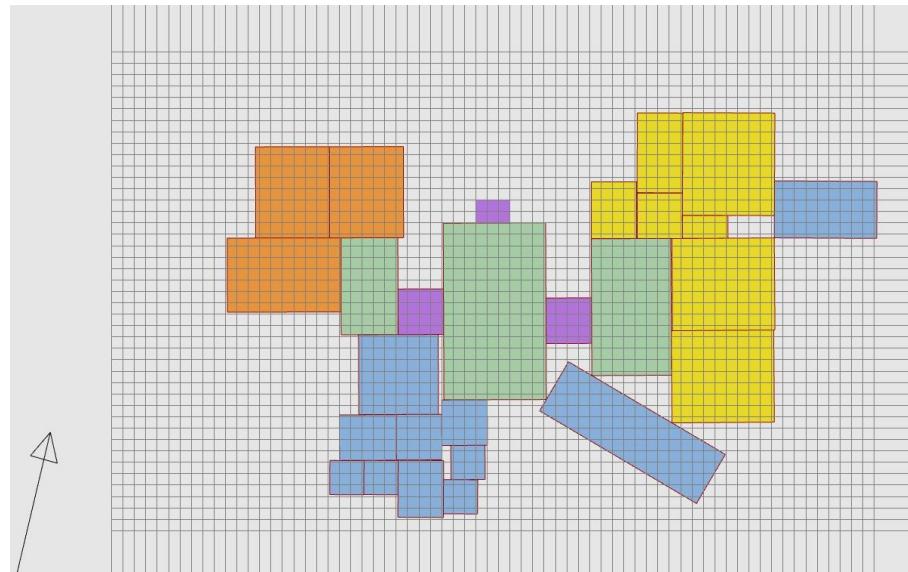
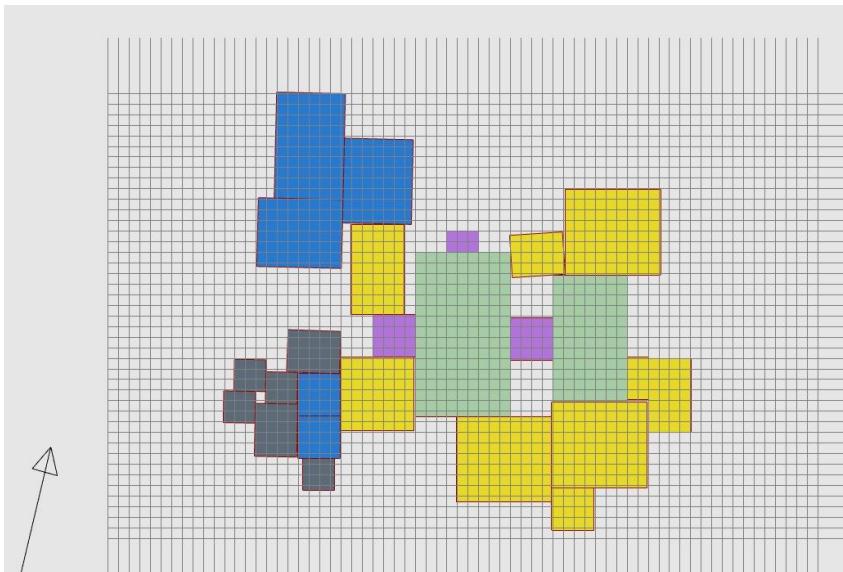
2 - Gradient descent spatial planning



