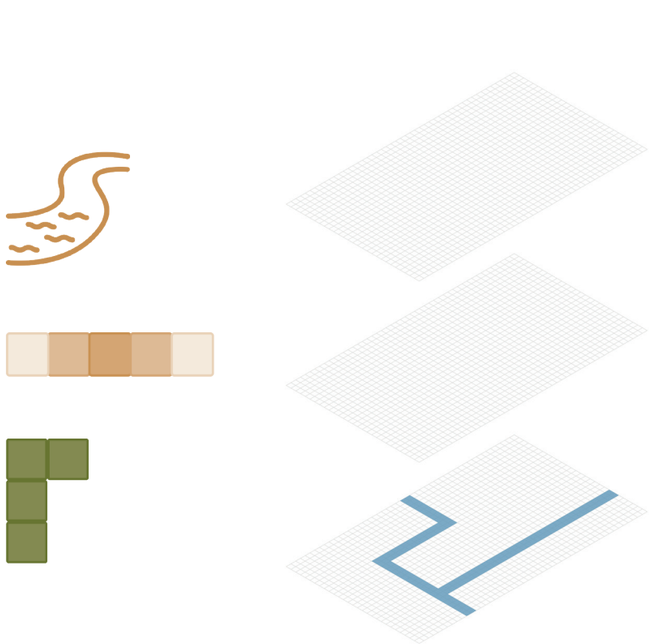
Rules

Water Canals

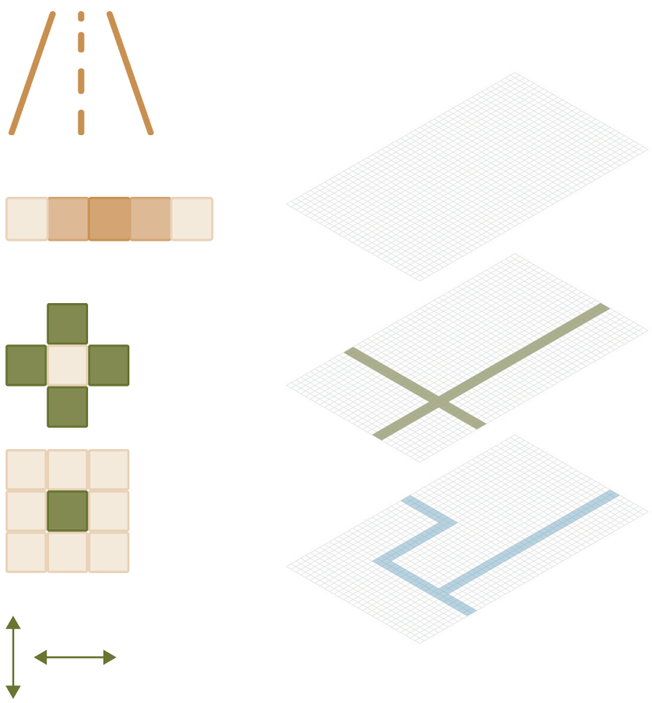
Water canals are manually placed on the plot. The existing flooding areas (height map) determine the location.



1. Place water canals (width = 1 pixel)
- Level = -1
- Water goes from high to low.
- Canals follow the height map.
- The amount of bends should be kept as minimal as possible.

Marchant roads

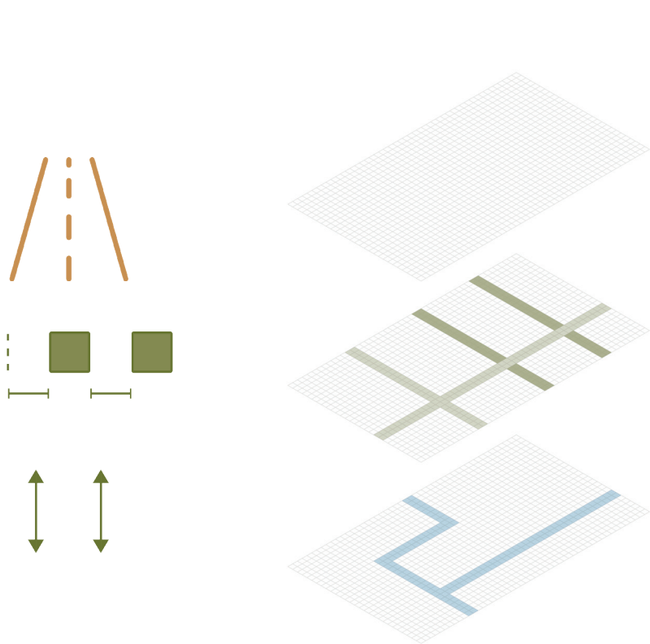
The merchant roads connect the bazaar with surrounding infrastructure. Most functions that are part of a product chain will be placed around these roads, hence the name. To have the biggest benefit of the water, the roads are placed near as much water as possible.



