

The Symbiotic Heart

A Design strategy for a nature inclusive building

The problem

Human population keeps growing and with it our cities do too. Due to the increasing demand for housing, our cities are continuously being intensified and expanded. While our cities grow, the biodiversity in them keeps declining. The urban ecosystem becomes vulnerable due to the decline in animal and plant species, which has consequences for us, humans.

The built environment has a part in this decline of species, it sees nature as an accessory to projects instead of an integral part of the product. This comes mostly from the mindset of building first and foremost for humans and adding nature as an afterthought or accessory. These are often in the form of single or wrong applications of animal housing or visual green that might increase a single organism in unintended proportions in the target areas, which could be counterintuitive to the intended goal of aiding nature. Another problem that the built environment creates for species, is the removal of spots which animals and plants have adapted to use. In the built environments mission to make everything sustainable it started to remove hide places. An example of this are the spaces underneath roofing tiles, these spaces are now being insulated which means species such as the swift do not have a place to go.



Location

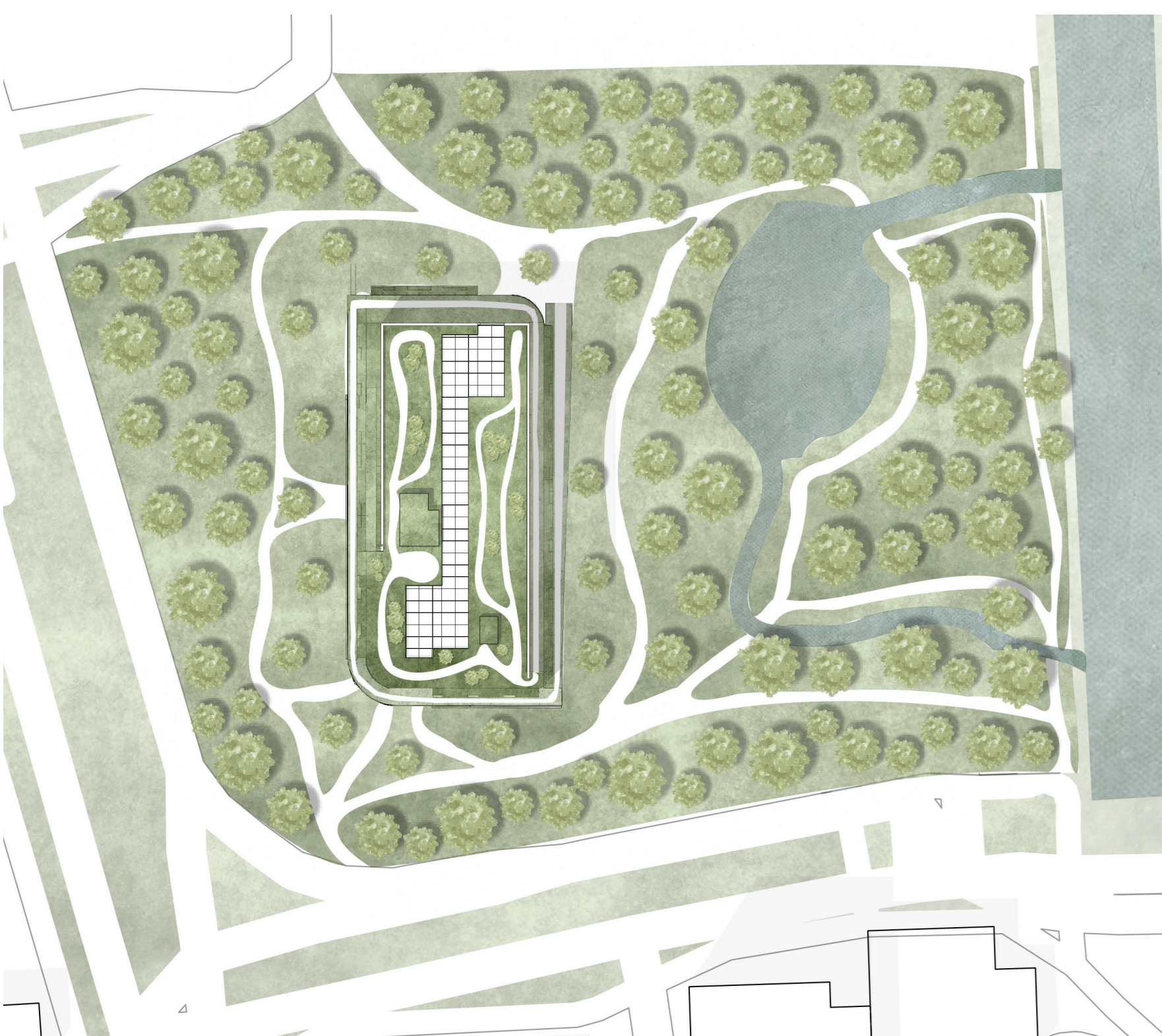
Within Haarlem, the capital city of North-Holland, lies a district called Schalkwijk. The area was added to Haarlem around the 1970's because of the housing shortage at that time. This has caused the construction of quick and large buildings made out of mostly concrete. The edge on the outside consists out of multiple nature reserves which gives the location a high nature connectivity possibility.

The building site targeted for this project is the old Flour building. This building used to be an office combined with a data-centre. Furthermore it has a large paved parking lot surrounding it.

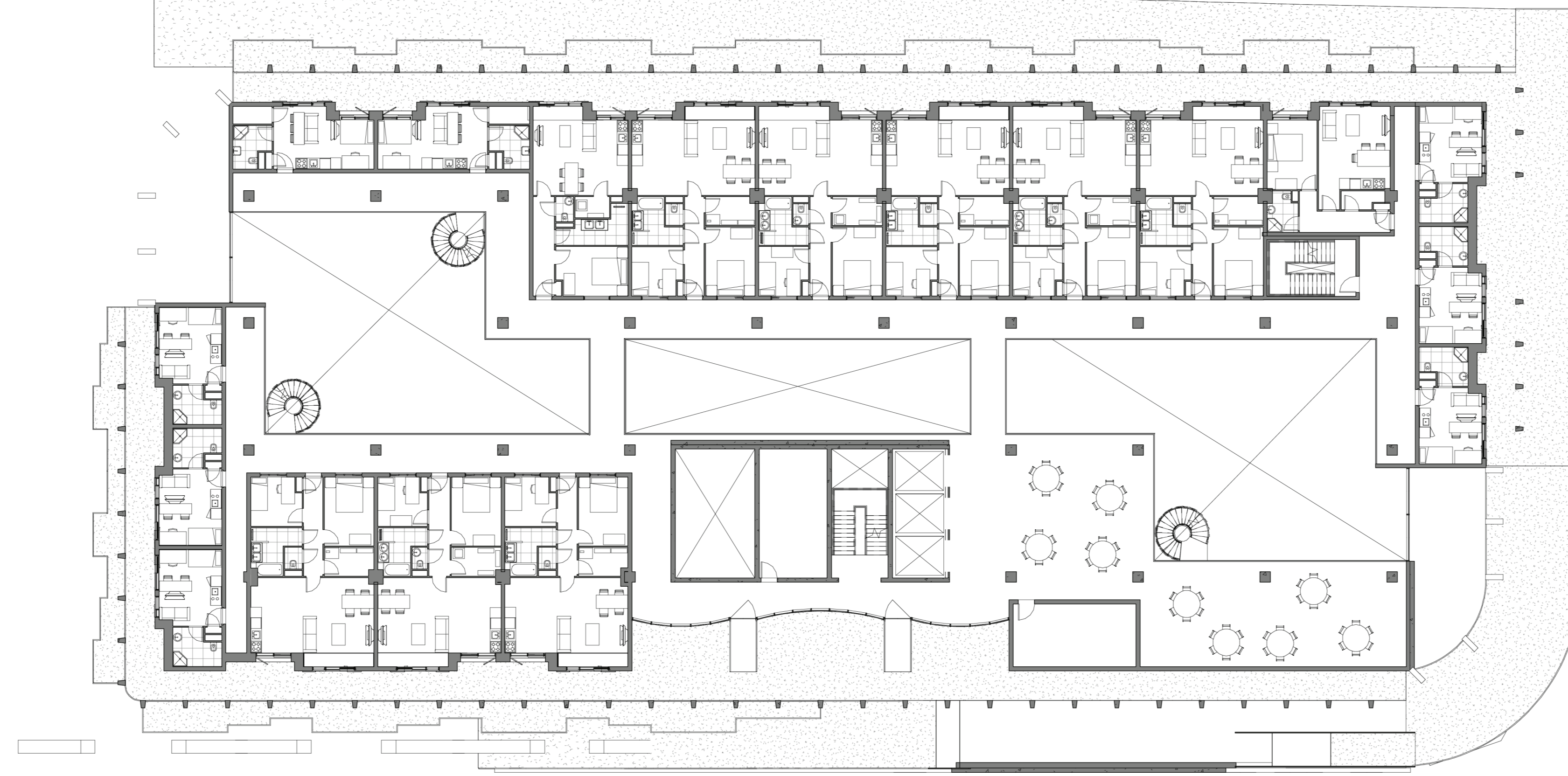
In 2021 the start of demolition started on this building. This prompted me to start looking into alternatives to reuse what was left of the building for a residential nature inclusive building.

The project

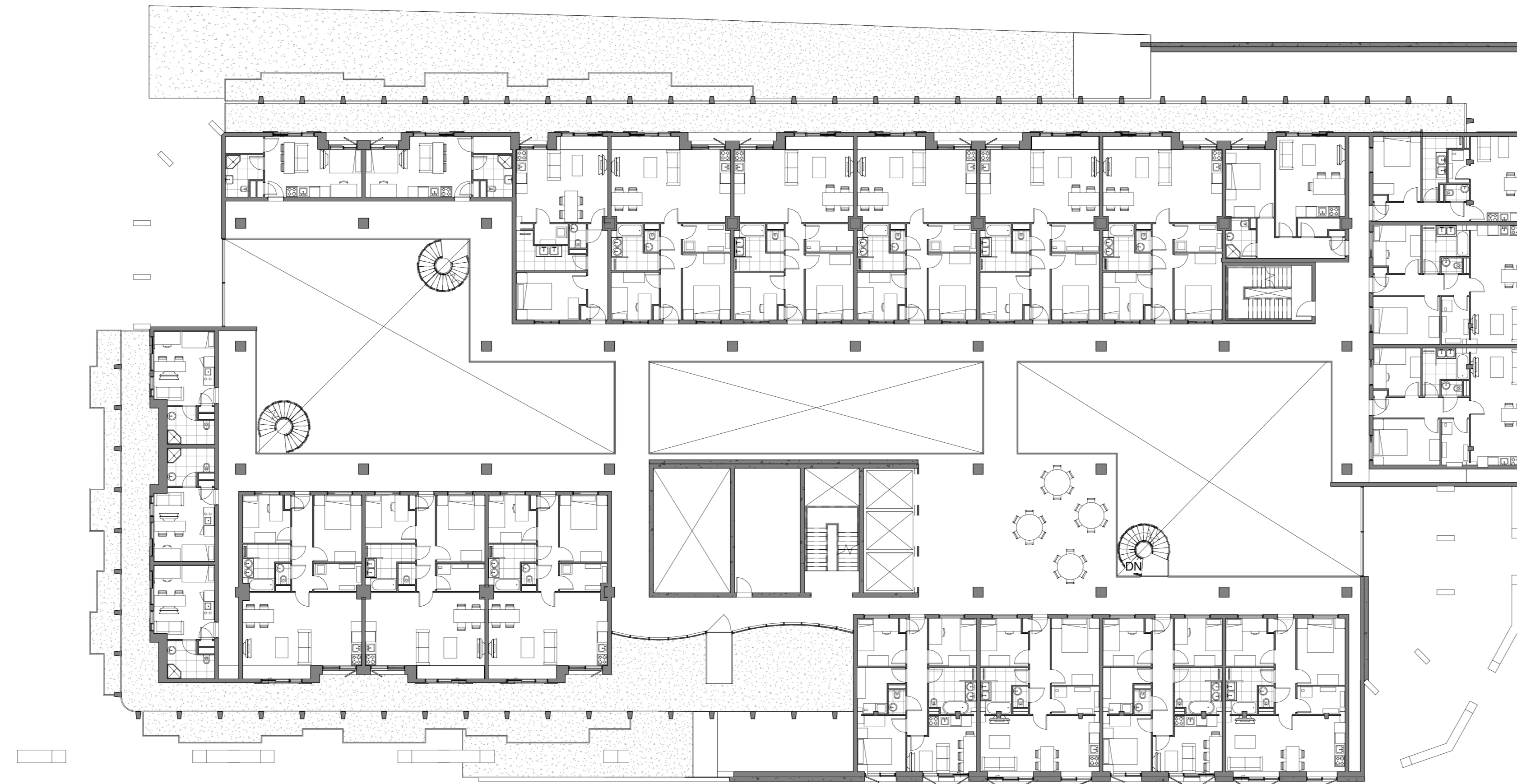
By doing research into local flora and fauna with help of the resident urban ecologist of Haarlem, we created a biotope which would benefit the biodiversity of Schalkwijk. The next step was creating a list of requirements which would most efficiently attract the flora and fauna in the biotope, which in turn was translated into a program of requirements for a design strategy for a residential building.



