

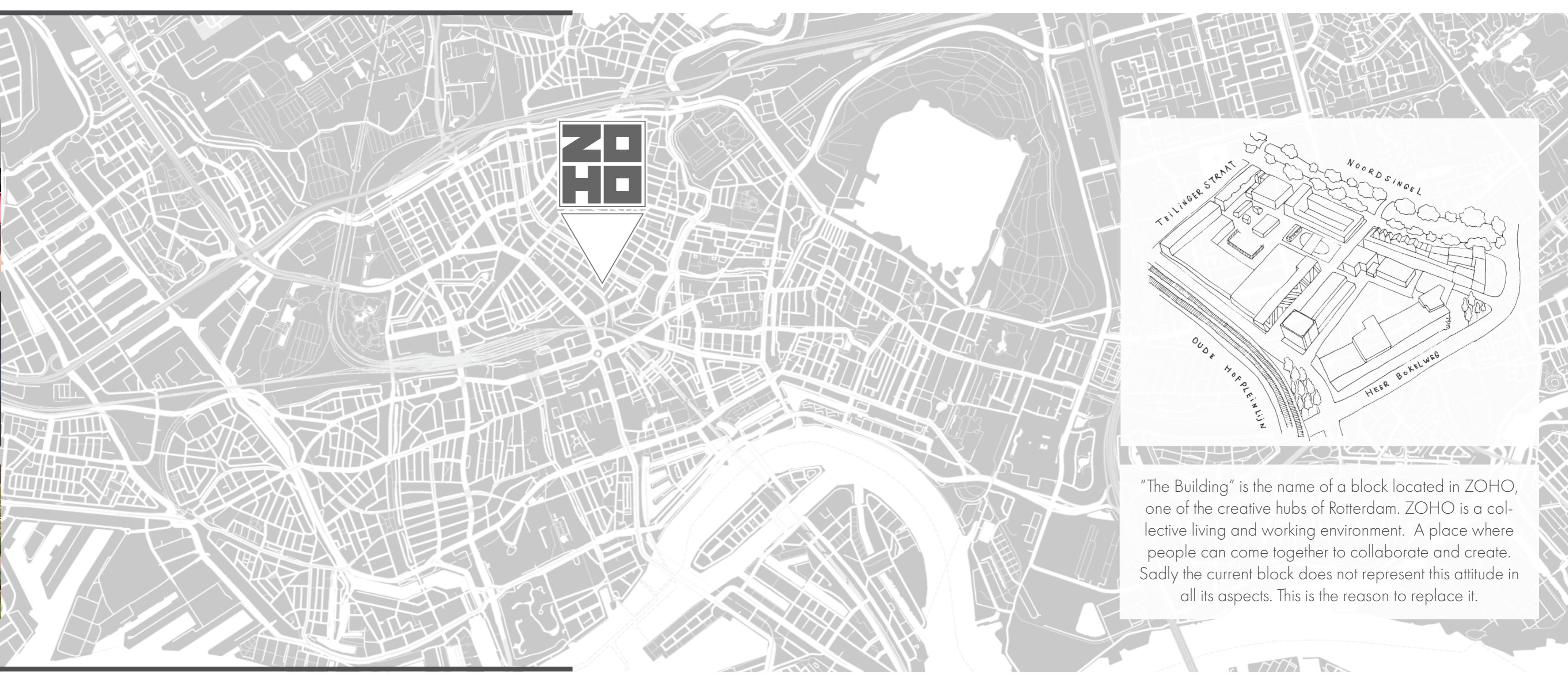
HET GEBOUW

Minor Spatial Computing in Architectural Design