2. Place merchant roads (width = 1 pixel)
- The roads are straight.
- One horizontal road and one vertical.
- Both roads should be connected to the longest waterway in said direction.
- The roads should be on the side of the canal that is most central regarding the plot.

Sub-roads

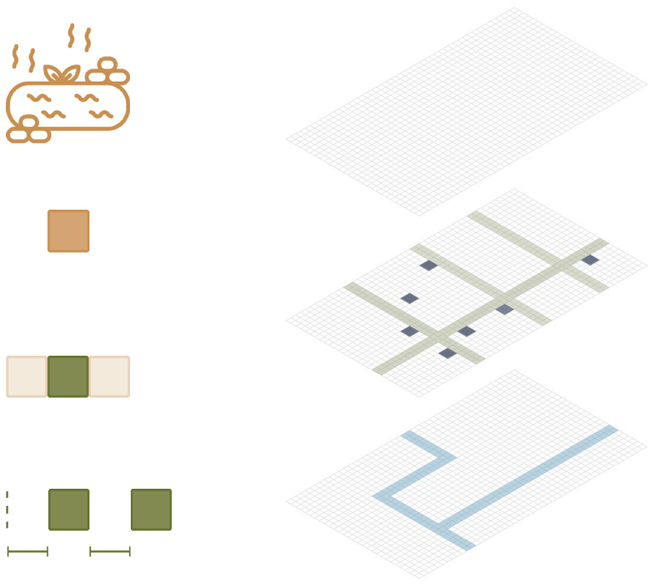
To prevent spaces not being reachable extra roads are placed. They are located approximately 5 voxels apart, because this is the optimal space for placing other functions.



3. Place sub-roads (width = 1 pixel)
- The roads should be straight and run vertically.
- Two roads should be placed.
- Space between roads and plot boundaries is evenly divided.
- The sub-roads should not cover more than 2 canal modules.

Wells

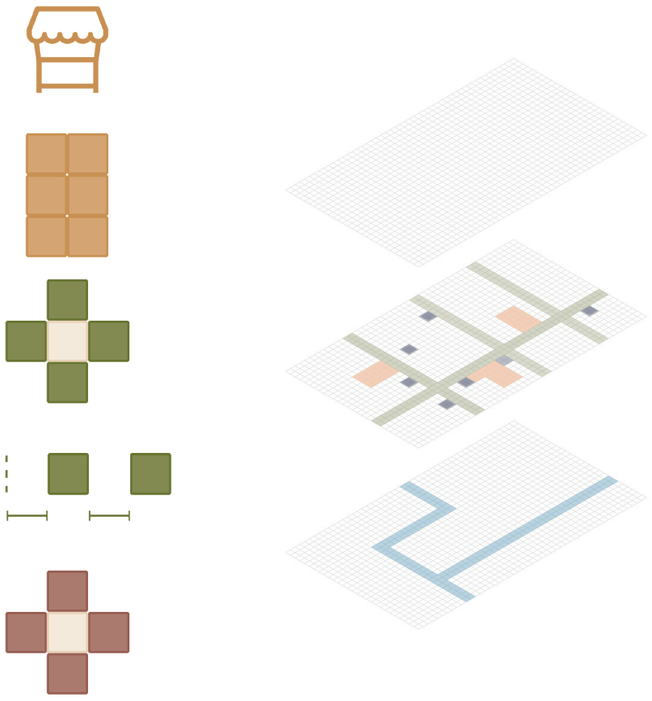
Throughout the plot water is needed, especially by the water workshops. Wells must be placed on top of the canals and the space between should be evenly divided. This makes the wells most accessible, taking into account the shape of the canals.



4. Place wells (1 pixel)
- Place wells on top of canals.
- Total of water workshops x 2, evenly divided.
- Start at 3 pixels from the side.