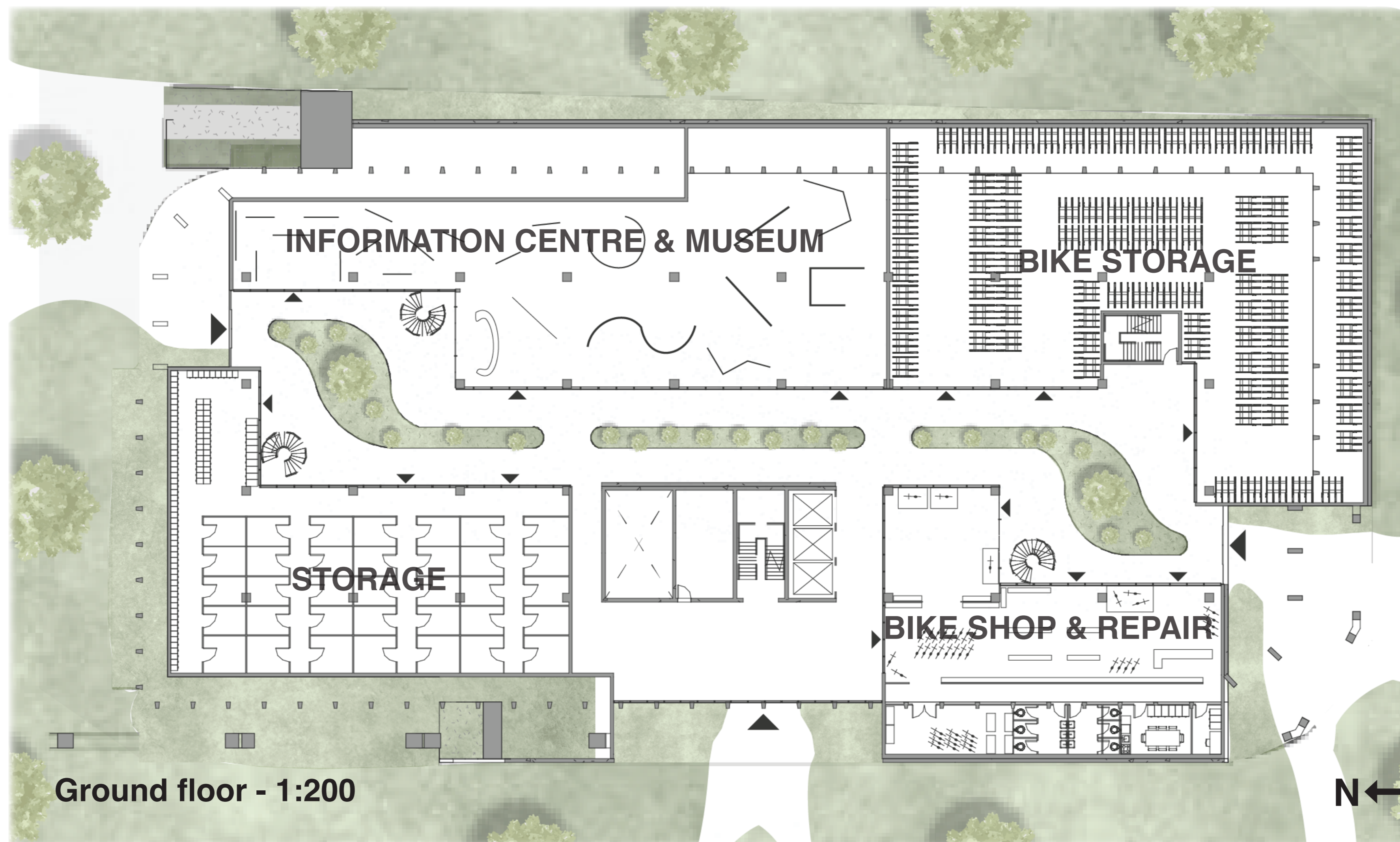
Situation - 1:1000



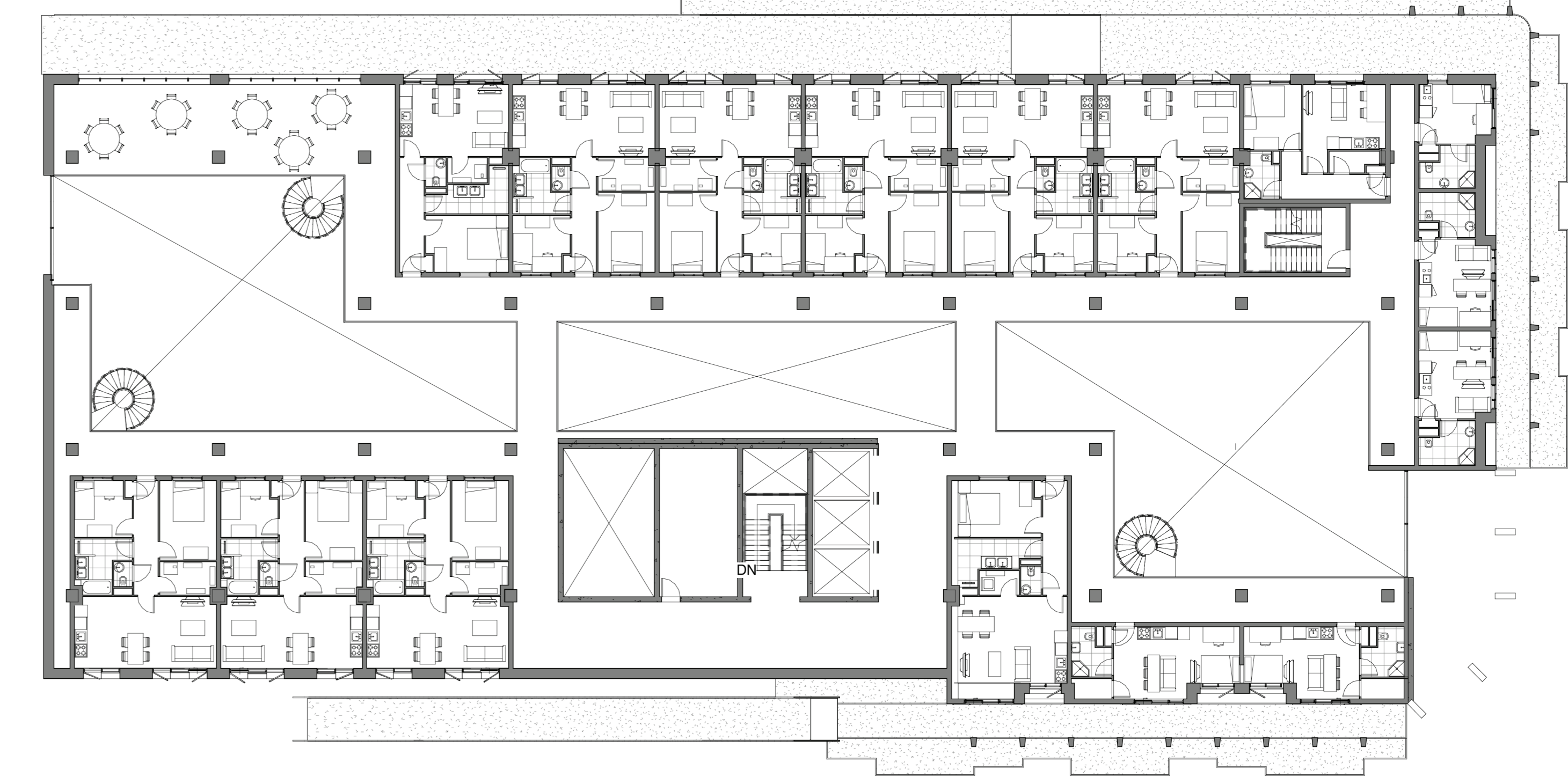
Second floor - 1:200



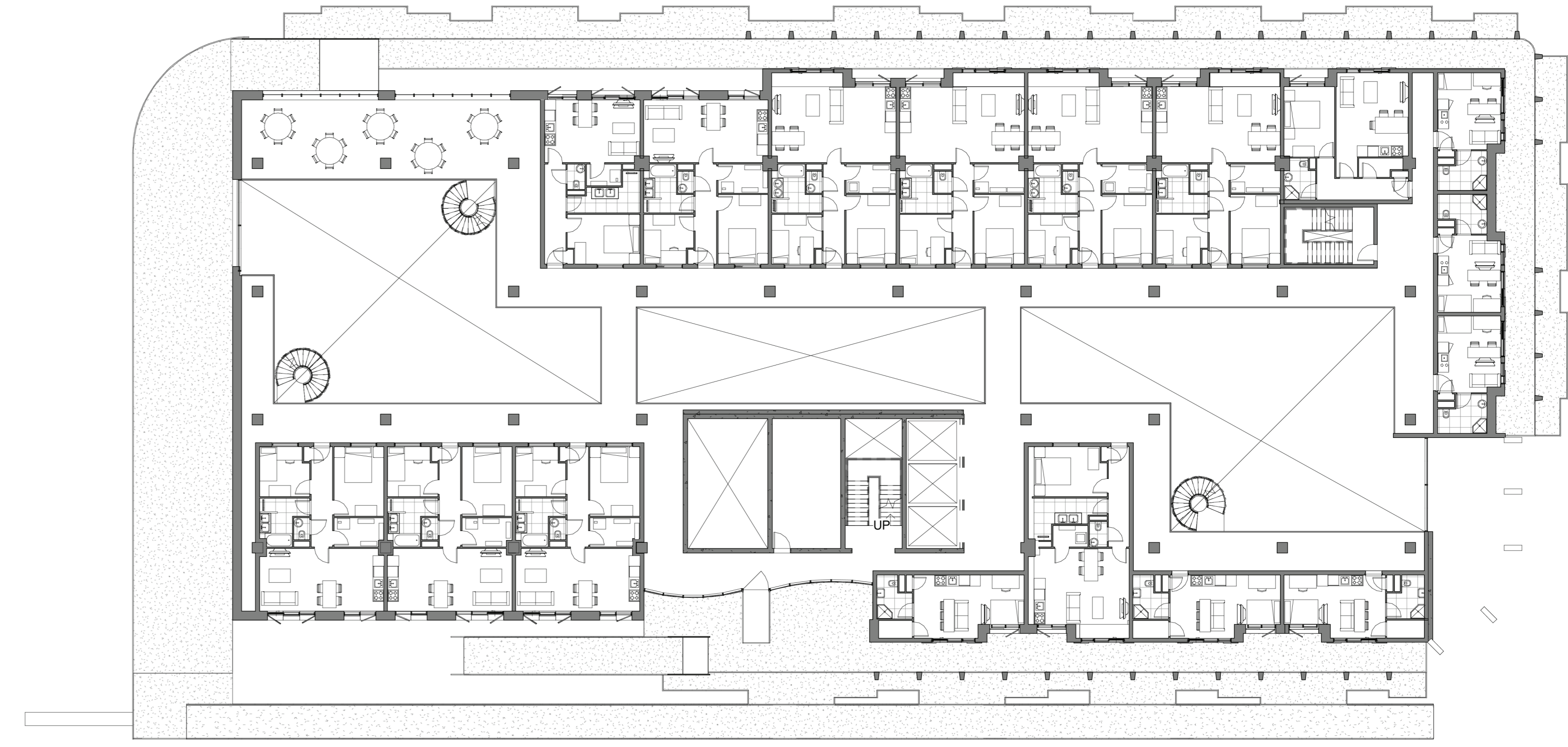
First floor - 1:200



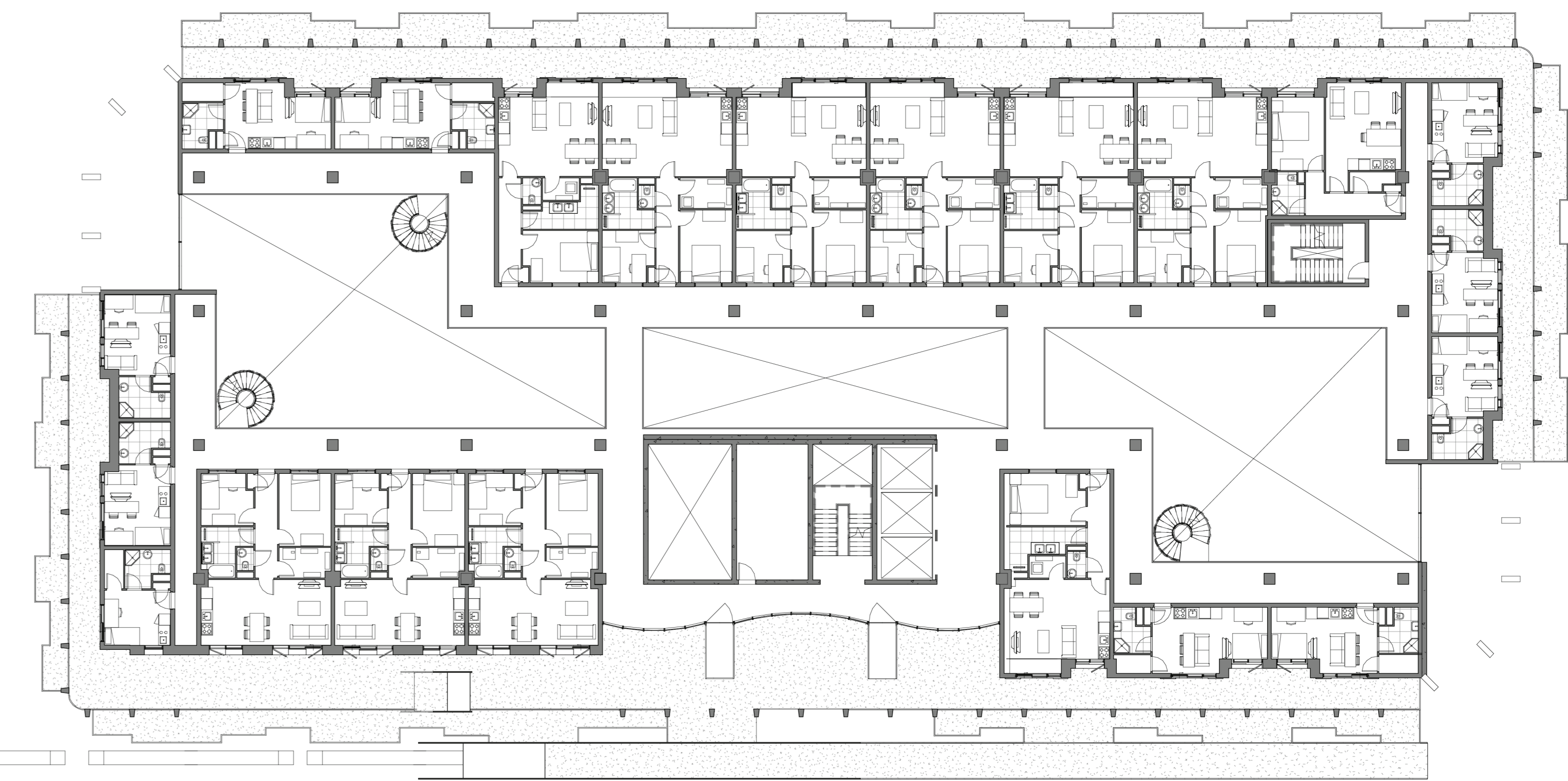