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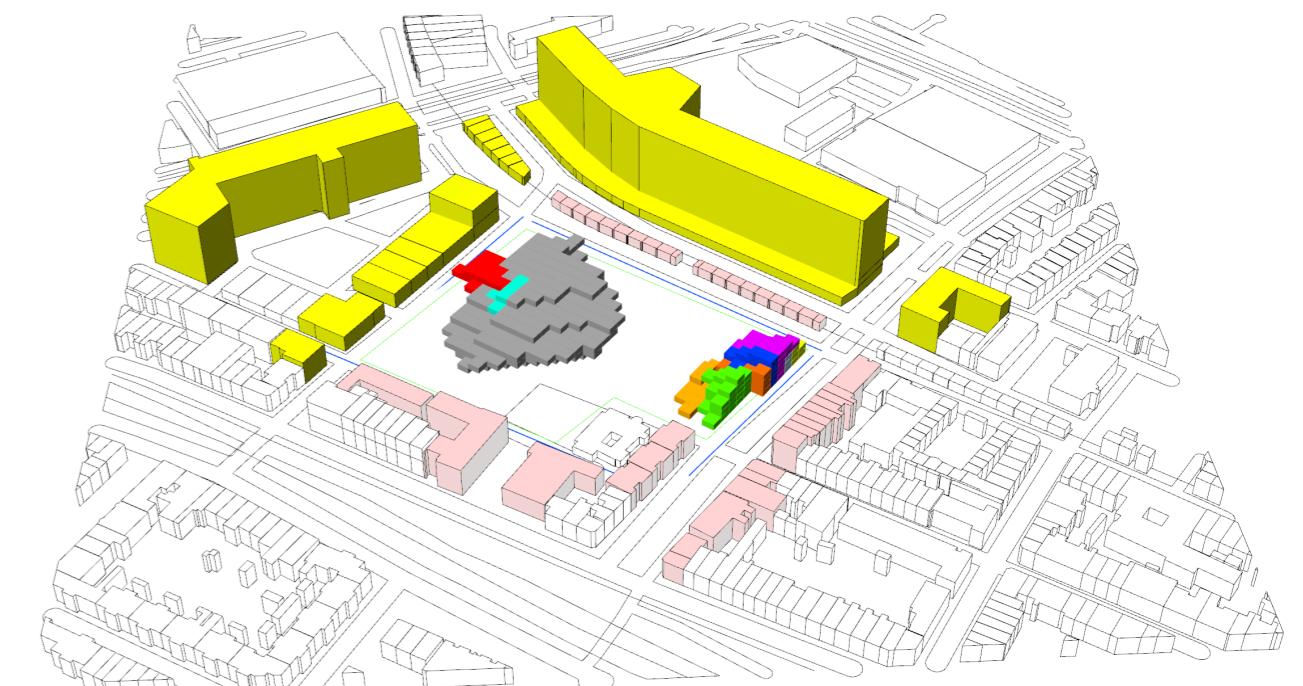
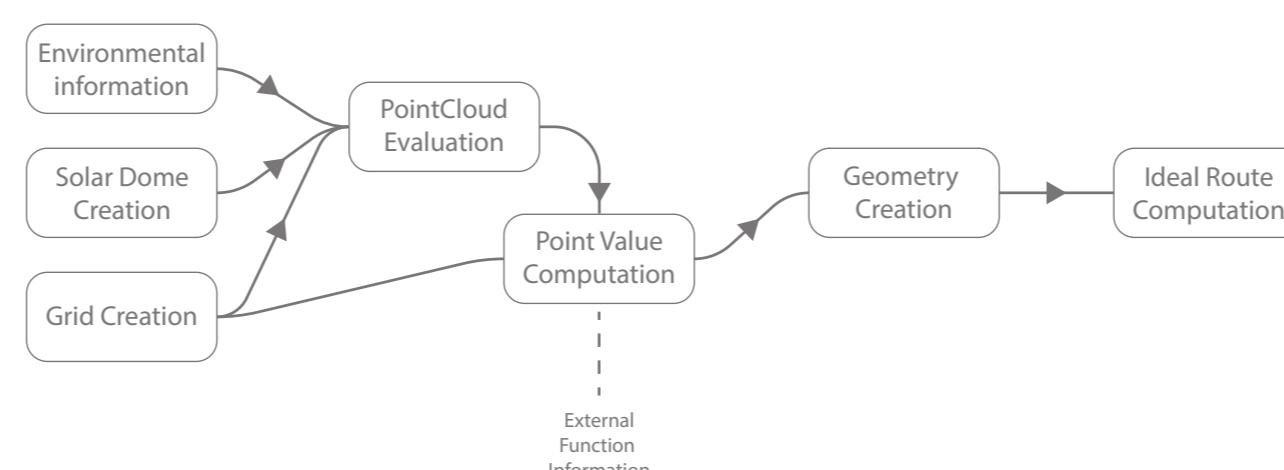
Location