Squares

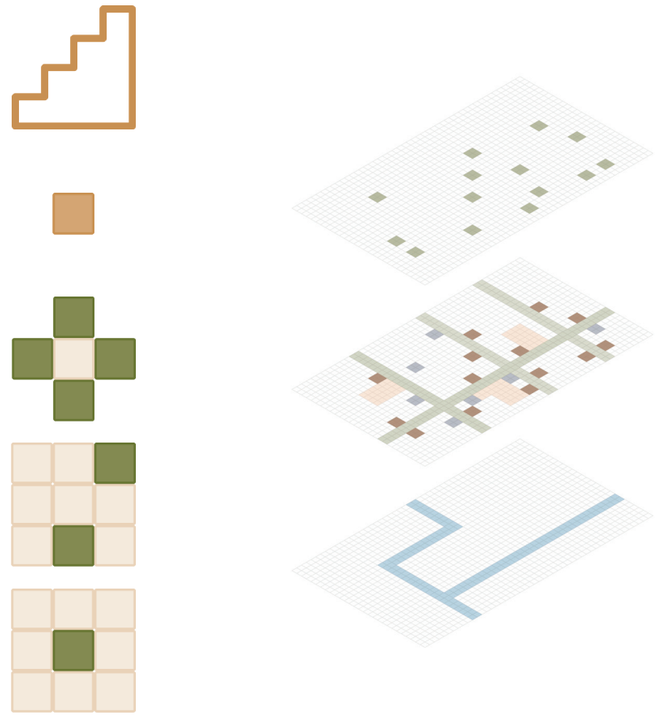
Squares form small centres surrounded by shops. To get an equal distribution of shops throughout the plot, the squares should be evenly divided.



5. Place 3 squares (3 x 2 pixels each)
- Distance between the squares is evenly divided.
- The short side should be connected to the main roads.
- Minimum of 1 pixel between any roads and a square.
- Not on top of wells.
- After courtyards are placed: free pixels connected to squares become a square.

Stairs

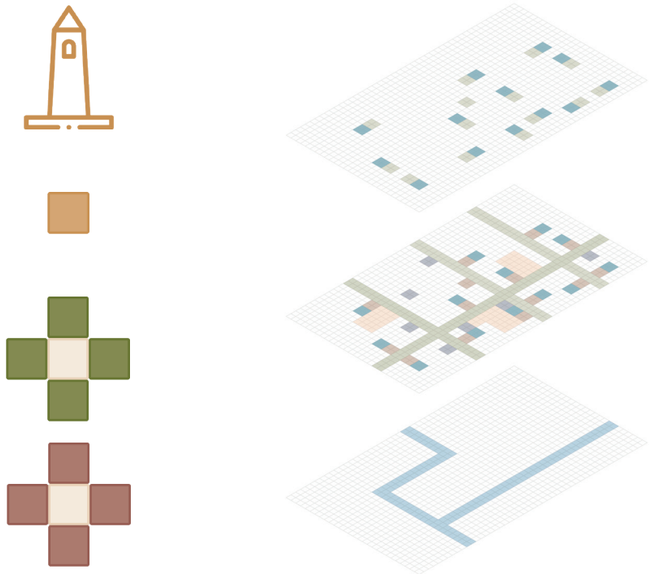
The configuration will have a first floor because not all modules can be placed on the ground floor. To reach this floor, stairs are placed. The functions located on the first floor are houses and food workshops. The houses seek for calmness and privacy, which is found on the first floor. The food workshops have a lower intensity looking at transporting products since crops can't be harvested every day. Two stair modules are placed per building block to create the best connectivity between functions.



6. Place Stair modules (1 pixel)
- Stairs are placed next to roads.
- Within each building block (in between the roads) 2 stairs are placed.
- Along the edge of the building block that is closest to the center of the pot: stairs are placed on the pixel closest to the middle.
- Stairs can not be placed on top of water.

Wind towers

Wind towers do not have to be reached from the roads often, because they are low on maintenance. For this reason, they are not located next to the roads. They are evenly divided over the plot to ensure the building is cooled everywhere.



7. Place wind towers (1 pixel)
- For each stair module, a wind tower is placed.
- Connect to stairs, at the opposite side of where stairs are connected to the road.