Ground floor - 1:200



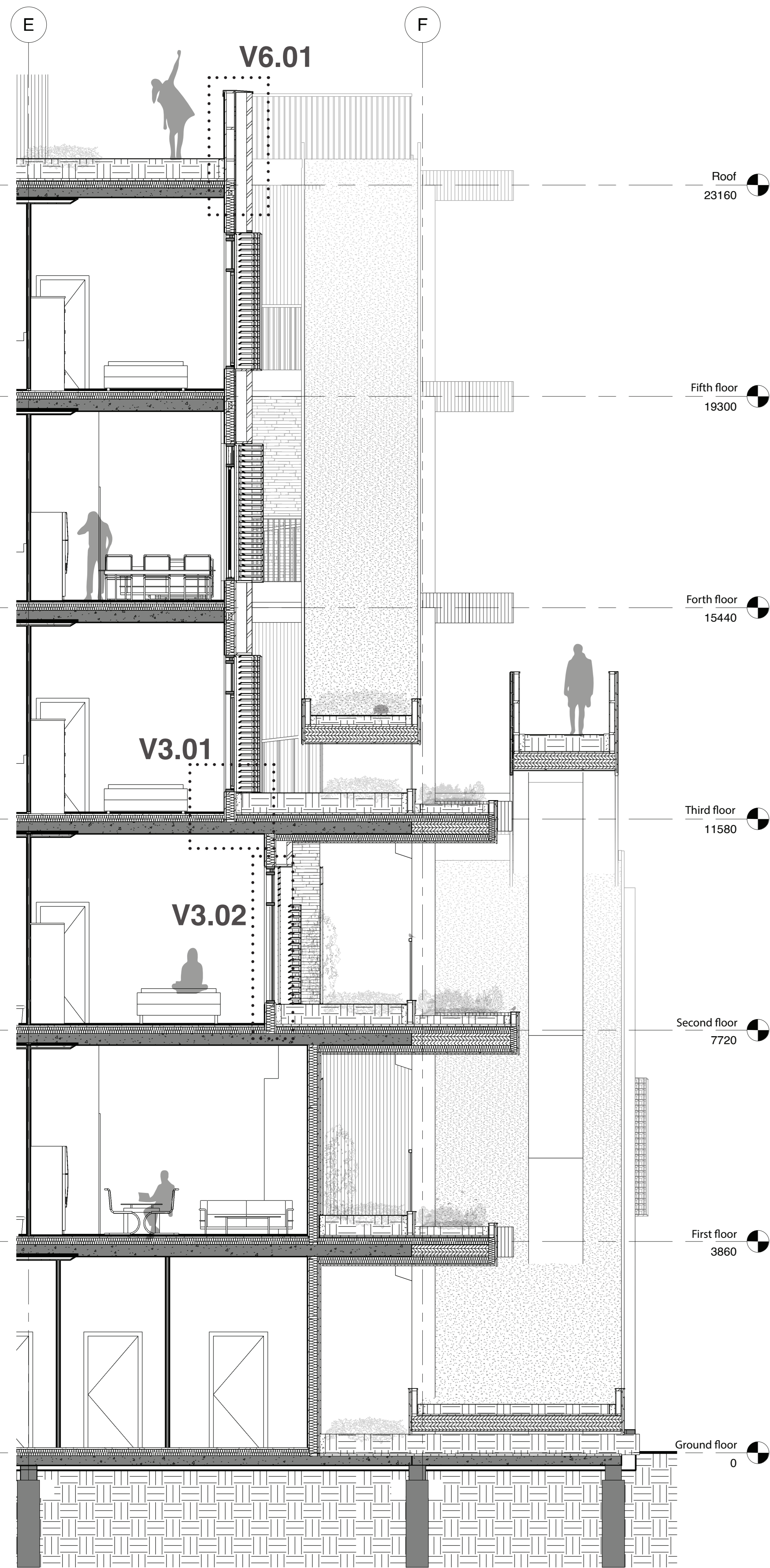
Fifth floor - 1:200



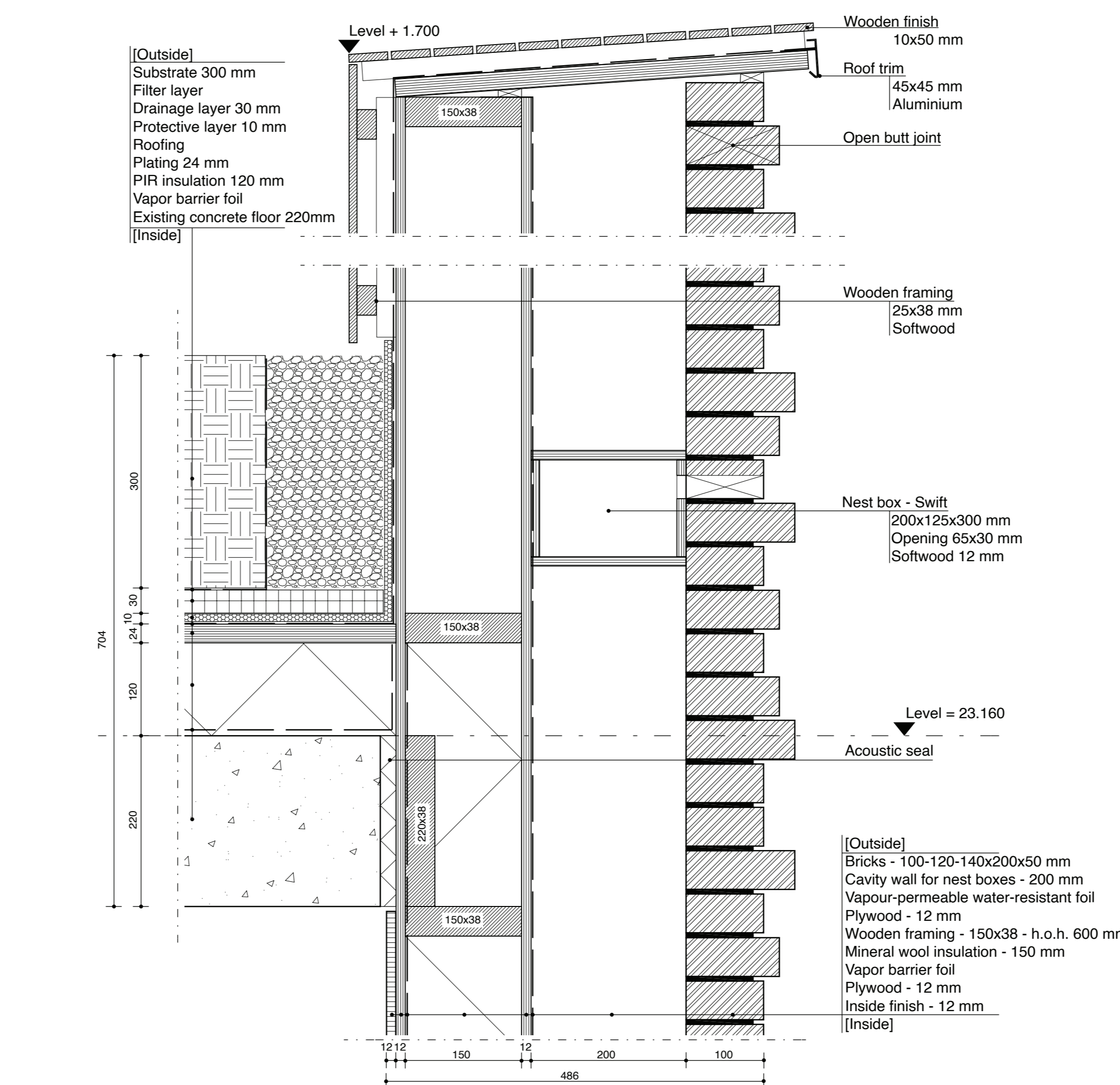
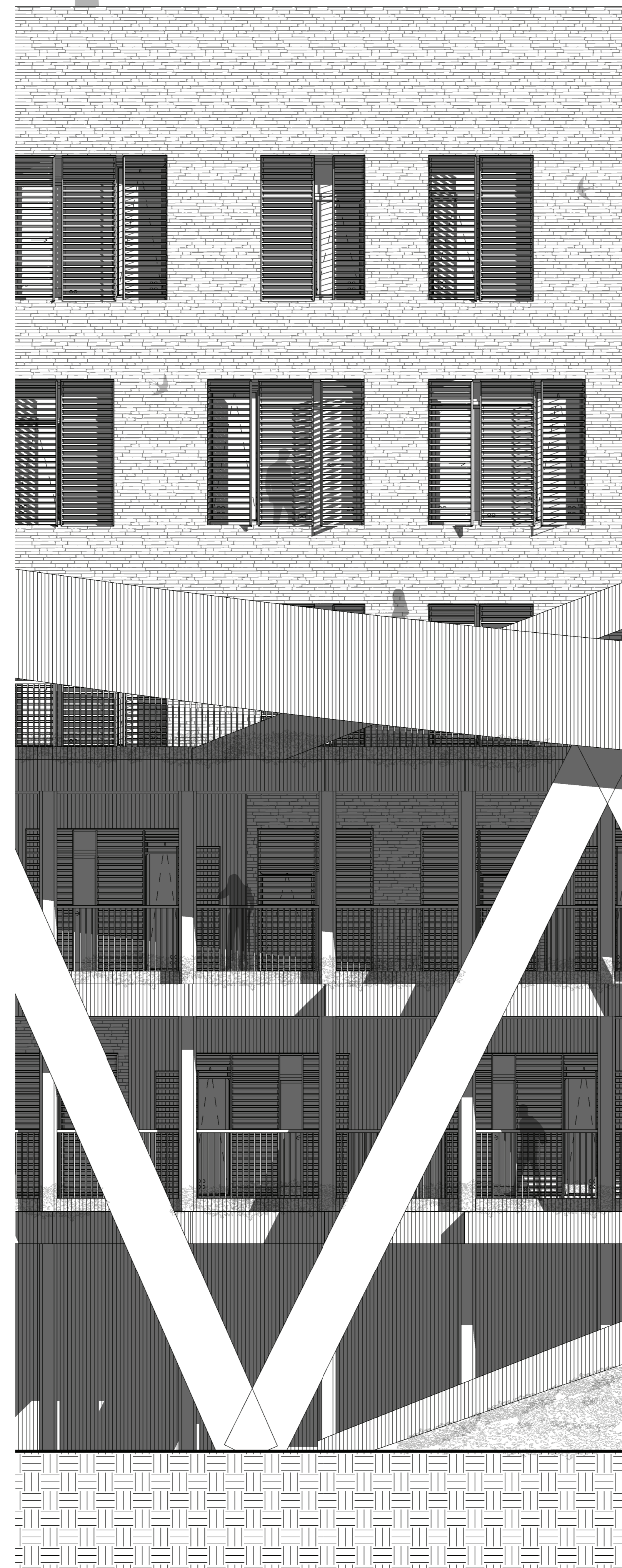
Forth floor - 1:200