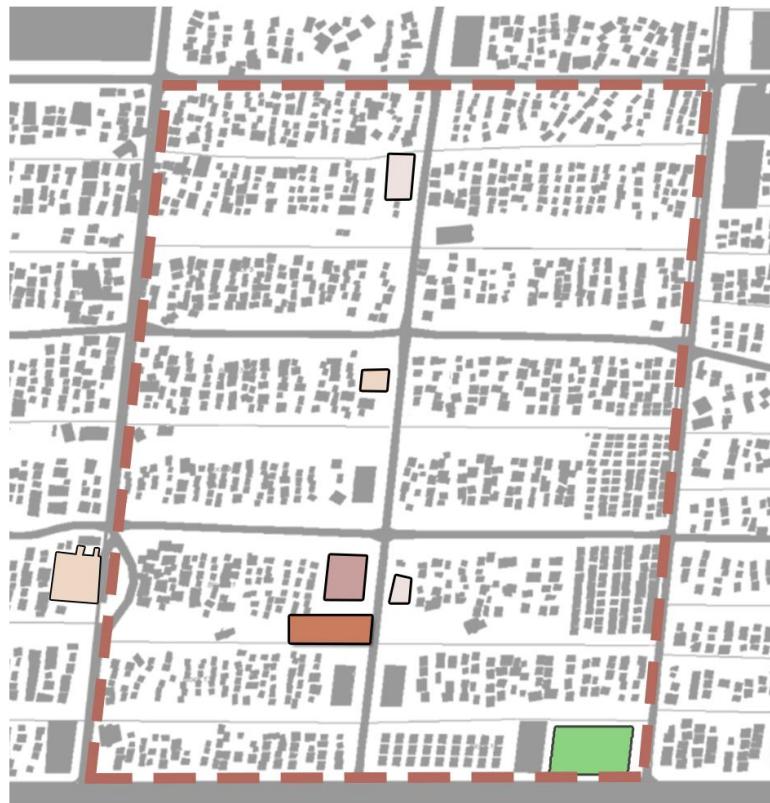
Hierarchy Depths	Spaces	Direction of Spaces	Length of Spaces	Width of Spaces
1	Courtyard water fountain	S	10.8	18.6
2	Buffer	E	4.8	4.8
2	Buffer	W	4.8	4.8
2	Herbal Garden	E	8.4	14.4
3	Hamam Main Hall	S	8.4	8.4
3	Waterbody courtyard	W	6	10.2
3	Teabar	E	4.8	4.8
3	Kitchen	E	4.8	8.4
3	Public seating	E	9.7	10.8
3	semi-public seating	E	9.7	10.8
3	sheesha	E	9.7	10.8
3	teahouse toilets	E	4.8	2.4
3	play area	NE	6	4.8
4	library	W	12	7.8
4	workspaces	W	9.6	7.8
4	quiet rooms	W	9.6	7.8
4	changing room male	SW	4.8	4.8
4	changing room female	S	4.8	4.8
4	Service zone	S	6	19.2
4	sand pit and earth castle	NE	10.8	6
5	private bath male	SW	3.6	3.6
5	public bath male	SW	6	4.8
5	steamroom male	SW	3.6	3.6
5	private bath female	S	3.6	3.6
5	public bath female	S	6	4.8
5	steamroom female	S	3.6	3.6

