

# EVEN FOR SOCIAL HOUSING?

Realising high quality affordable social housing with the use of local bio-based materials and shared facilities.

Tim de Boer | 4731366 | P5 presentation | Architectural Engineering Graduation Studio

From mass to building



Volume in site



Create a courtyard



Continue the green



Place the masses in a logical orientation



Different heights for sightlines, sun exposure and an organic shape



Adding common spaces so that the main entrance is clear



Ground floor in situation 1:200



Section 1:100





High quality housing



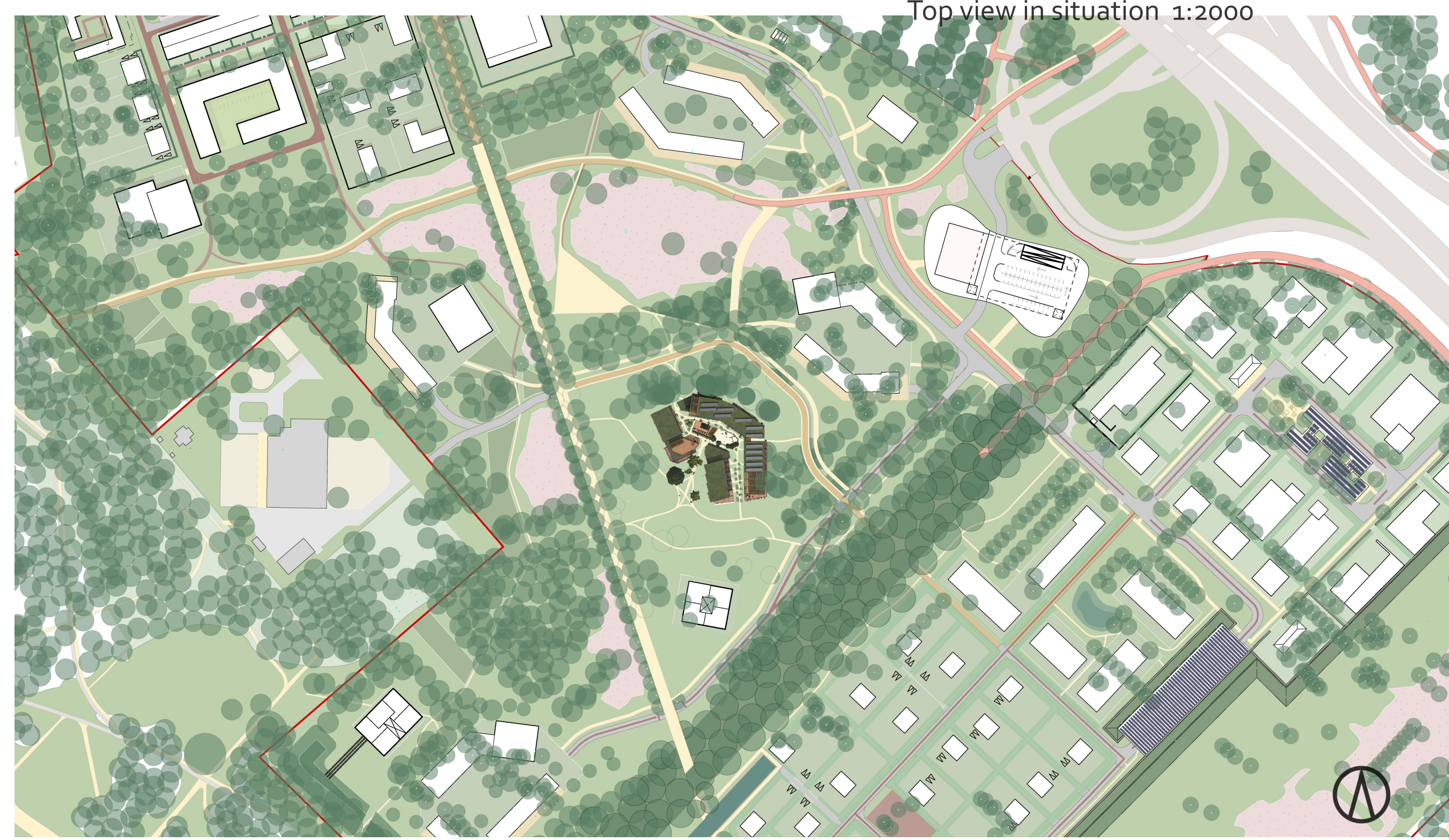
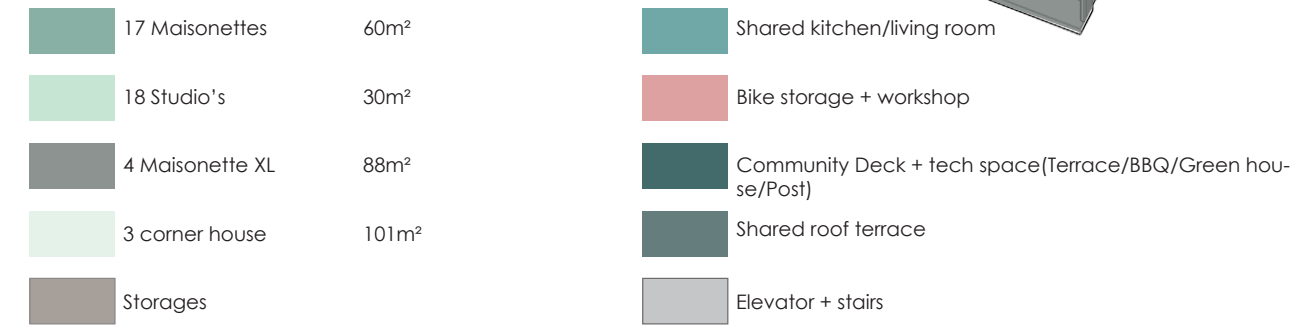
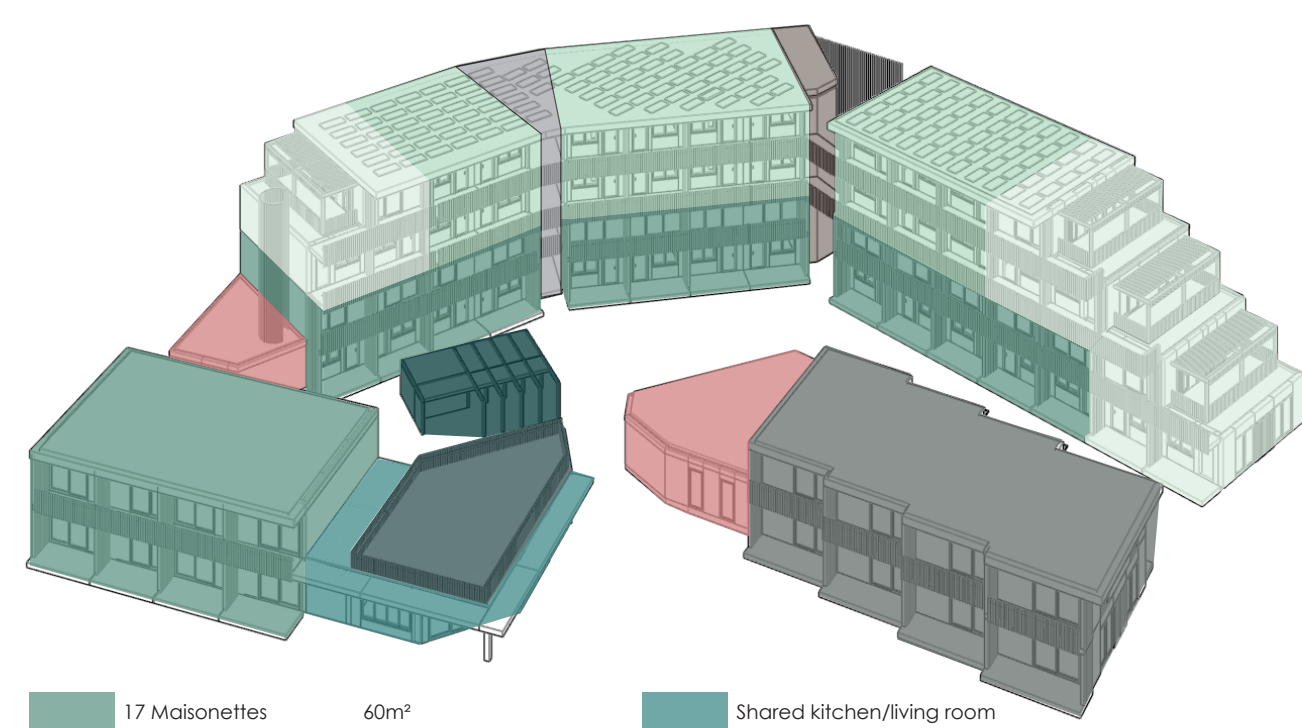
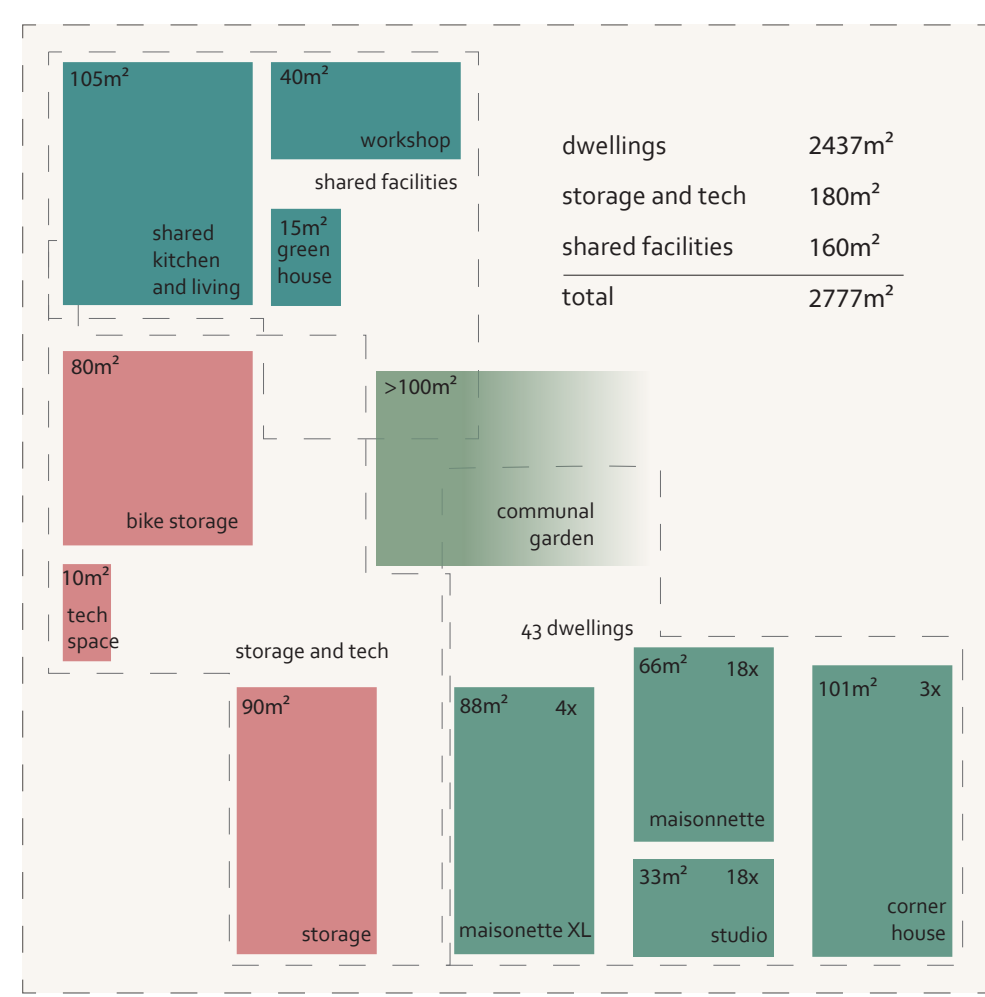
Affordable housing  
Program