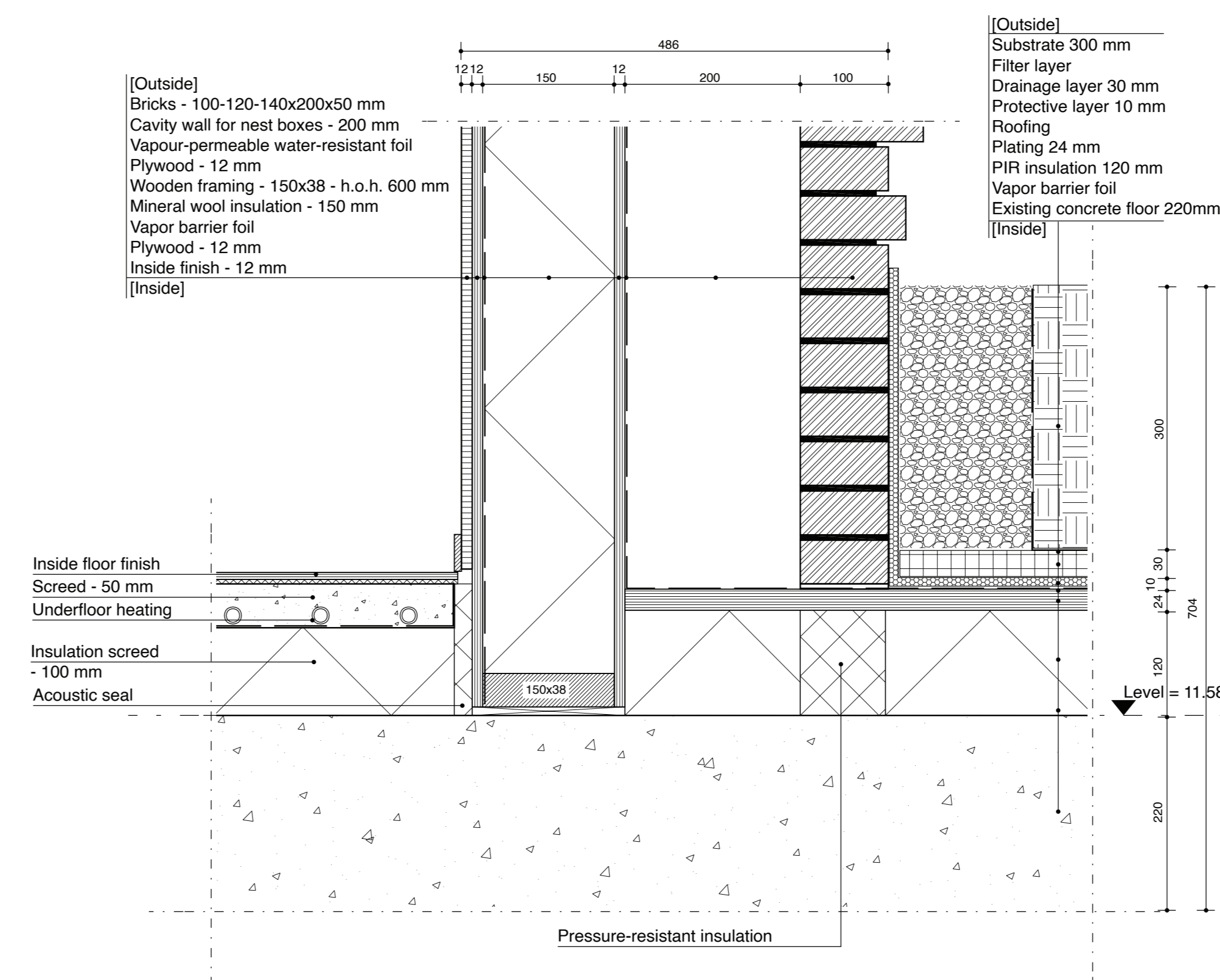
Third floor - 1:200



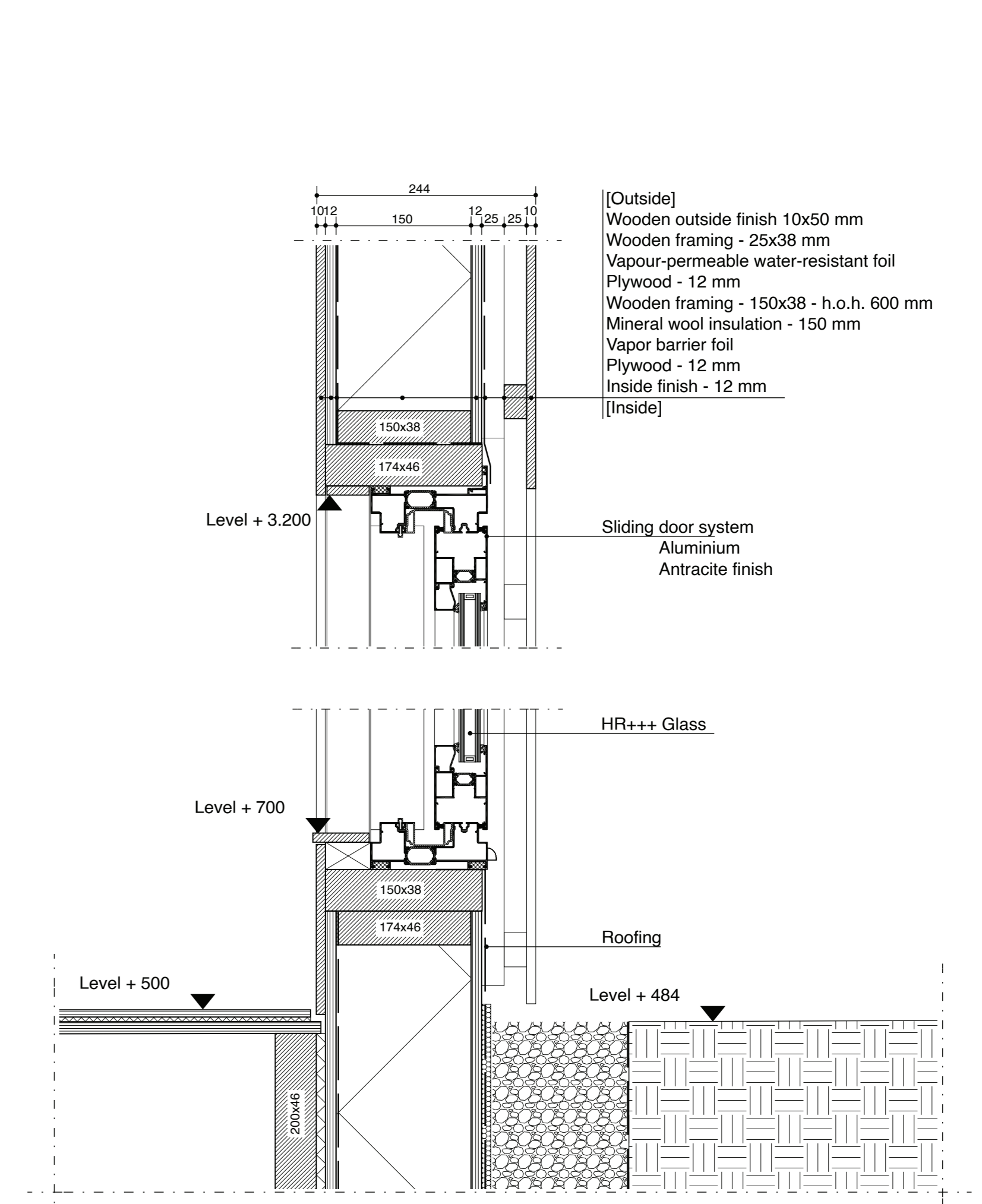
West facade fragment - 1:50



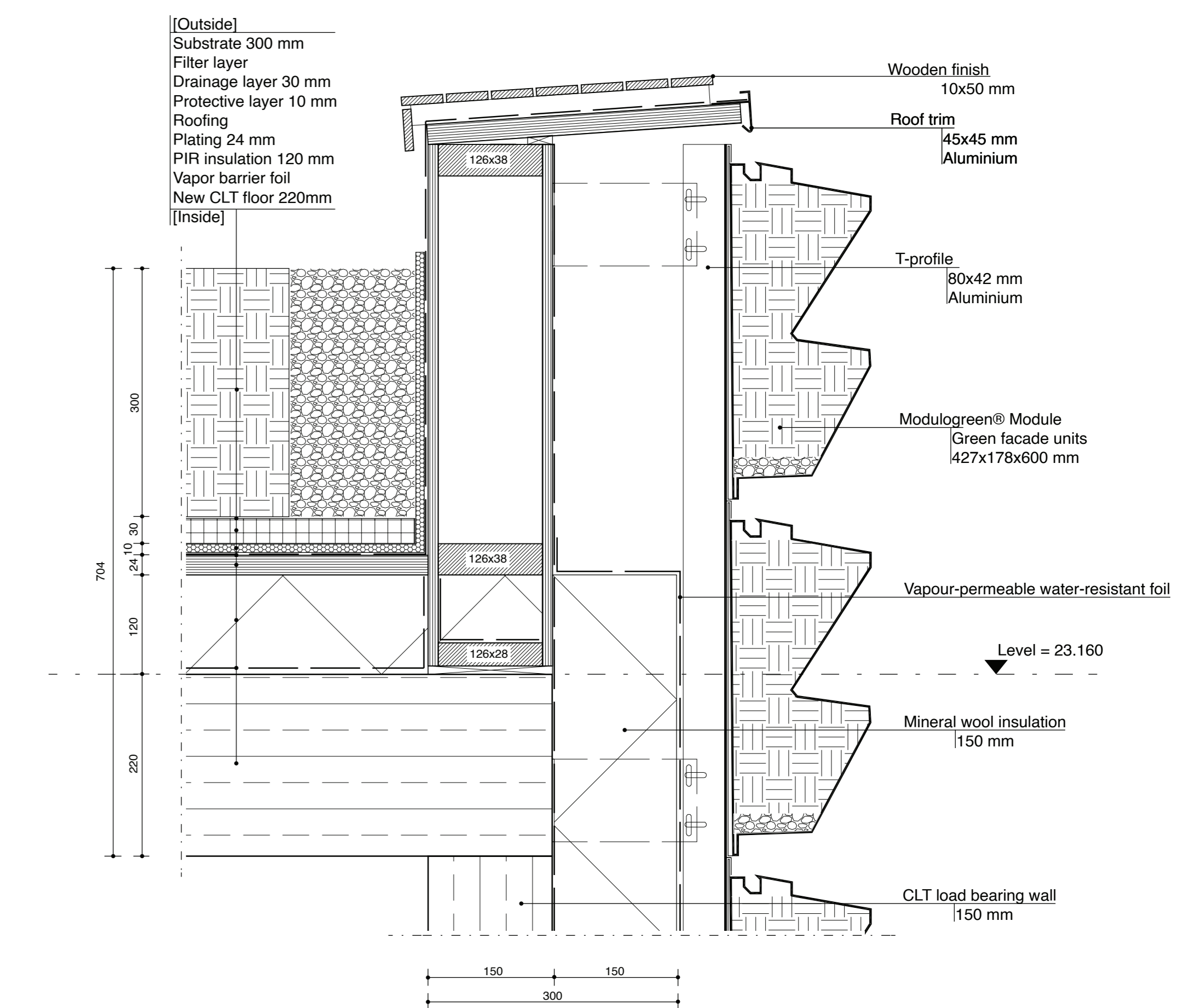
Detail V6.01 Roof edge - 1:5



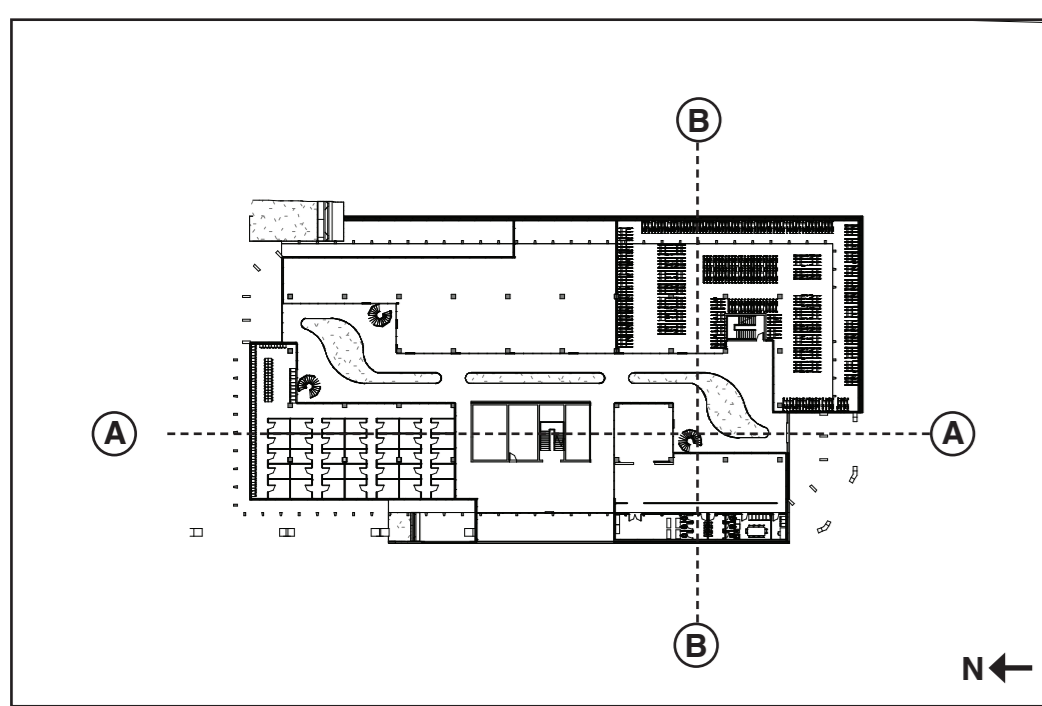