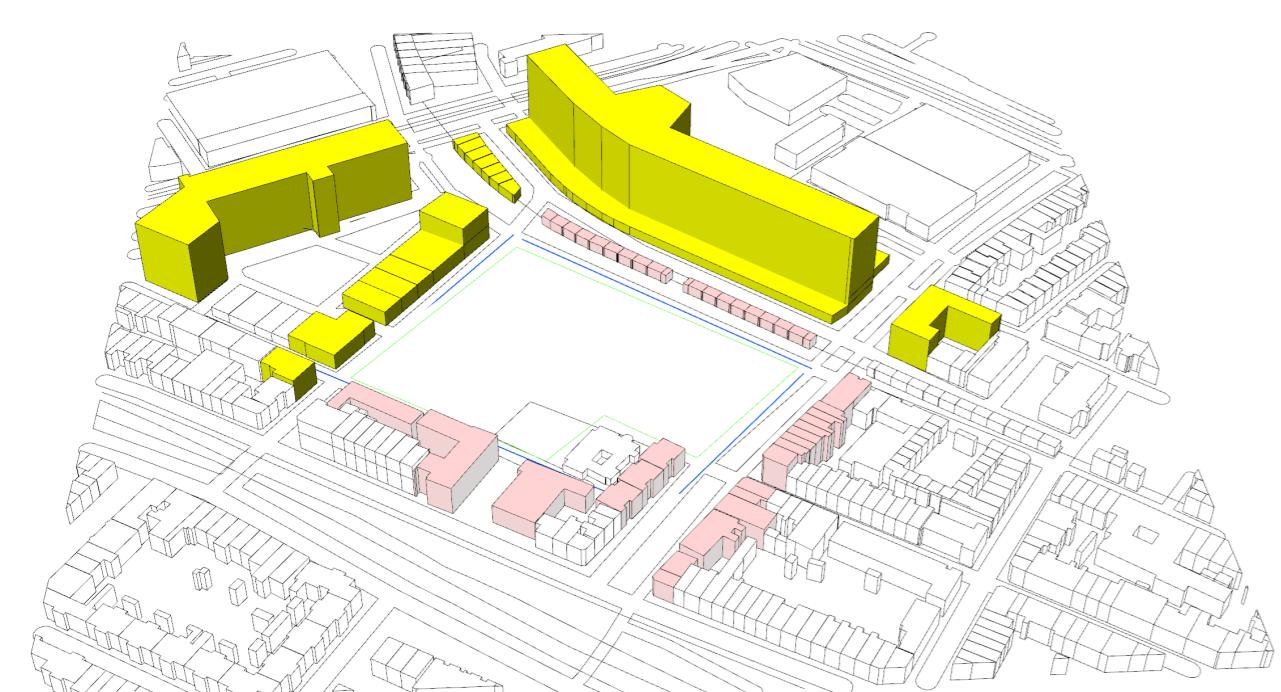
Evaluation & Programming

A custom Grasshopper algorithm was created to calculate the optimal locations of different functions on the lot (for example: housing, offices, shops and more). The variables that were created and used are based on livability and durability aspects of the design. Variables like for example: the distance from a noise source and the amount of solar time received during the day.

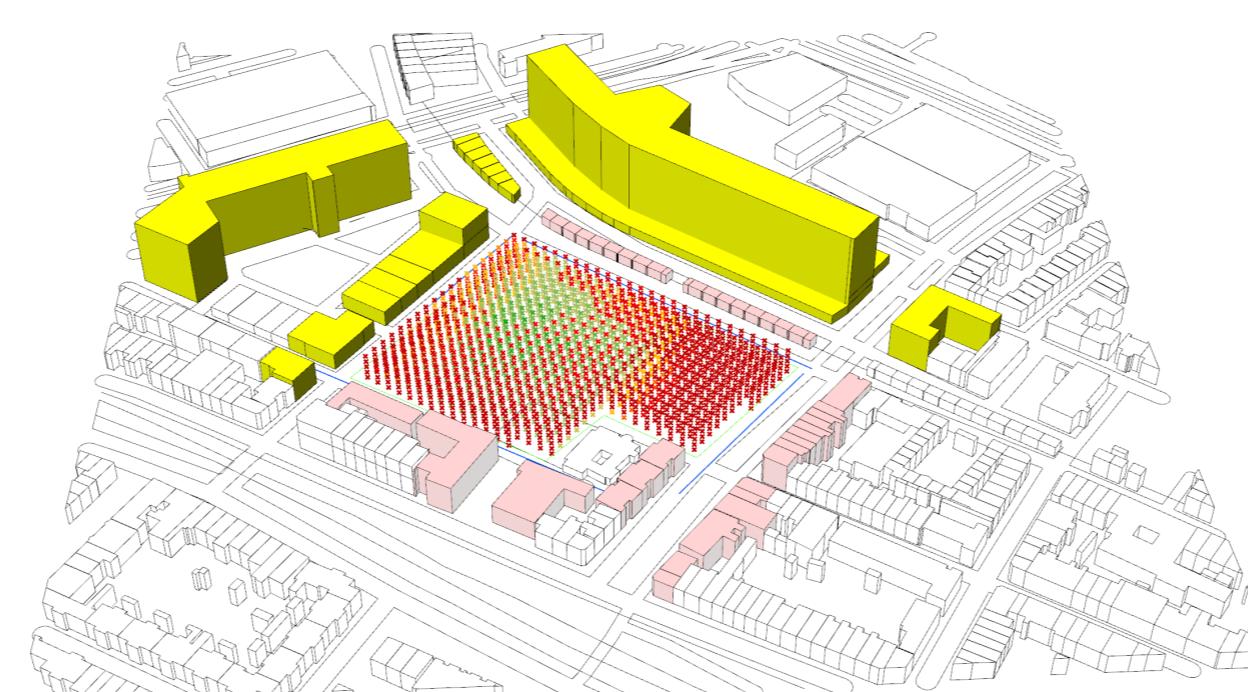
These values are combined to create a livability value per point per function on a grid. This information could shorten and improve the architectural analysis of a location and might even create building geometry without the help of an architect.