2 - Gradient descent spatial planning

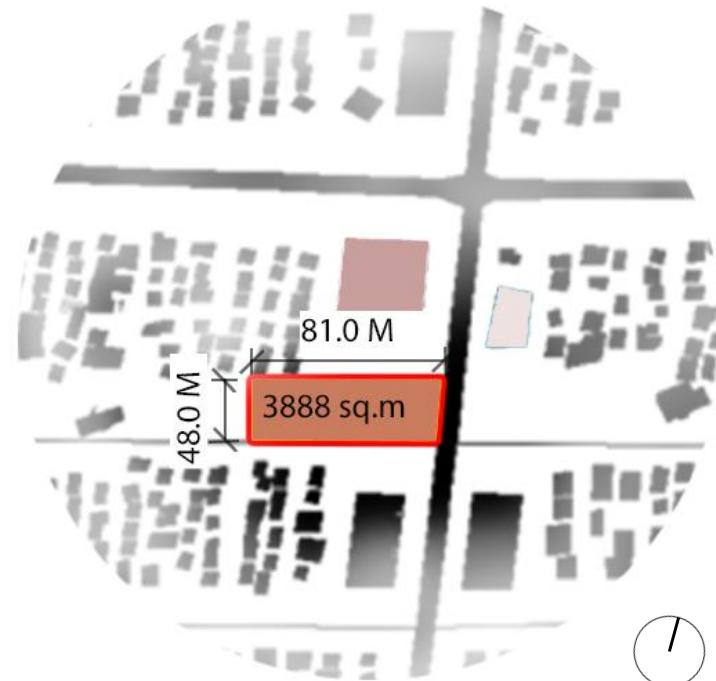
Iterations



2 - Site Plan

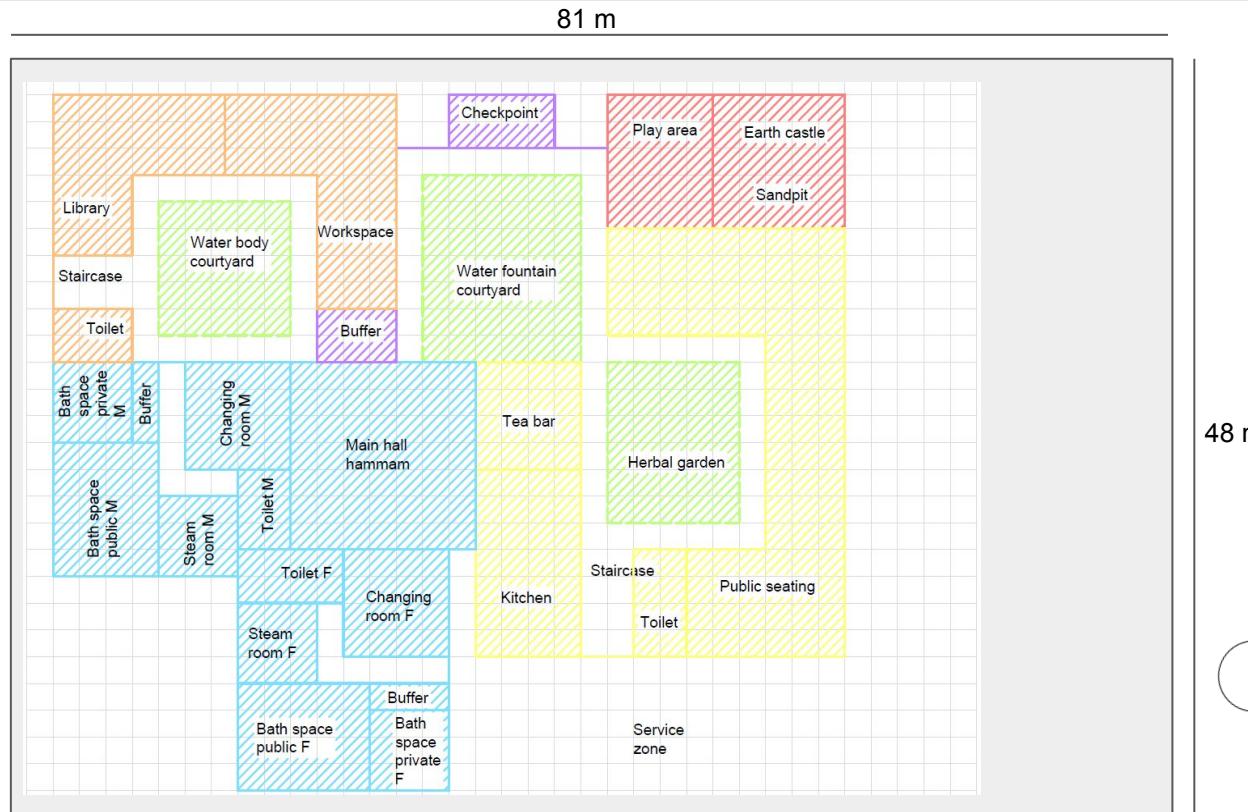


- Youth/Community centre
- Water Reservoirs
- Kindergarten
- Playground
- Proposed Site

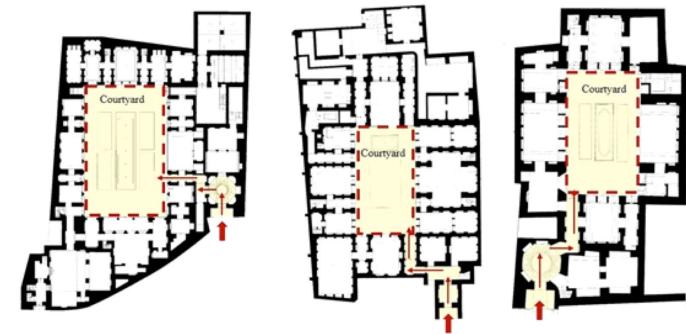
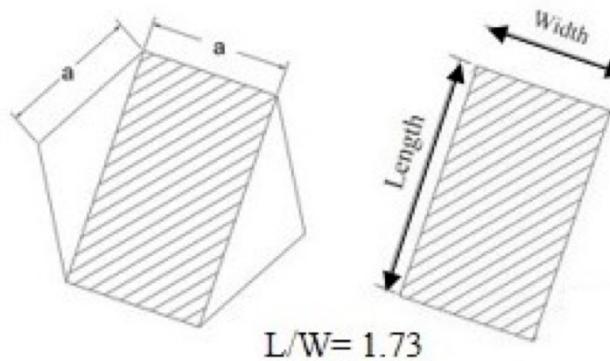
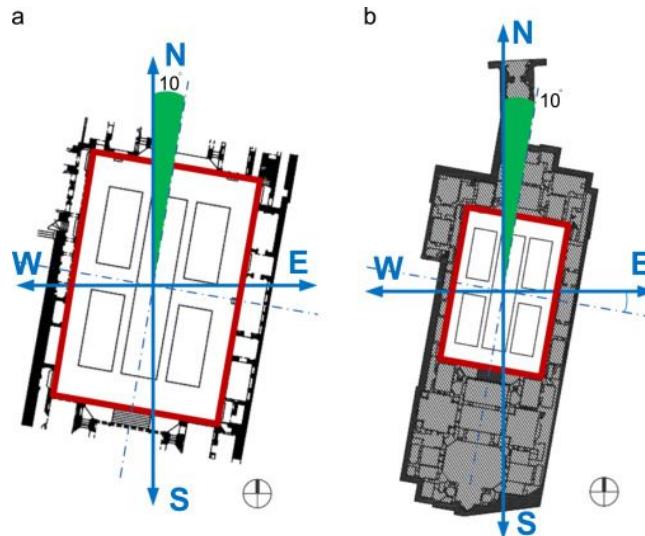