Nature inclusive design

#### Guiding design themes

All design choices are made with these themes in mind. The design goal is to design the highest quality housing possible for an affordable price without hurting the (direct) environment. This is done by designing efficient floorplans, share functions, using bio based materials, shorten the building time and implementing nature-friendly design elements.



Top view in situation 1:2000



Second floor 1:200



Roof 1:200



First floor 1:200



Third floor 1:200

Elevation west 1:200



Elevation south 1:200







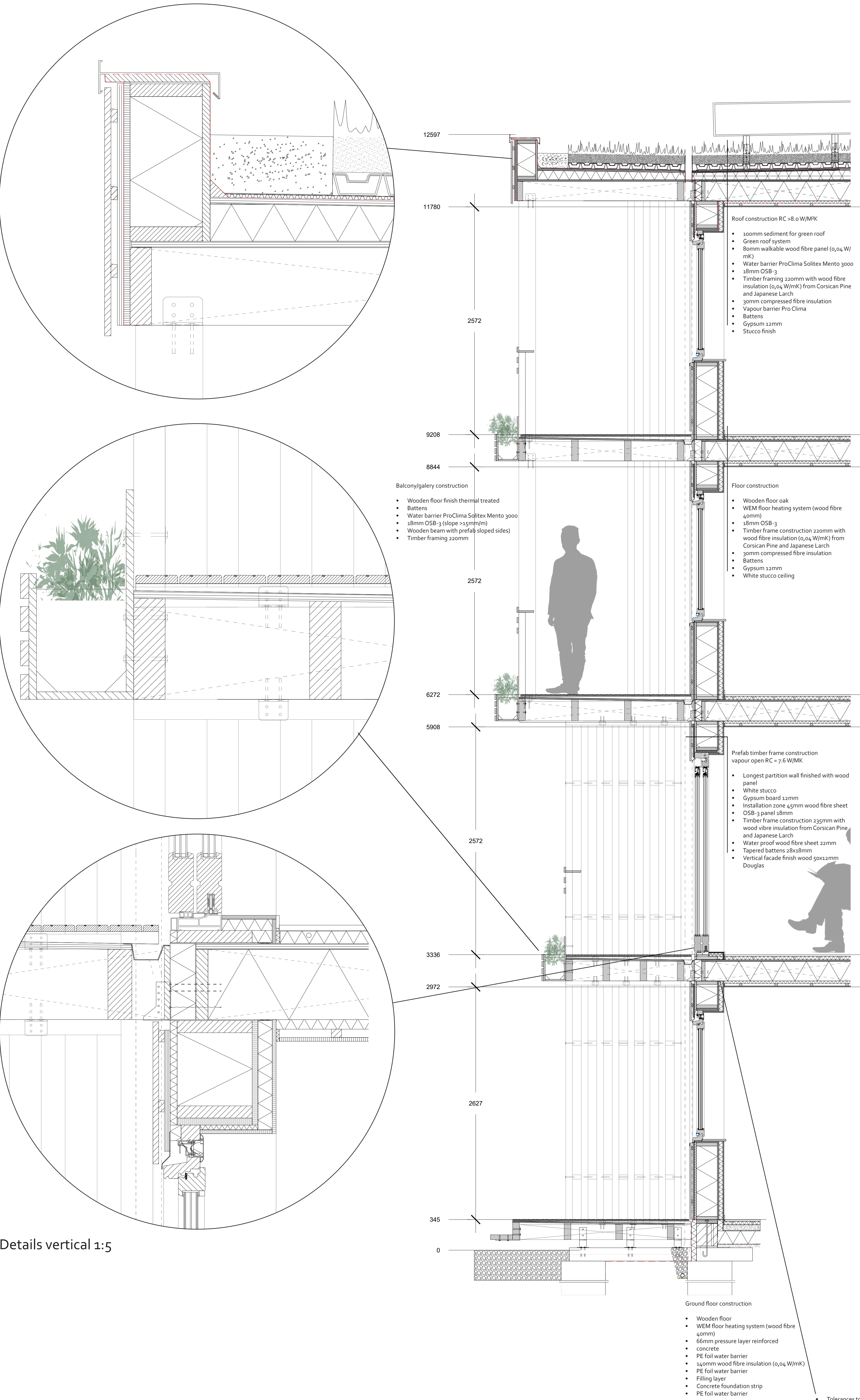
Elevation east 1:200

Elevation north 1:200

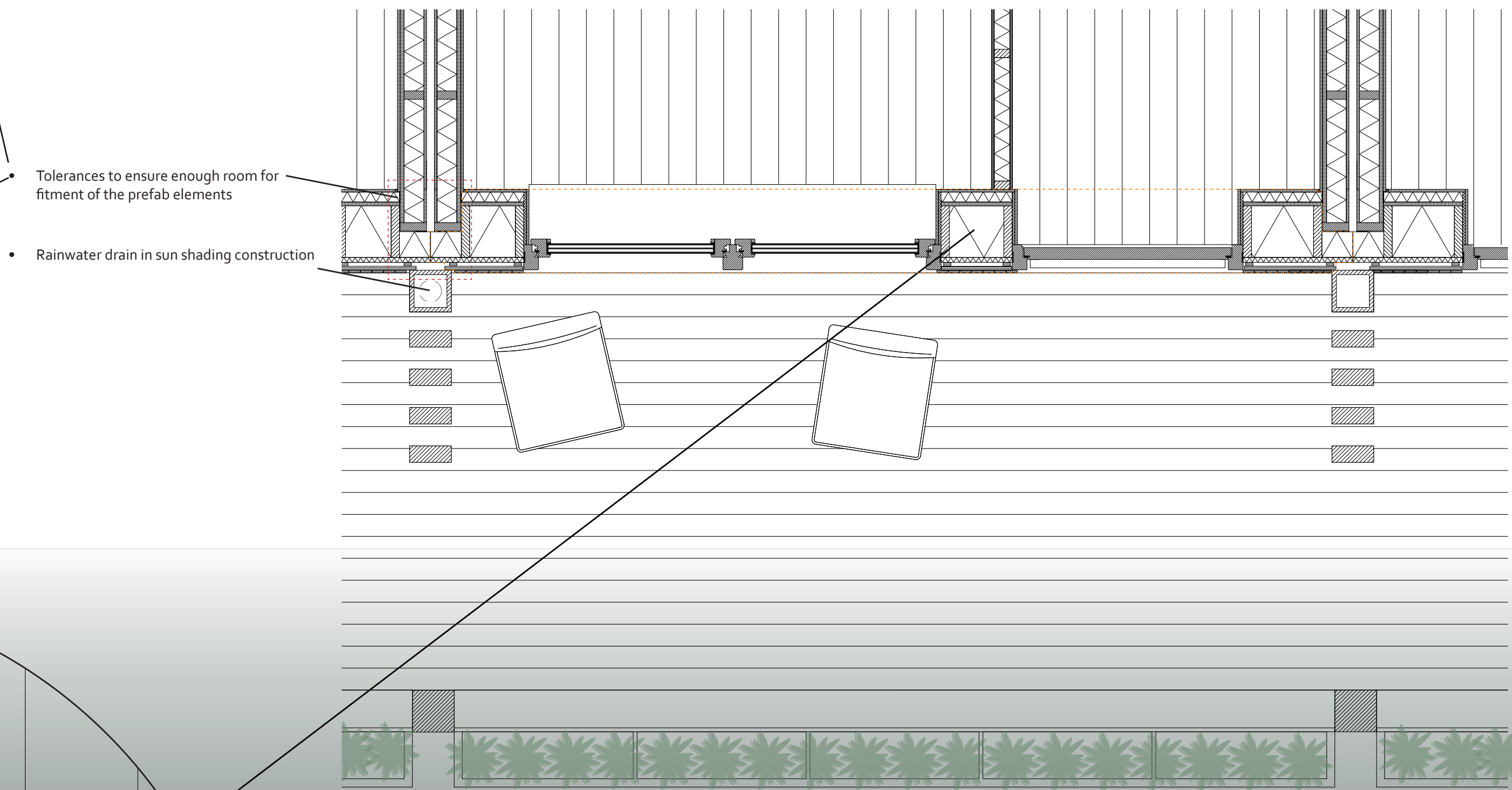




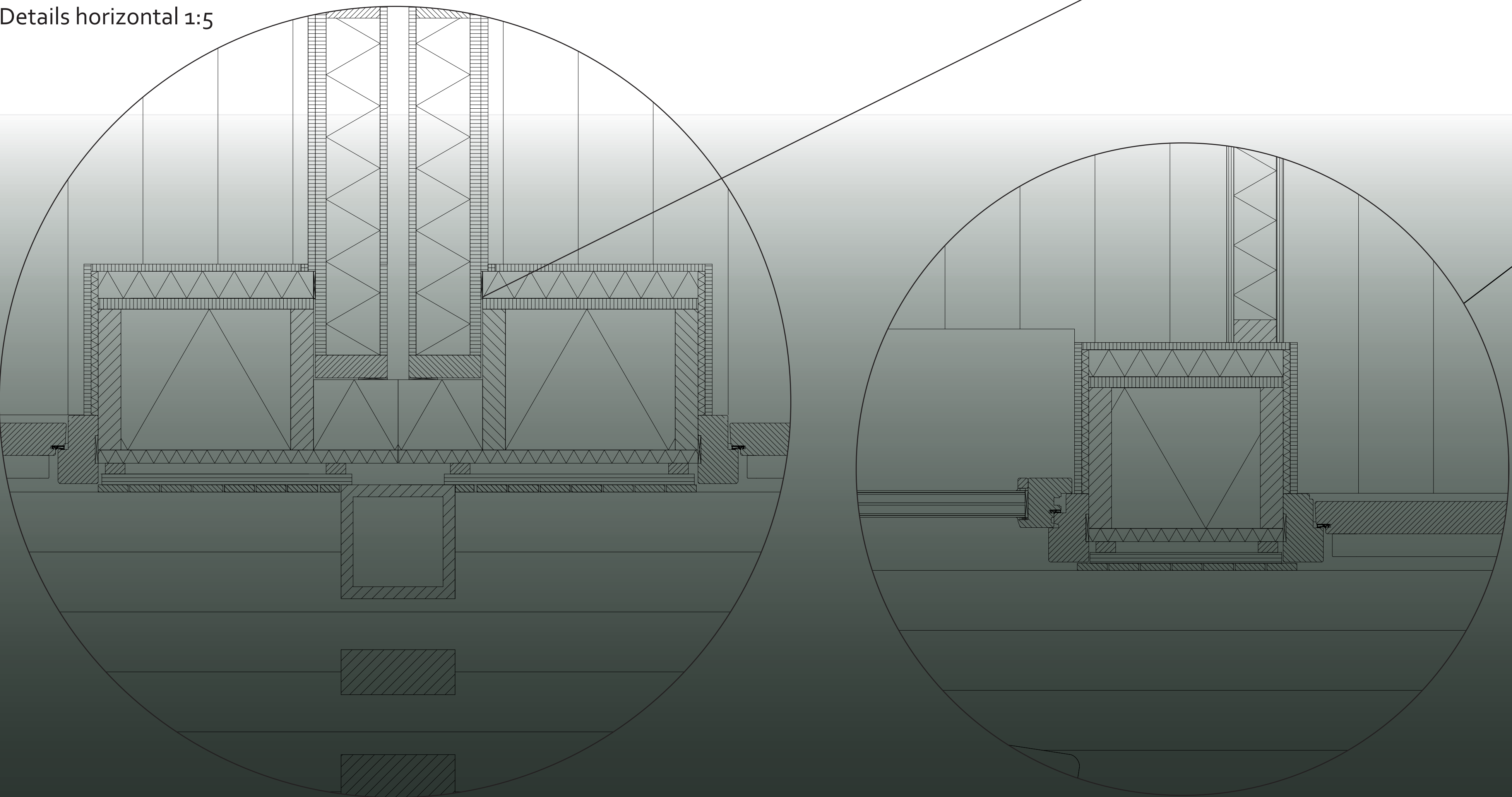
Façade detail section



Facade element 1:20



Details horizontal 1:5





Climate design

Renewable energy

Energy is provided by > 45.000 WP solar panels on top of the central energy system of Craioa. The solar panels are placed on a green roof to provide better water retaining and more efficient solar panels.