Detail V3.01 Loggia wall - 1:5



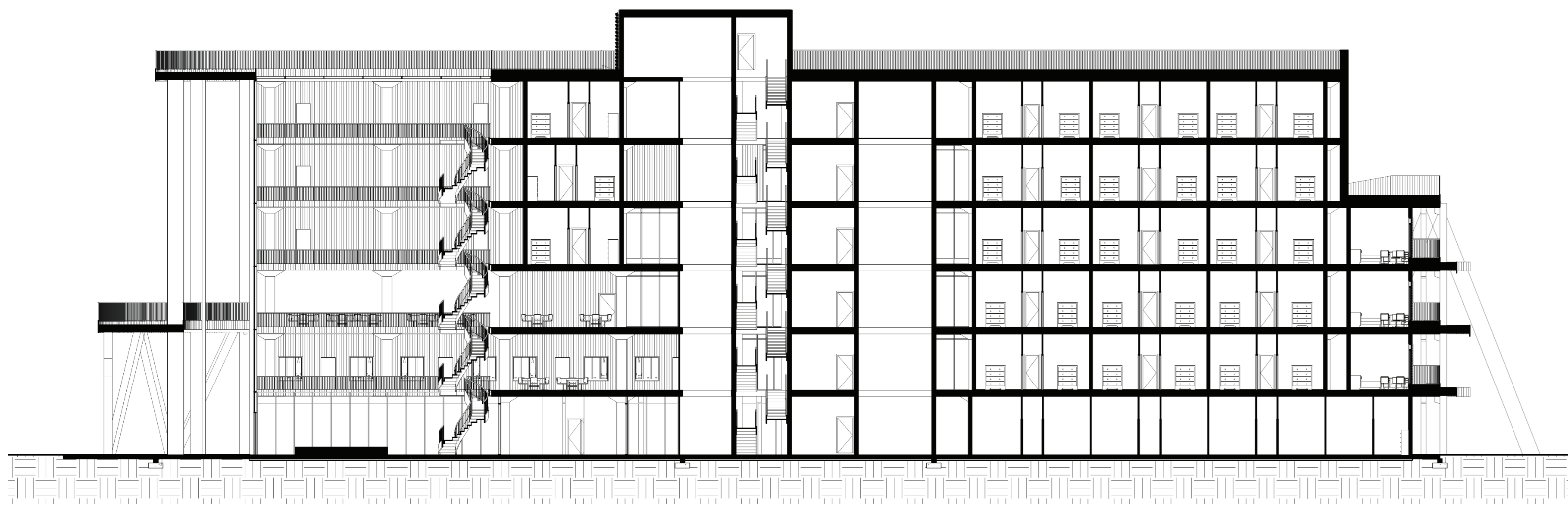
Detail V3.02 Loggia wall openable - 1:5



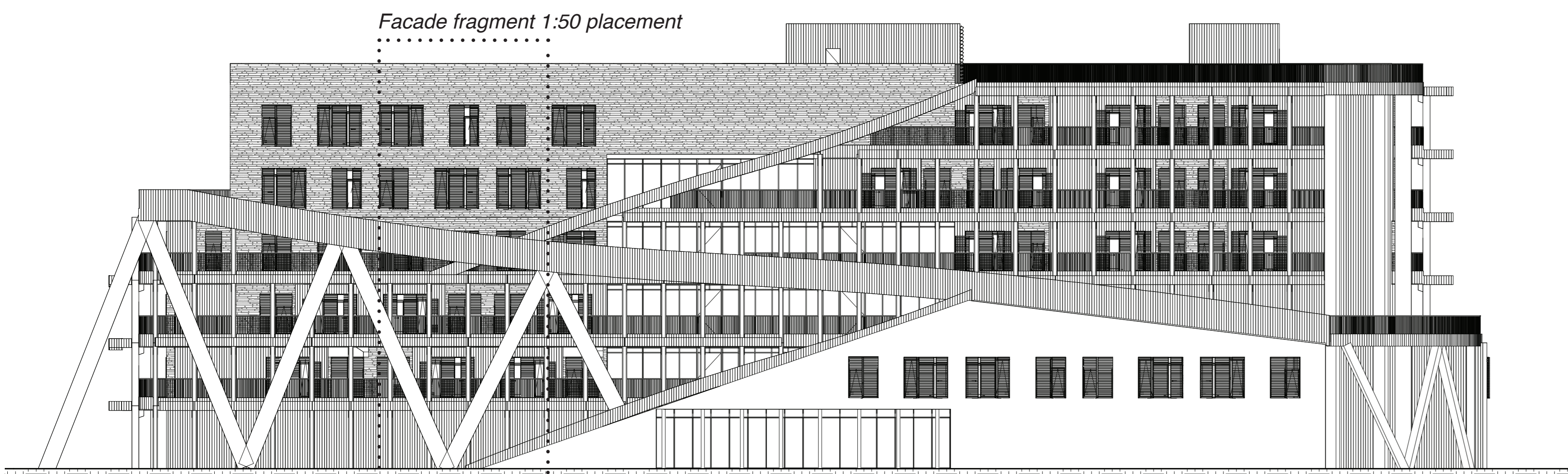
Detail V2.01 Balcony edge - 1:5



Section legend - 1:1000