2 - Preliminary floor plan

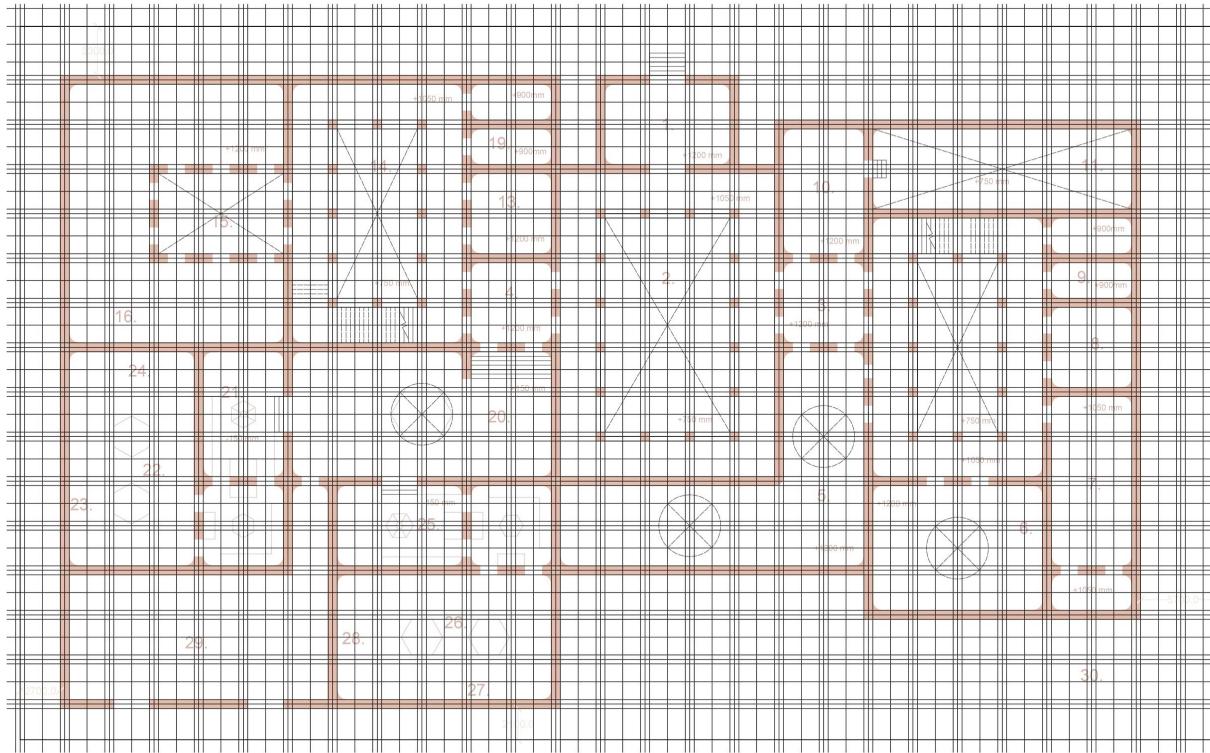
Concept floor plan



2 - Preliminary floor plan

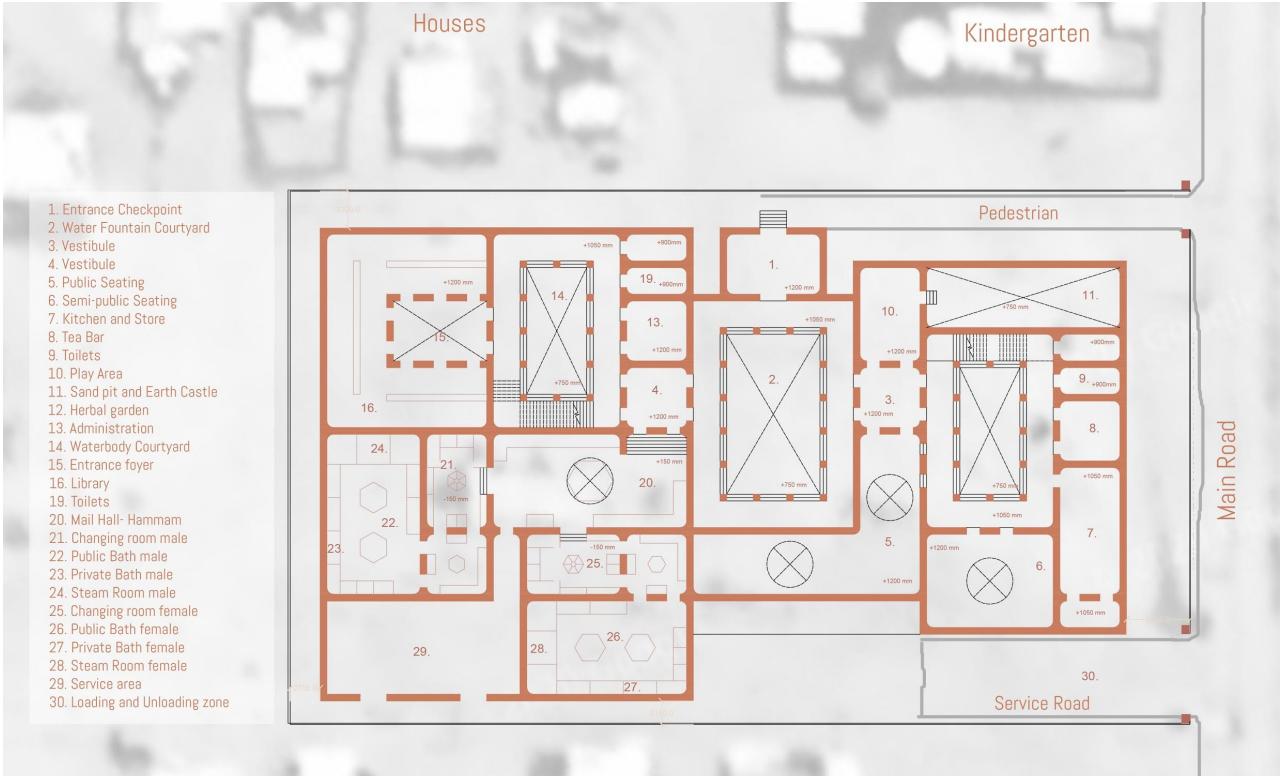


2 - Floor plan

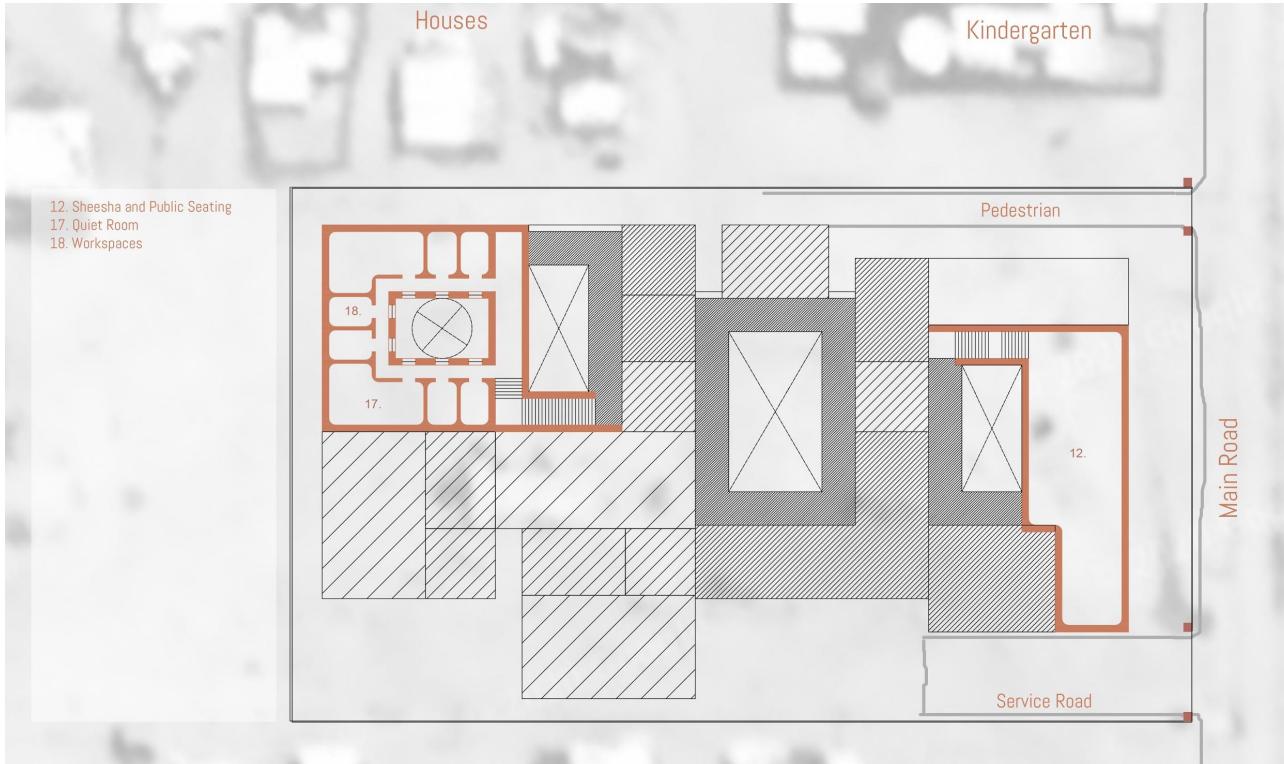


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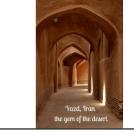