Ventilation type C

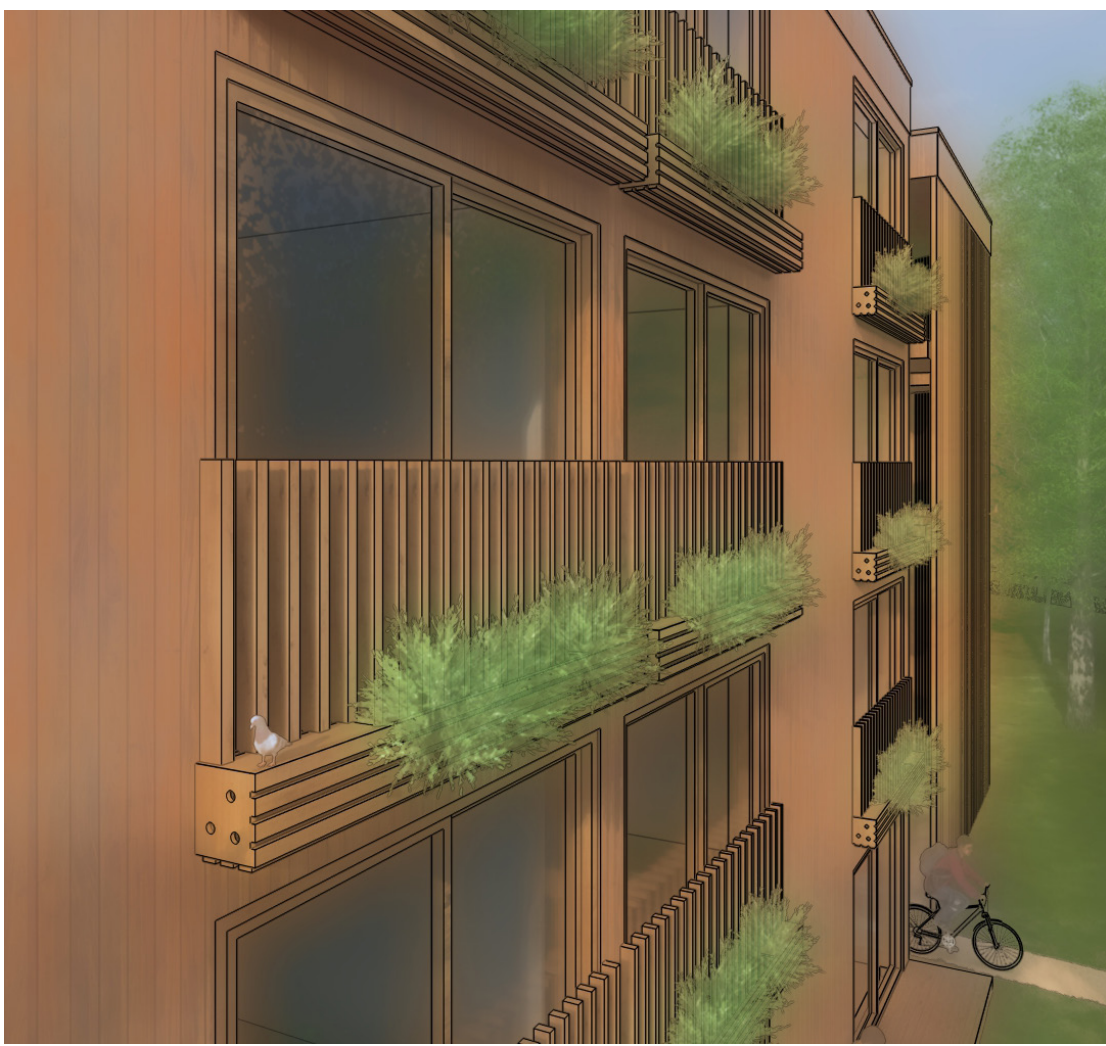
Fresh air comes in via ventilation grills and is exorted via ventilation units on the roof of each building block. (Type C). Also, all windows can be opened (turn and tilt, most of them). So cross ventilation is also possible.

Floor heating and cooling

A centrail heatpump with heat-cold storage (WKO) is providing hot and cold water and heating and cooling. People can have a individual boiler for kitchen water.