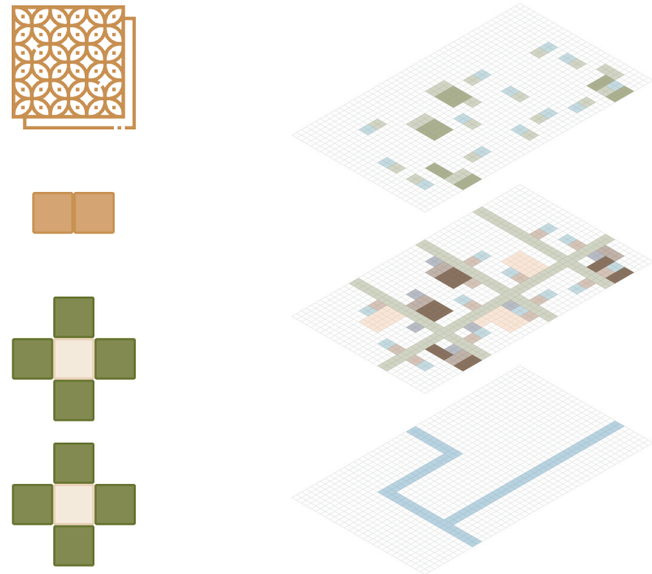
Water workshops

Water workshops need water to function so they are placed next to a well. They should be accessible from the merchant roads, but also generate a lot of noise so they should not be placed near squares. Fabrics and carpets are evenly divided so each square will be differentiated more.

8. Water workshops (2 pixels)
- Place as close to a well as possible.
- Maximum of 3 pixels away from a well.
- Short side connected to a road.
- Away from squares.

Non-water workshops

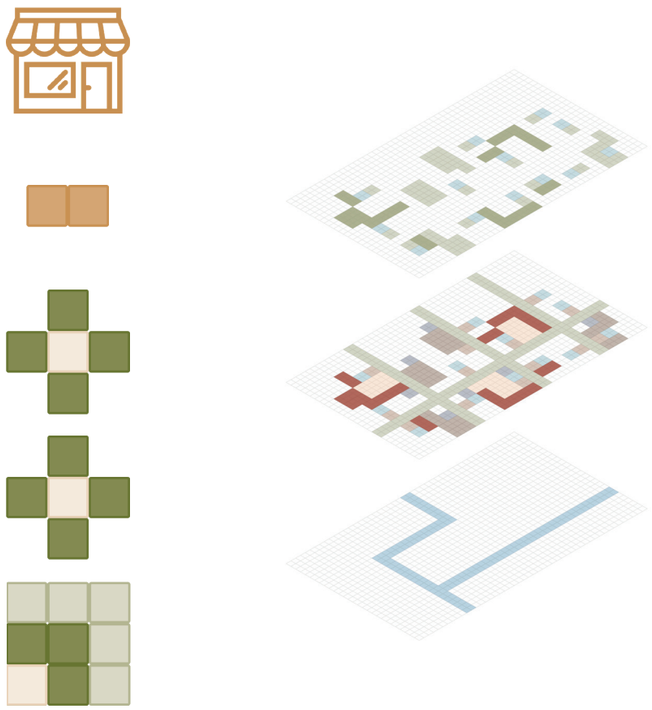
Workshops are clustered together with the water workshop that is part of the same product chain. Products are constantly moved between these workshops, so the clustered workshops should be placed directly next to each other.



9. Place workshops (2 pixels)
- As close to the water workshop of the product chain as possible.
- Evenly divide the workshops of a product chain over the existing water workshops.
- Short side connects to the road.

Shops

Shops are visited by a lot of people, so they are clustered around the squares. This way they can be easily located and accessed by visitors. The distance between the shop and the workshop they get their producst from should be minimized for transportation.



10. Place shops: (2 pixels)
- Connected to or close to squares.
- Short side (entrance) connected to a merchant road.
- Close to the cluster of workshops the shops get their goods from.

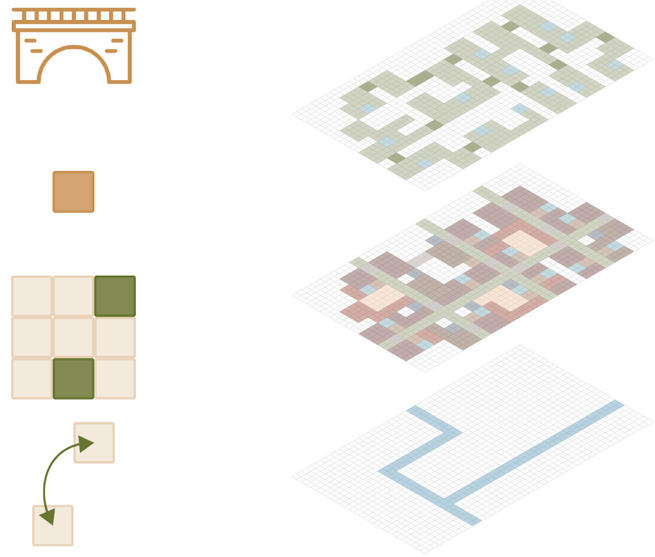
Houses ground floor

Houses need more calmness and privacy so they are located away from the squares and workshops as much as possible. However, people want to live close to facilities so the houses are not located at the edge of the plot.