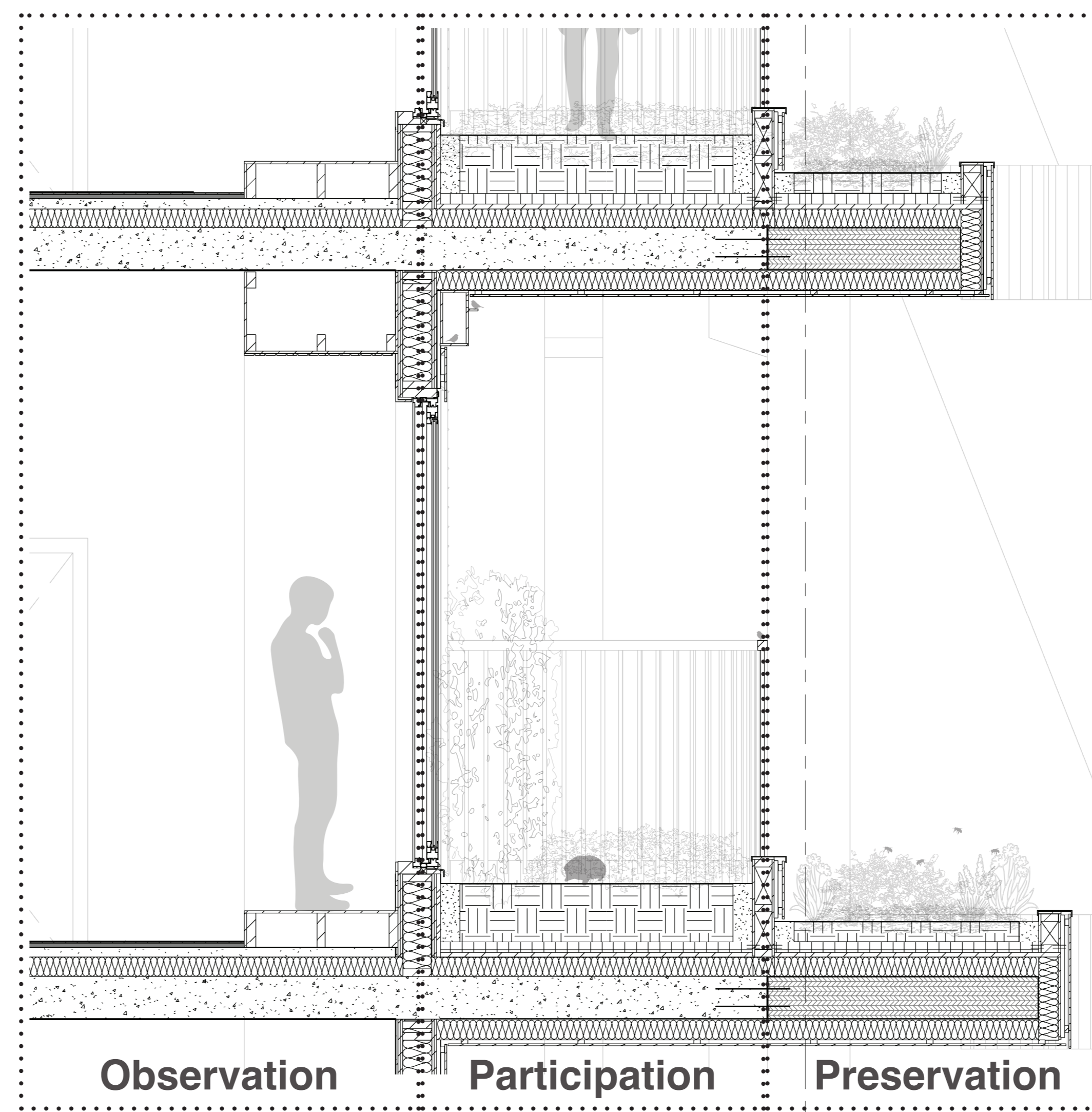


Section A-A - 1:200



West elevation - 1:200

Facade fragment 1:50 placement



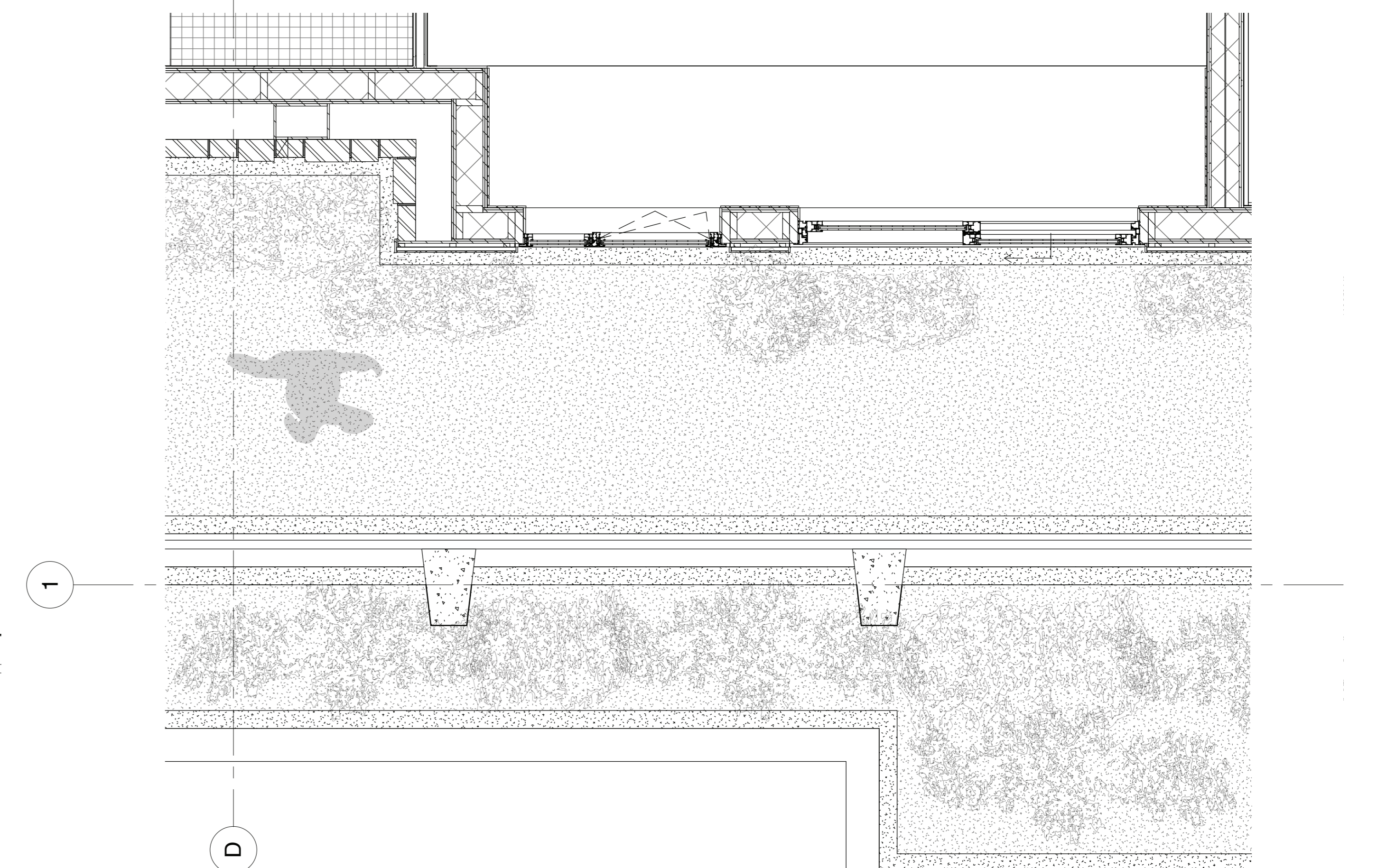
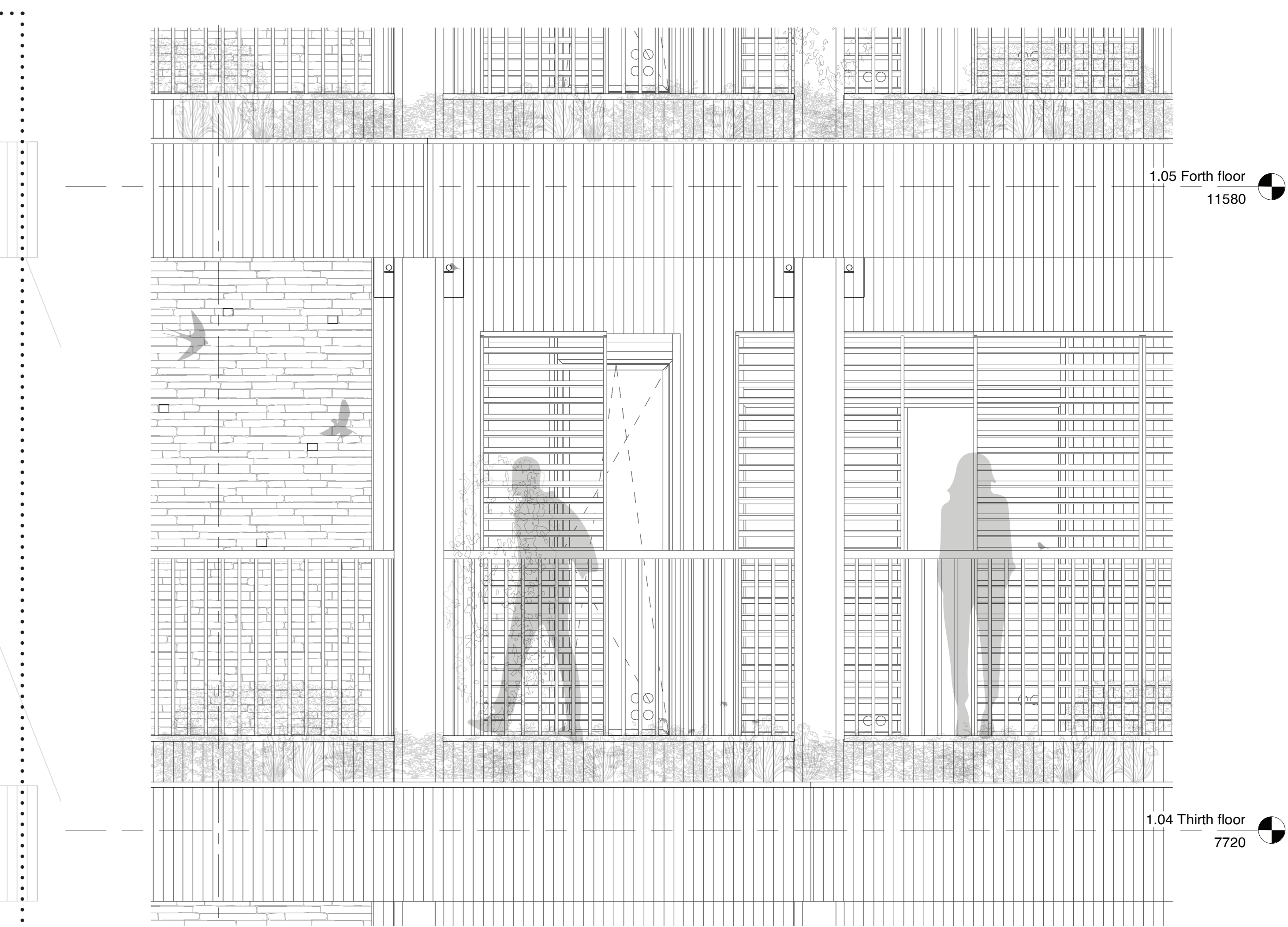
North facade fragment - 1:20