Green communal courtyard with green house and community garden

Green structure continues in the courtyard and also provides a kitchen garden and green house. This way local food is produced by the inhabitants and the shared responsibility causes more social cohesion.



Railings with green and bird boxes

Nature inclusive

Green structure continues in the courtyard. On the north and east facade (because of less heat from the sun) the railings are designed with green and bird boxes. The other balcony's are also designed with green.

Water and invisible drainage

The green roofs can hold rainwater very well. The water is taking down to pipes not visible for the people, into the courtyard and for grey water.

Optimal orientation

A great influence of the design is the sun. Therefore the shapes and orientation are chosen to have to short side of the buildings directed towards the south. Also the balcony's are faced towards the south and west to provide shade and a nice outside space.

Shade by nature

Green is also used to provide shade. In the courtyard, but also on the facades.

Designed shading

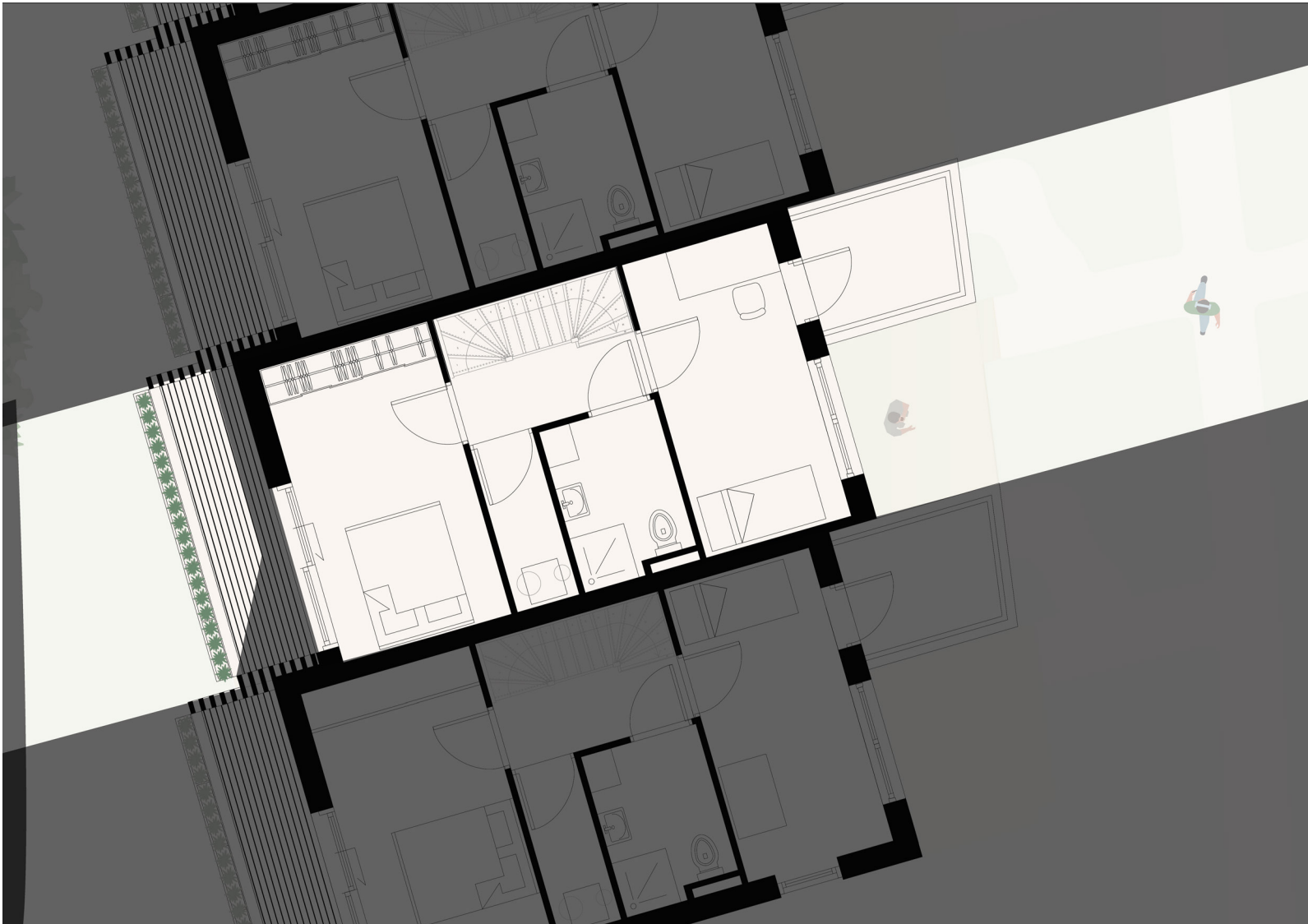
Large overhangs and well-placed wooden slats provide sun shading. In the winter the sun will provide heat, because of the lower angle of the sun. This causes less heating or cooling necessity and a lower energy bill.

The slats are multifunctional: structural, shading, architectural and benches or tables can be constructed onto it.