11. Place houses on the ground floor (2 pixels)
- Attracted by sub-roads
- Attracted by other buildings
- Short side connected to a road
- Stairs as close as possible
- At least five homes should be placed on the first floor.

Bridges

To connect all parts of the building, bridges are placed. Bridges are placed in such a way that all blocks are connected to each other in the most efficient way.



12. Bridges
- Locate all roofs accessible via stairs.
- Locate all roofs accessible by these roofs.
- Make a continuous line that connects all building blocks with each other in the most efficient way.
- Place bridges where there are no accessible roofs.

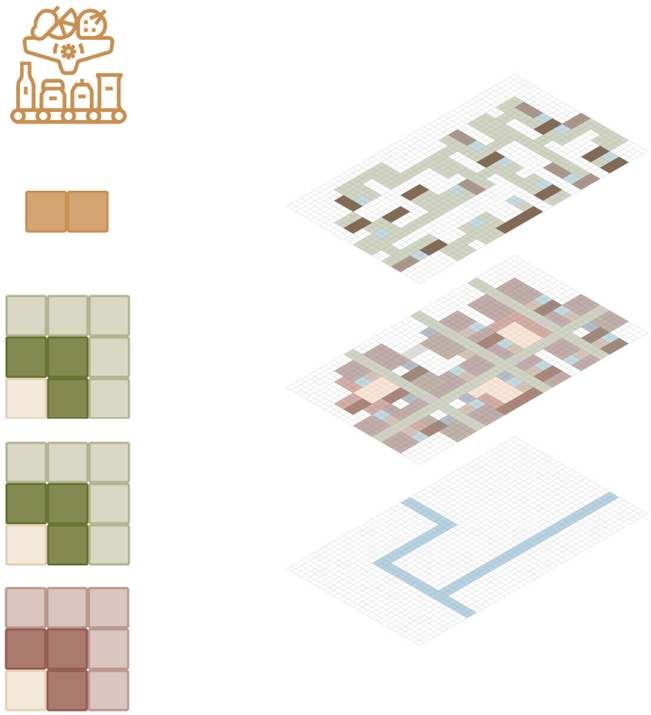
Houses first floor

The houses on the first floor follow the same rules as the houses on the ground floor.

13. Place houses on the ground floor (2 pixels)
- Attracted by sub-roads
- Attracted by other buildings
- Short side connected to a road
- Stairs as close as possible
- At least five homes should be placed on the first floor.

Food processing

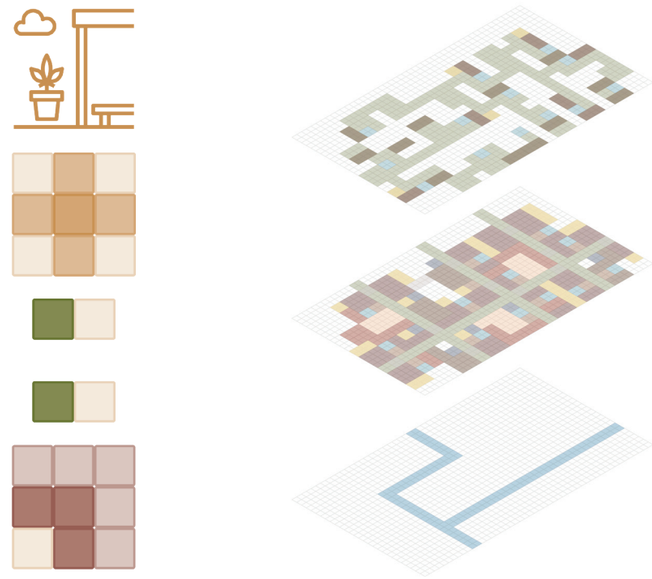
Food processing workshops are used less frequently and thus do not have a lot of specific demands. This is why they are placed on the first floor. The food processing workshops follow the same logic as the other non-water workshops.