2 - Floor plan



2 - Floor plan

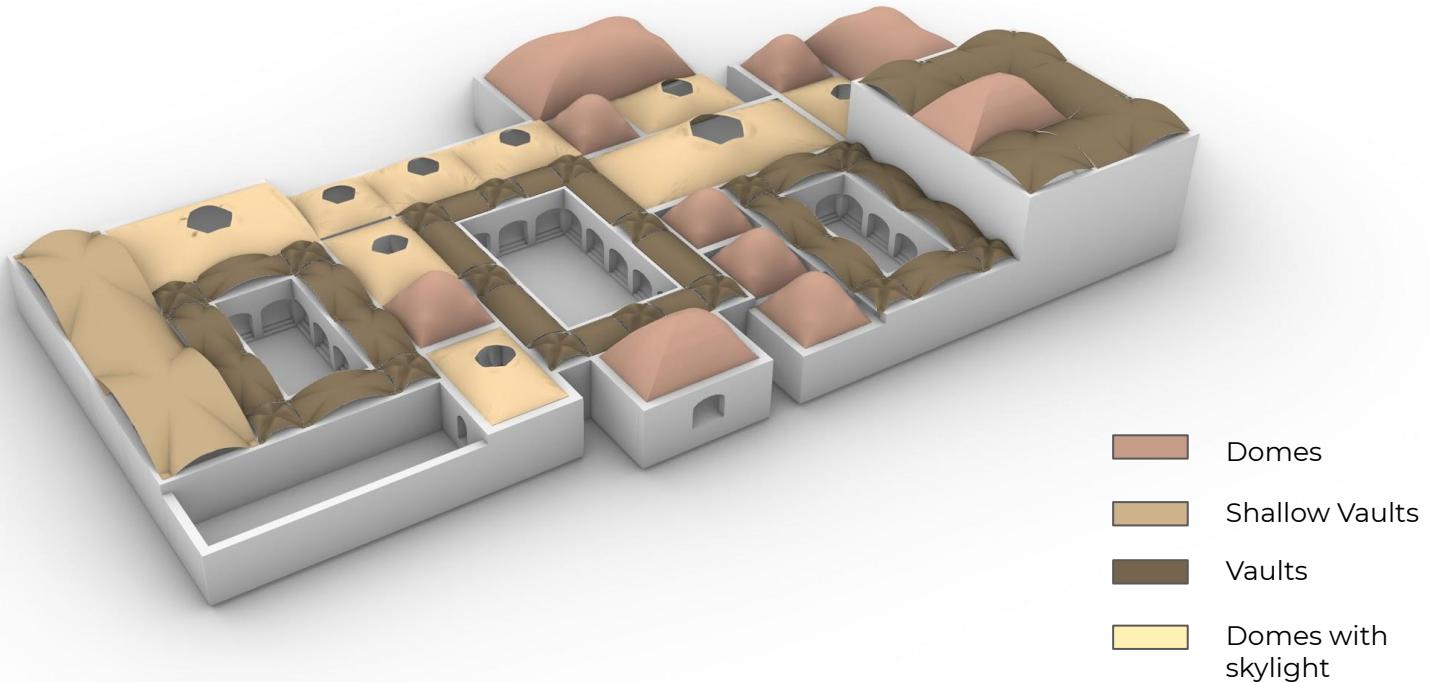


2 - Architectural characteristic of roofs

Roof Types			Spaces	Defining Architectural Criteria			
				Geometry	Pre-defined architectural criteria	Daylight	Floor on Top
Dome			Vestibule Hammam Bath spaces Entrance check point Toilets Administration				
Dome with Skylight			Hammam Main hall Library Tea house Semi-public seating Play area Hammam Changing areas				
Shallow vaults			Corridors in the ground floor Tea bar Toilets Kitchen store room				
Vaults			Corridors in the first floor Quiet rooms work spaces				