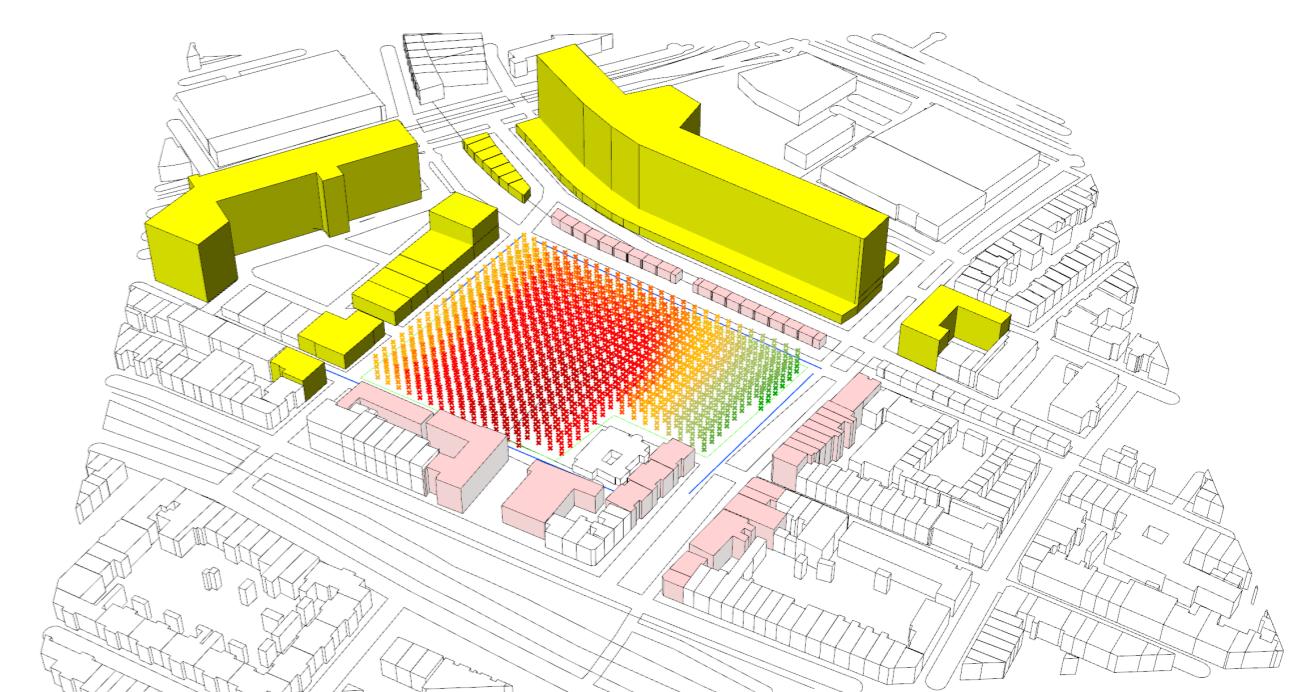
The first attempts of the algorithm to create building geometry. Still at a very early stage at the present time.



Inputs for the algorithm from the environment: The potential solar casting buildings in yellow, the potential solar receiving buildings in red, the surrounding roads in blue and the analysis area in green.



The optimal locations for solar dependent functions are clustered around the south-west part of the lot.