1

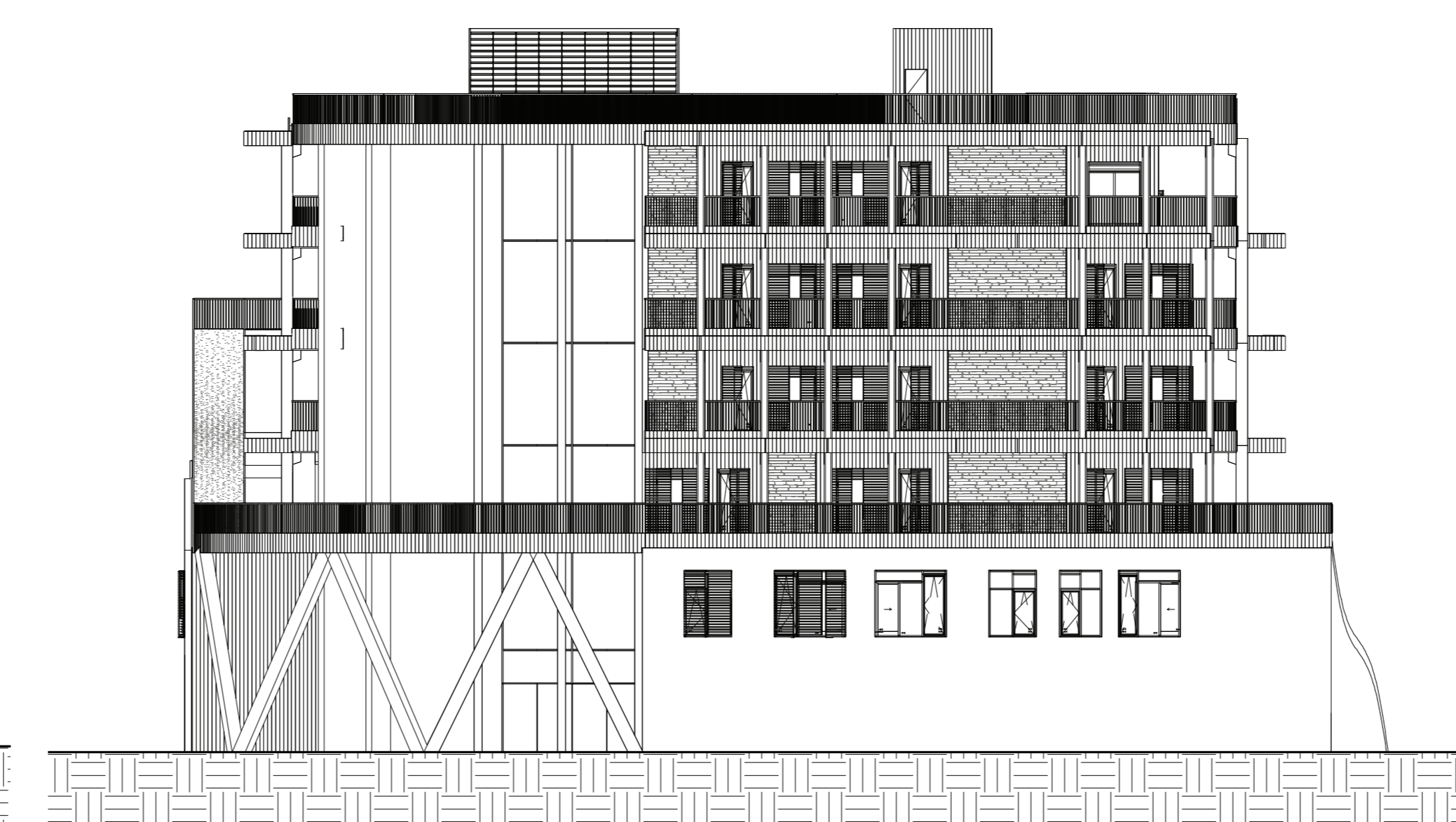


North elevation - 1:200

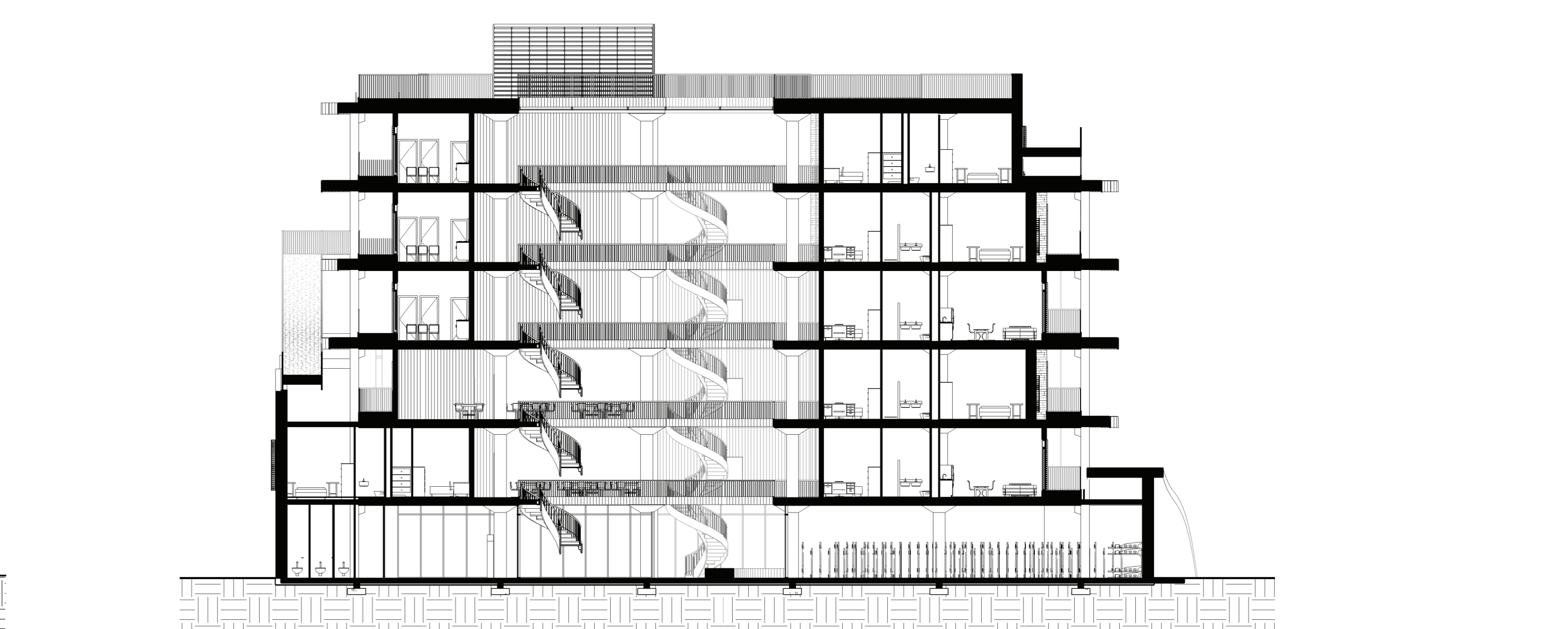
Facade fragment 1:20 placement



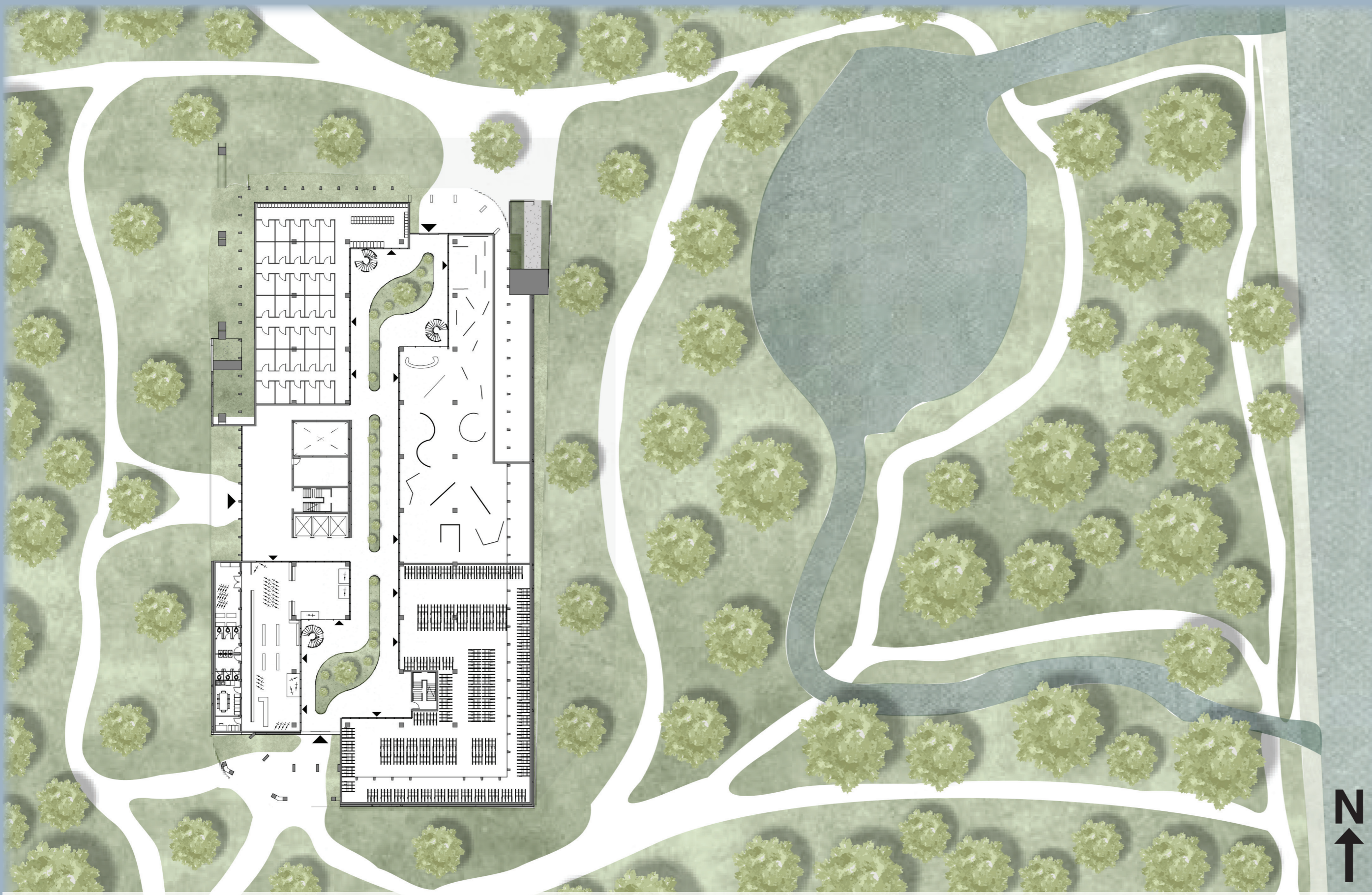
East elevation - 1:200



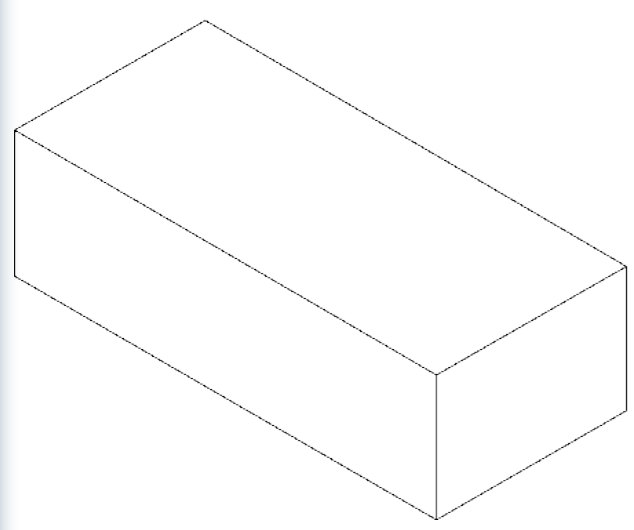
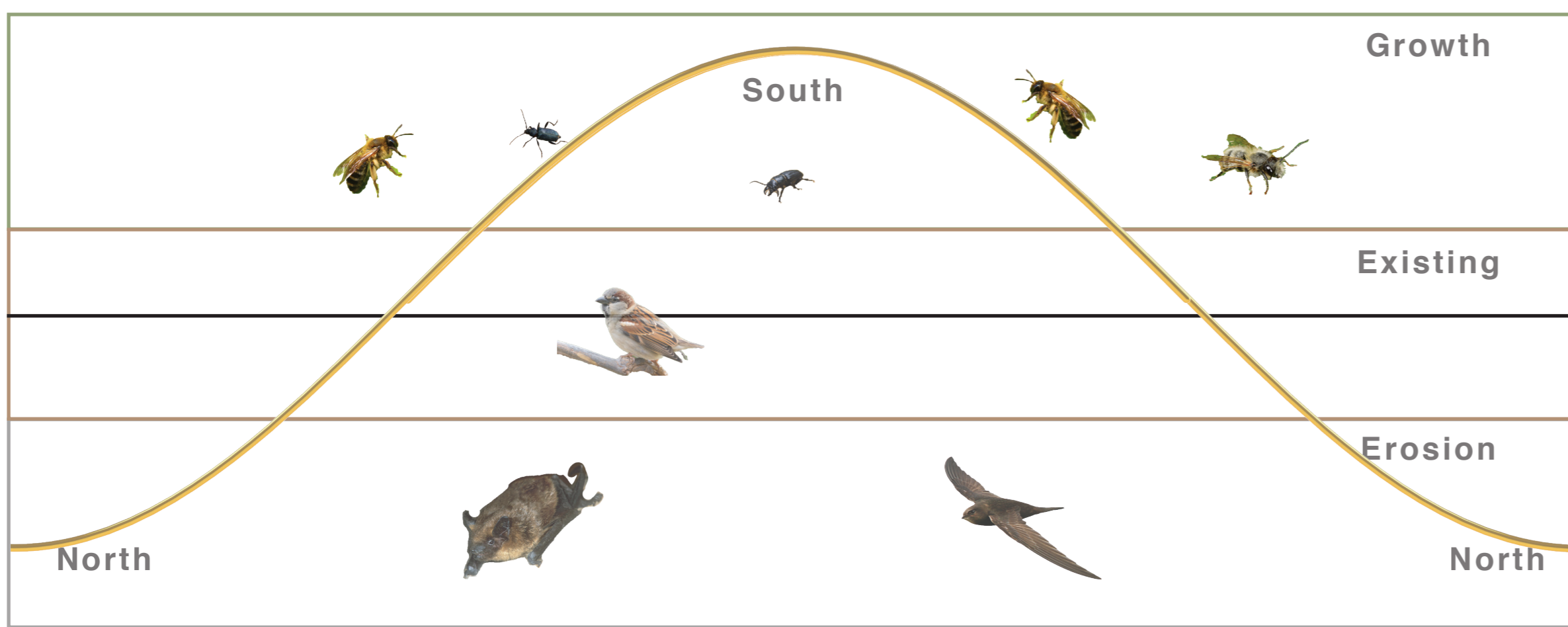
South elevation - 1:200



Section B-B - 1:200

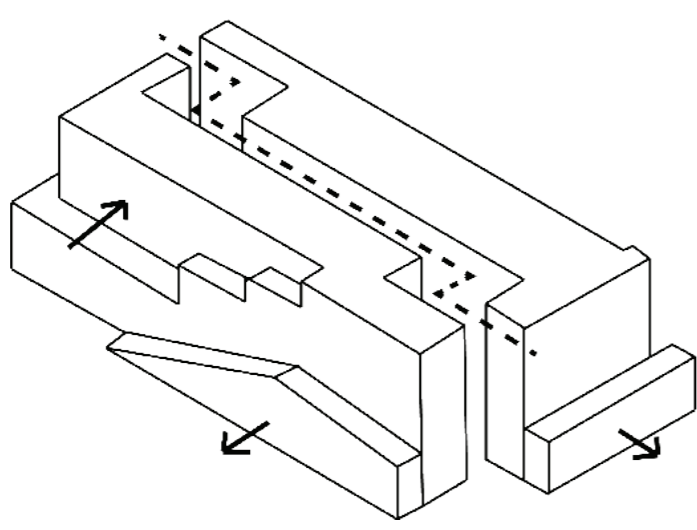


Ground floor in situation - 1:500



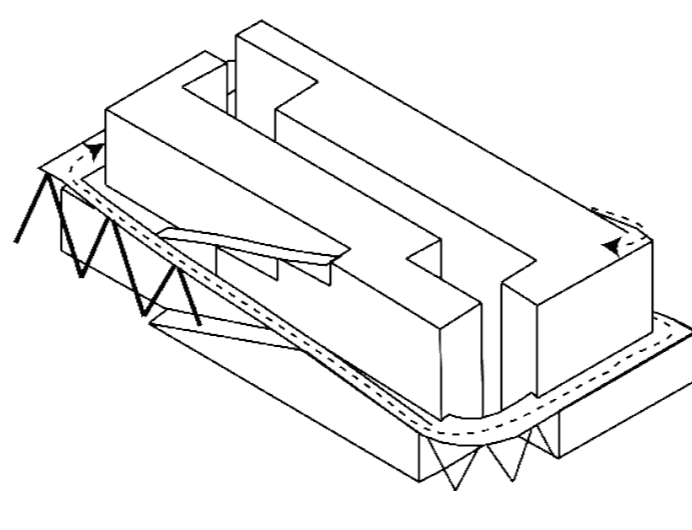
Existing

By retaining the existing structure the newly added green elements have enough structural base to be implemented.