Balcony shadings provide shade, construction, privacy and architectural value

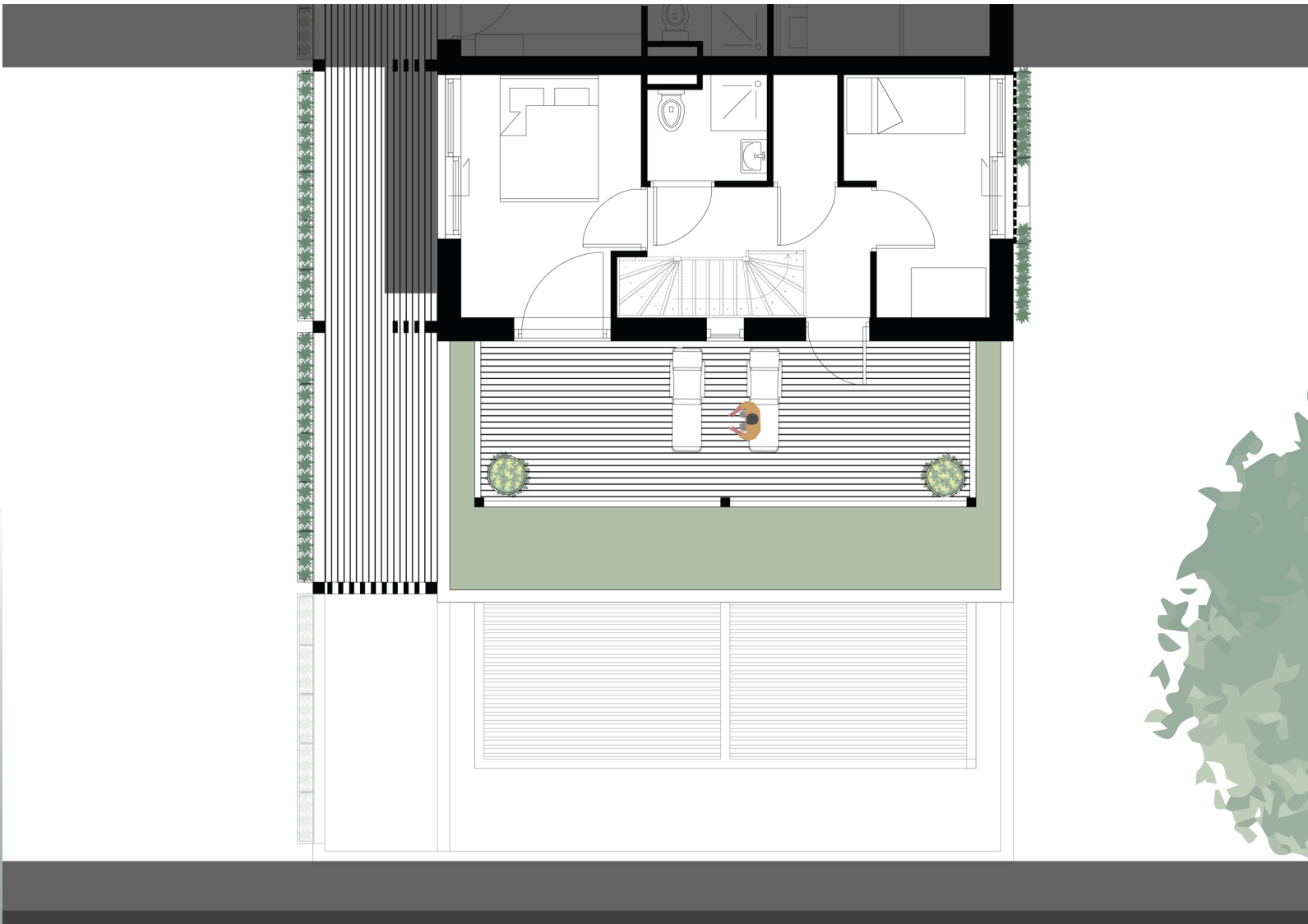
Top floor maisonette XL 1:100



Ground floor maisonette XL 1:100



Top floor corner house 1:100

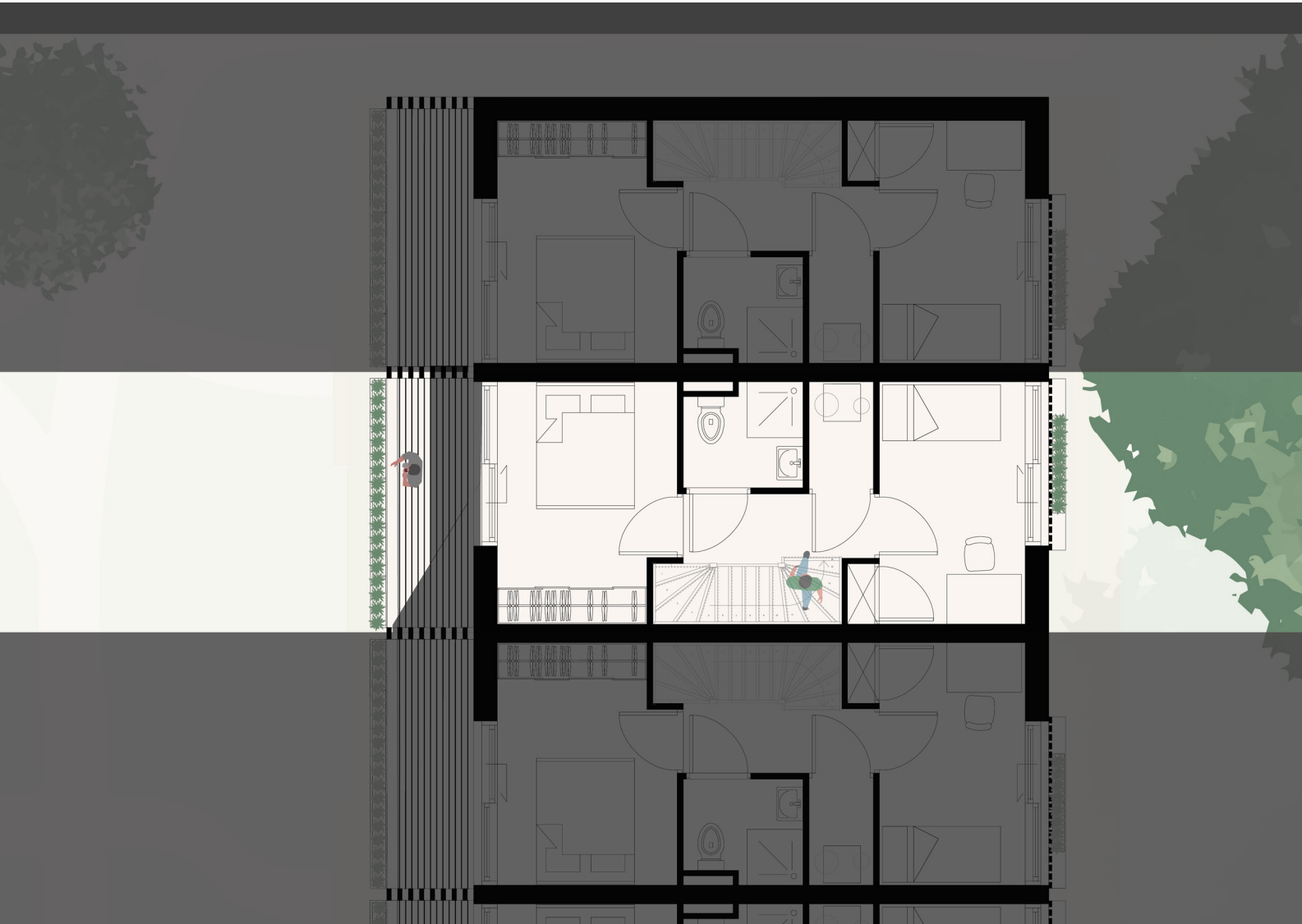


Ground floor corner house 1:100



Dwellings

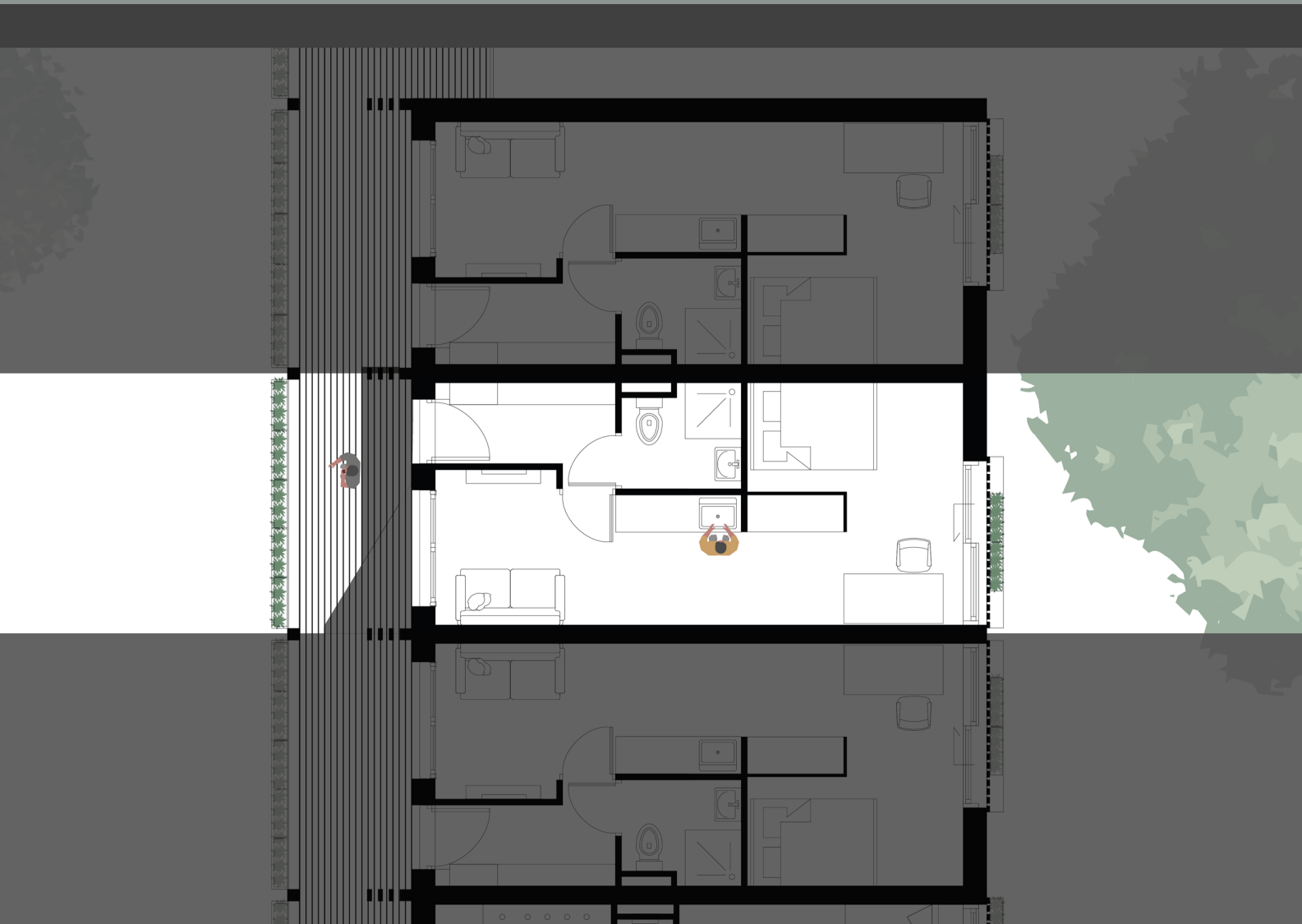
Top floor maisonette 1:100



Ground floor maisonette 1:100



Studio 1:100



Load bearing structure

The load bearing structure consist of Prefab timber elements (HSB) with a width of 235mm. The elements are constructed in the factory and on site placed on a shallow foundation (op staal). This is possible because of the sandy ground. With the shallow foundation and the short building time on site, there is as less possible impact on the direct environment of the building site.

The floors are HSB floors with a height of 220mm.

The seperating walls consist of two times 150mm construction.