	Priority 1
	Priority 2
	Priority 3
	Priority 4

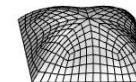
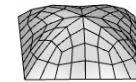
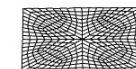
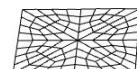
2 - Roof view



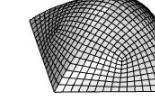
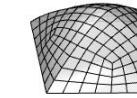
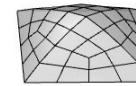
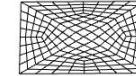
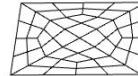
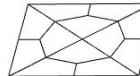
2 - Different tessellations

Domes

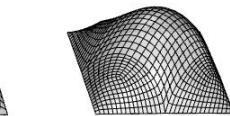
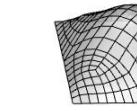
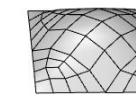
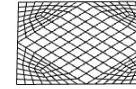
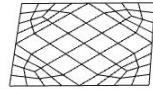
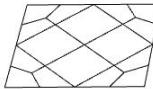
*First triangulate then
constant quad split*



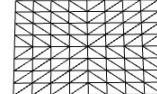
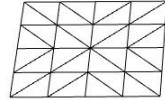
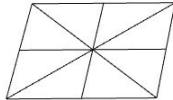
Constant quad split



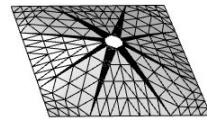
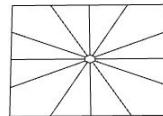
*Triangulate edge then
constant quad split*