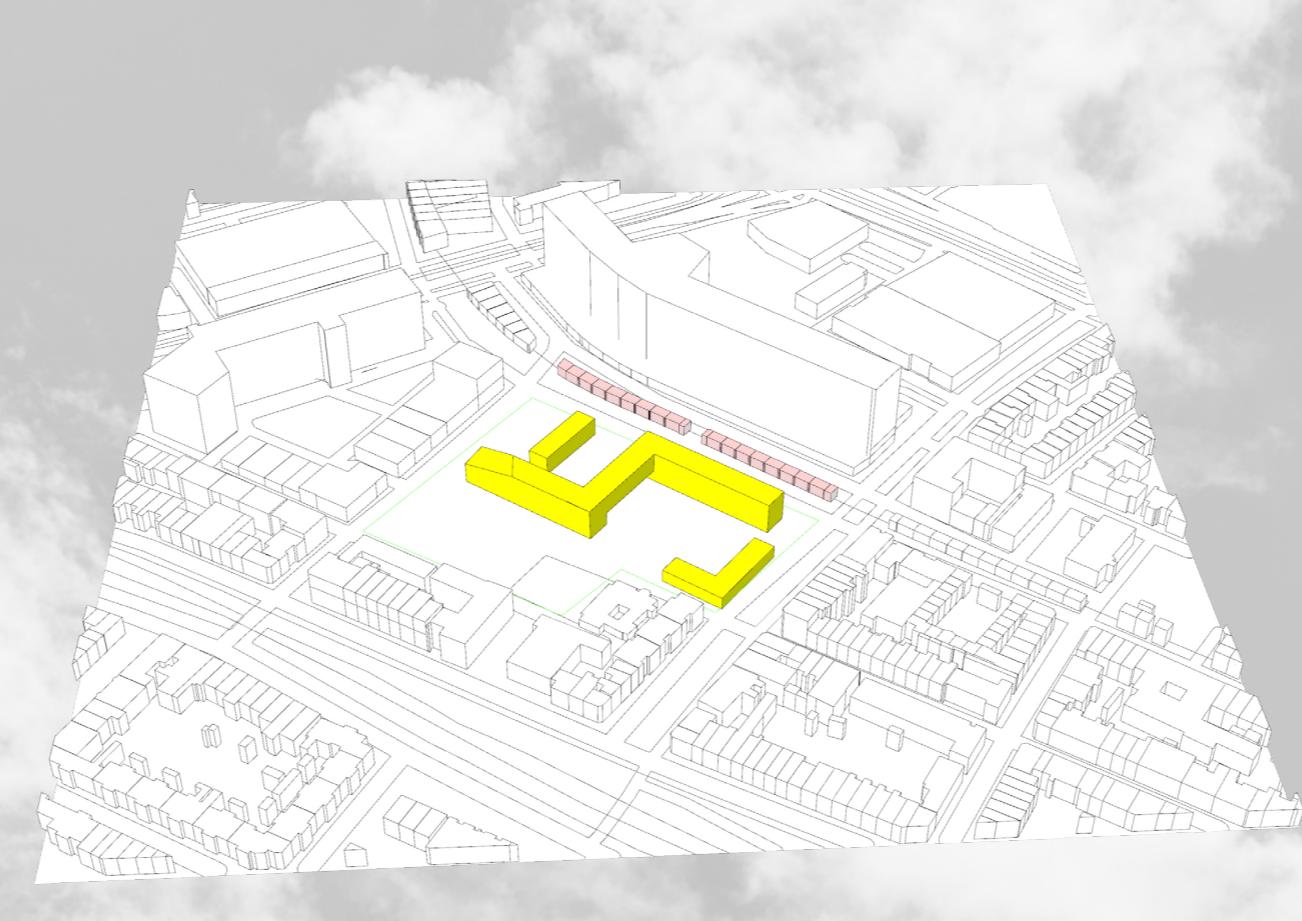
The optimal locations for traffic dependent functions are pulled to the outside of the lot (near the roads) especially towards the busiest road adjacent to the lot.

Solution

The jigsaw puzzle pieces that were created by the algorithm give a multitude of solutions to the design assignment. One of these solutions is this triplet block where the public and collective functions are positioned on the ground floors while the living quarters are (mostly) situated above, at a more private location.

To prevent shadow casting on the surrounding buildings the new building will have a maximum height of only 5 floors. To improve the natural lighting in the public space the central block has a grand archway. Which will not only help natural lighting, but will also help creating a "soft" barrier that might keep unwanted guests away from the buildings.

Not all the functions are located in the triplet block. Some of the functions required truck access (fablab, workshops & supermarket). These functions are located under the old railway. Where the main entrance faces the triplet block while the truck access is on the other side, this keeps the trucks and especially the noise of them away from the living quarters.



Floor 2