14. Place Food processing (2 pixels)
- Located on the second floor
- Within 3 pixels of stairs.
- Attracted by shops
- Repelled by homes.

Courtyards

Courtyards are part of Syrian culture. It is an outside living space that is located next to a house. As many houses as possible are provided with a courtyard. Courtyards are shared between houses with a maximum of four houses.



15. Courtyards
- If possible, every house gets a courtyard at the opposite side of the door.
- Else, the courtyard is located as far from the front door as possible.

Fields

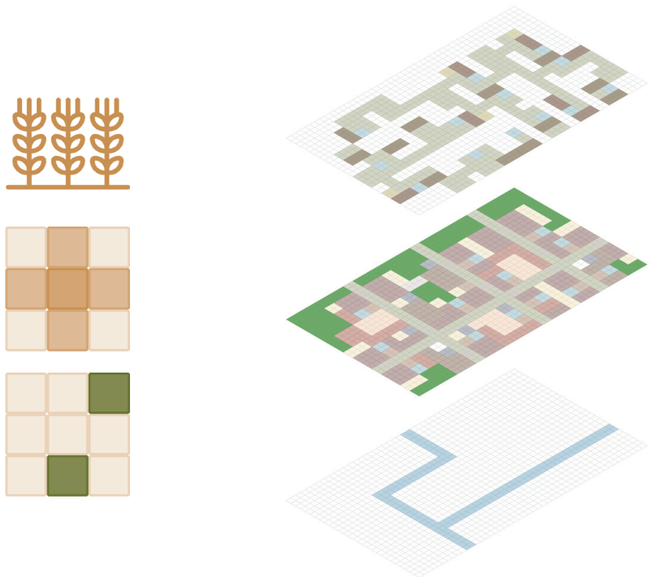
All voxels on the ground floor that don't have a function yet become fields, as long as they're not surrounded by buildings and roads. This way all fields have a adequate connection to the infrastructure and harvested crops can easily be transported.

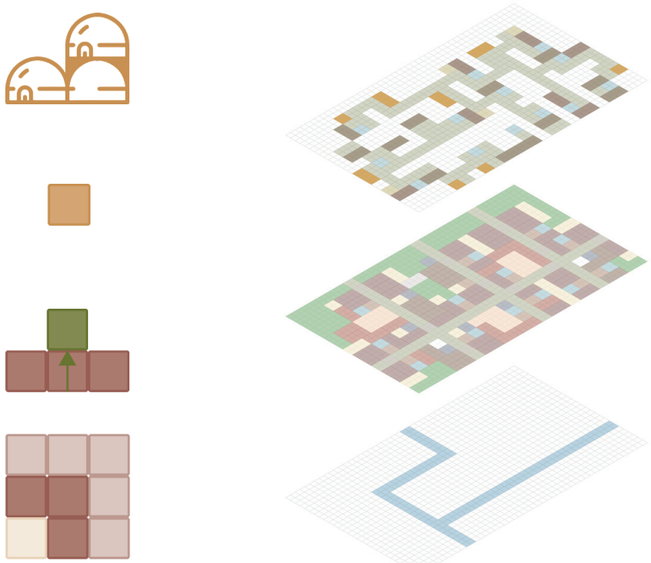
Pavilions

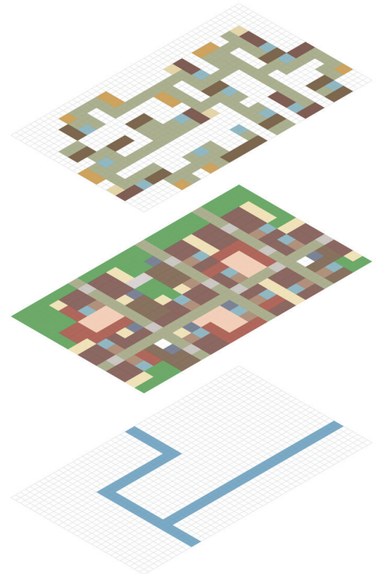
To make the public space on the second floor more attractive we add pavilions. They stand alone and should not be located above canals since the weight will be too much.

Full plan

The full plan contains all modules that need to be placed. As can be seen there is a lot of public space on the first floor that can be accessed easily via the stairs.







16. Fields
- All pixels that have no function and are not surrounded by buildings become fields.

16. Pavilions
- Don't place above canals
- Don't place next to an existing building on the first floor
- Don't close off paths
- Place a maximum of two per building block

Floor plan evolution

Link to evolution of the floor plan