All triangulate

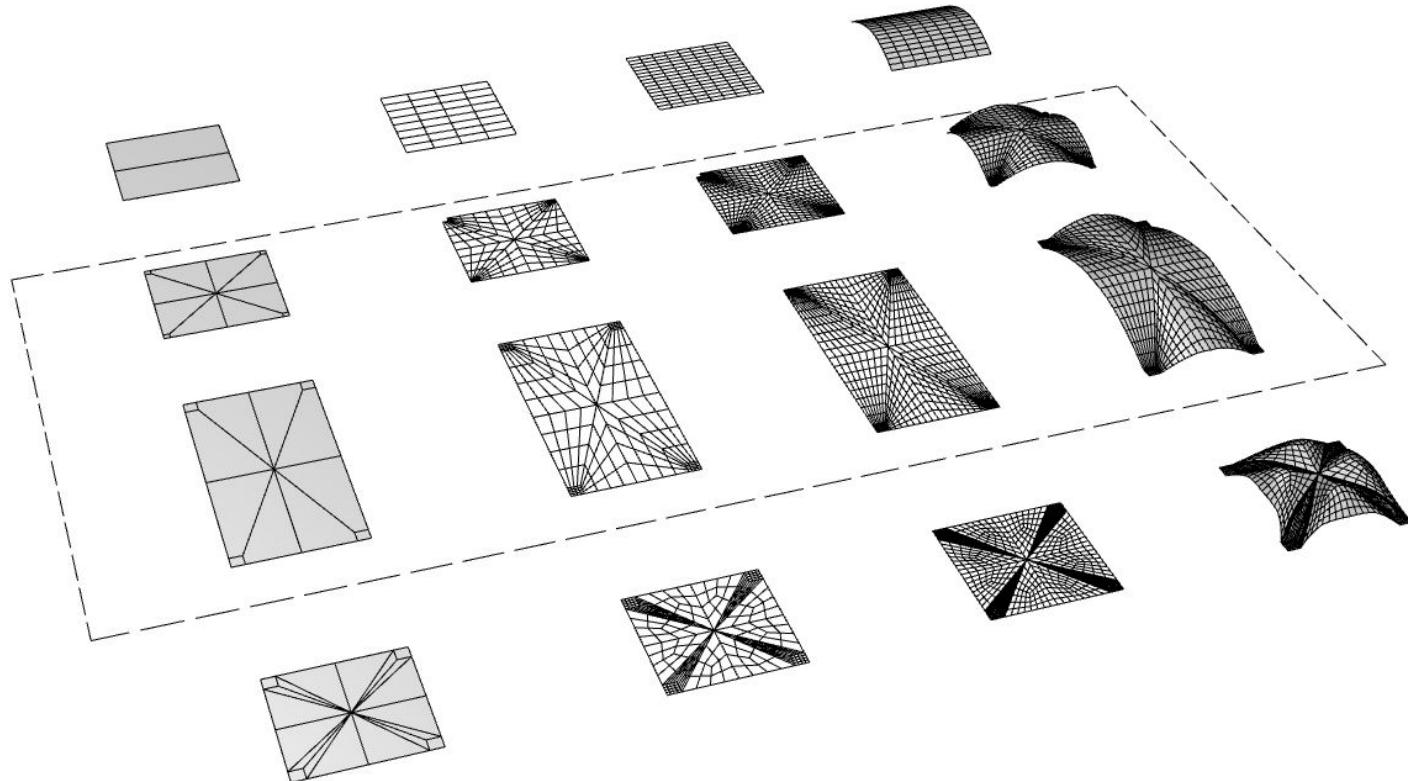


*Triangulation with
skylight*

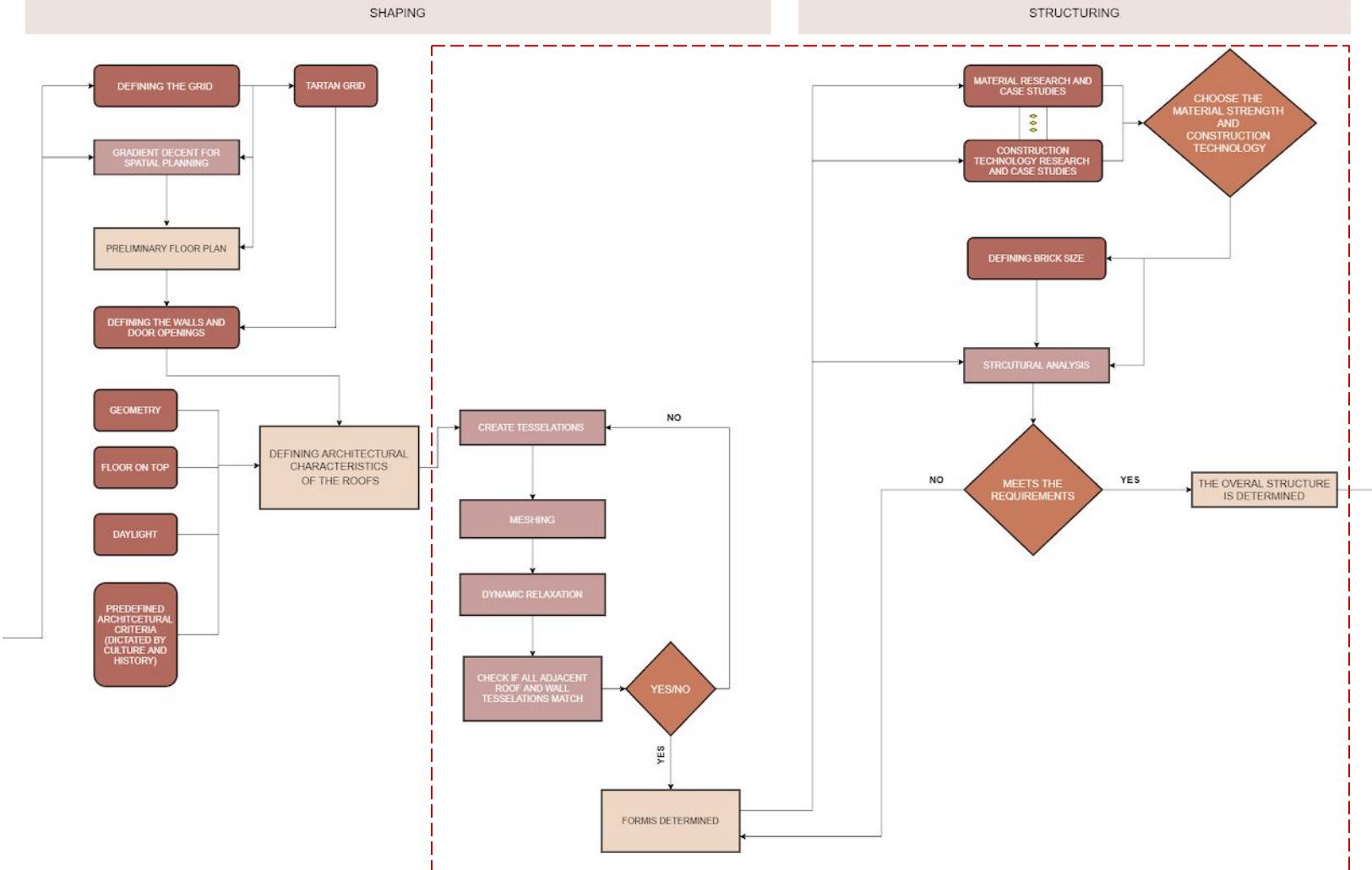
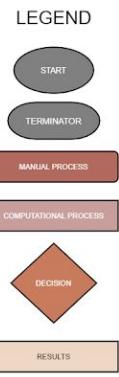


2 - Different tessellations

Vaults



what is next?



OPEN FOR QUESTIONS