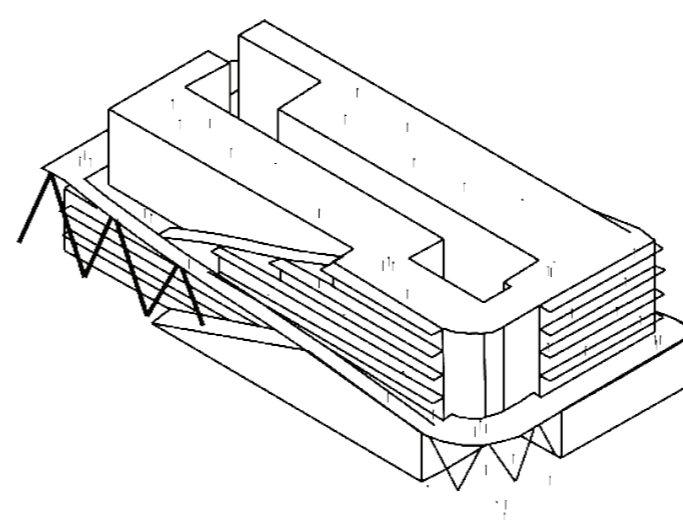
Growth & Erosion

Using the program of requirements elements are either added or subtracted to the existing structure to attract the optimal flora and fauna. This is done by the growth: green elements and erosion: laid back rough stone facades.



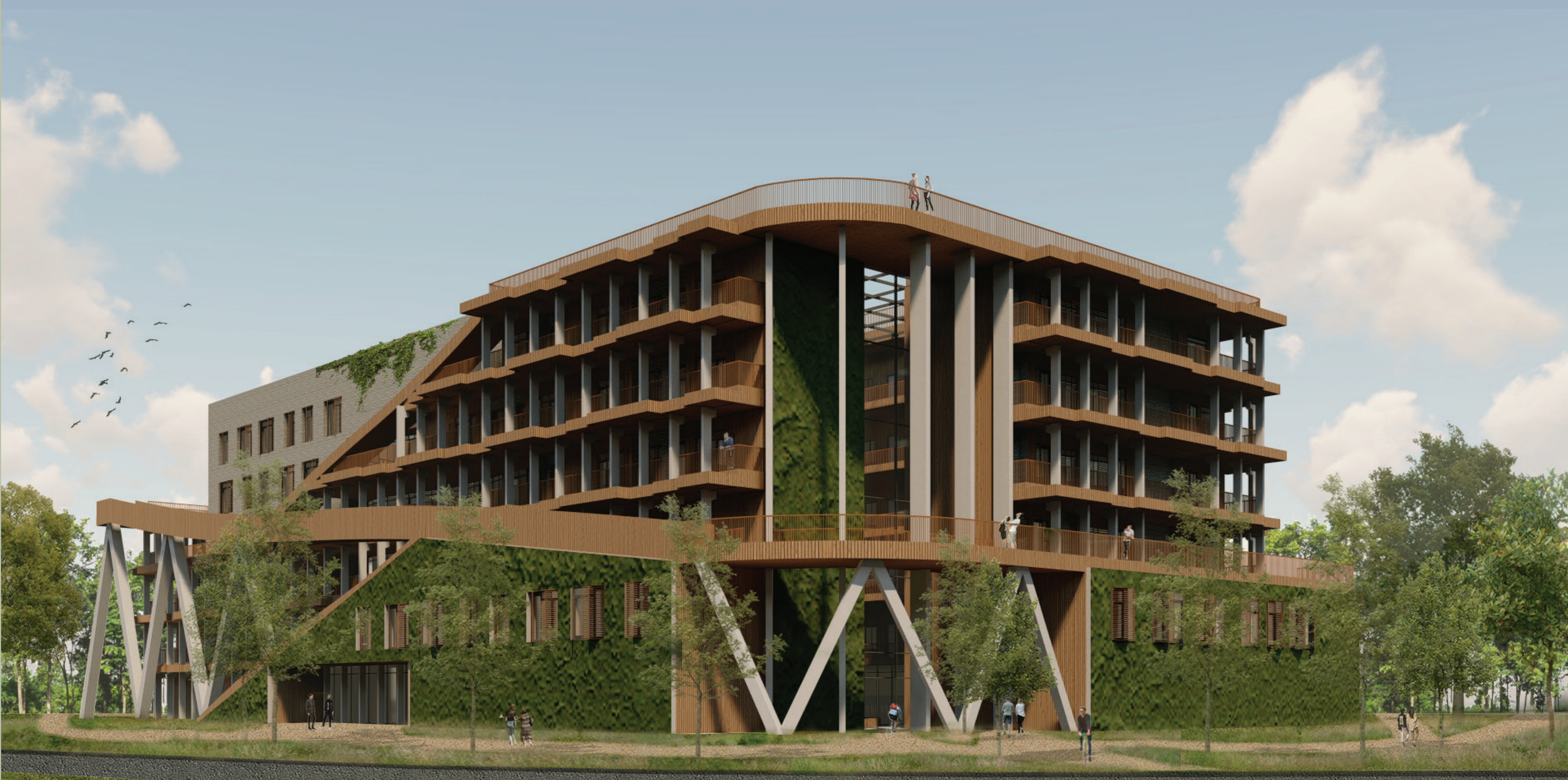
Ground to roof

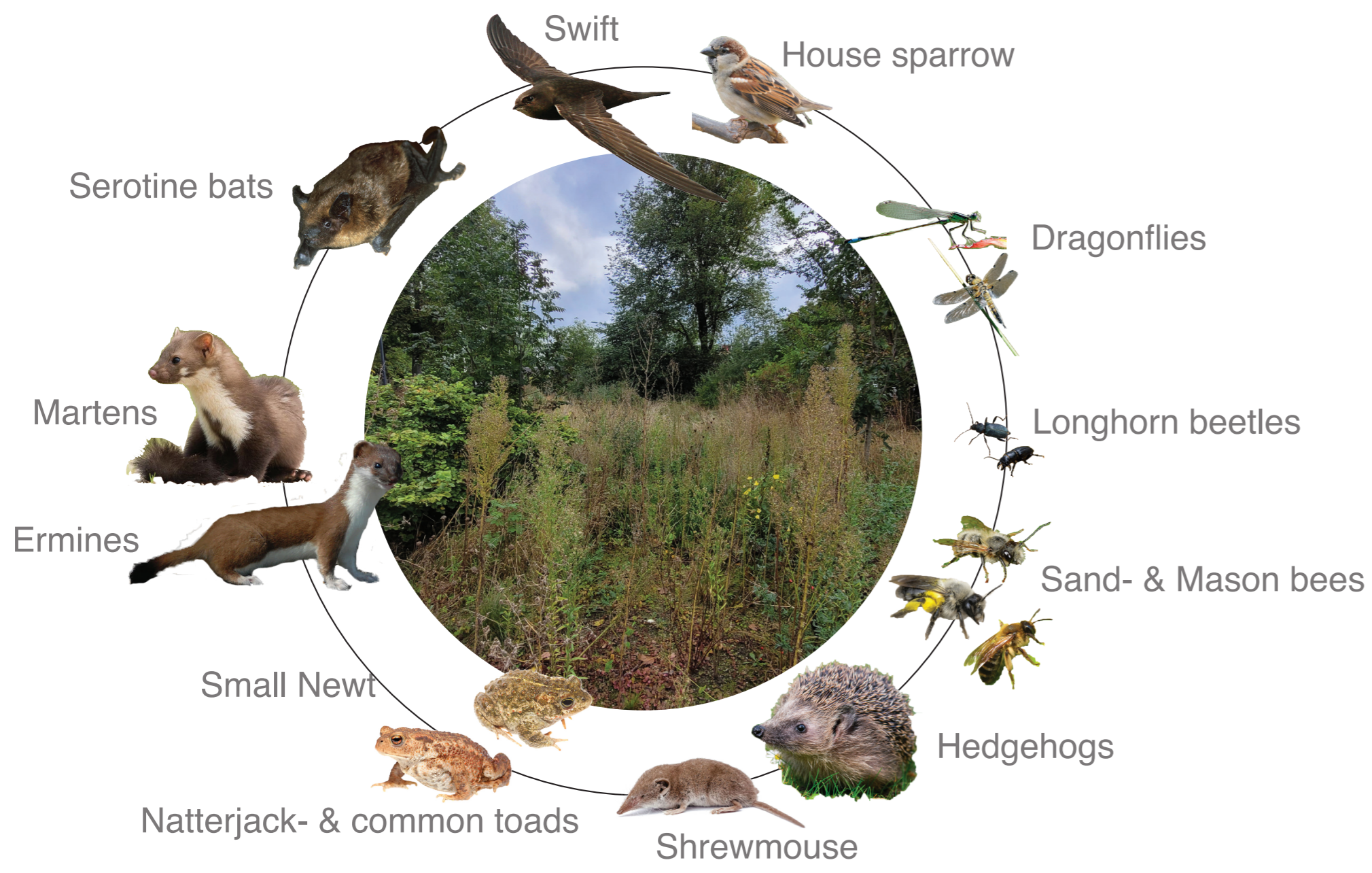
To make the entire building functional as a biodiversity hotspot for not only flying fauna, a large winding pathway is created which increases the effective use of facades and allows for free public roof access.



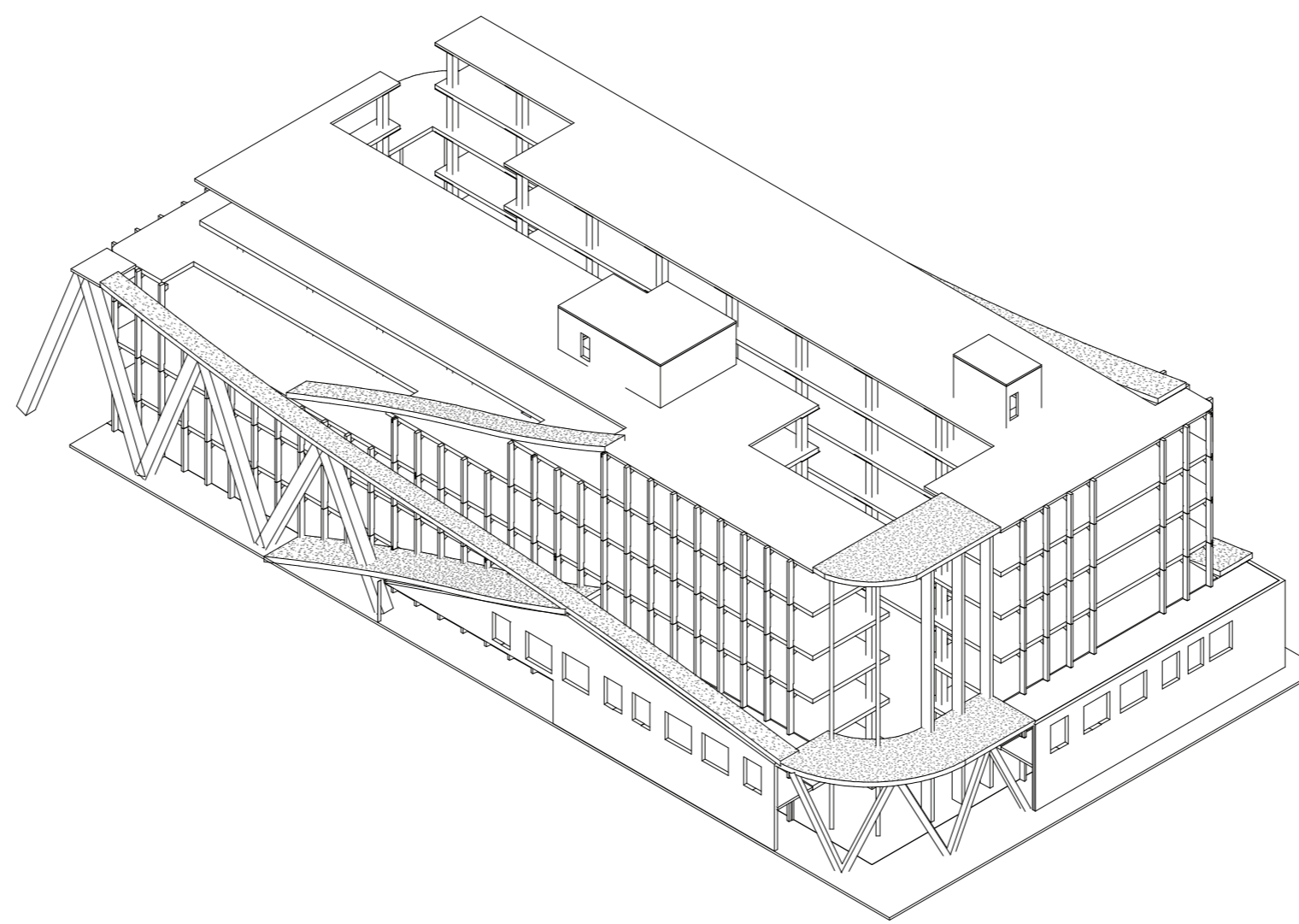
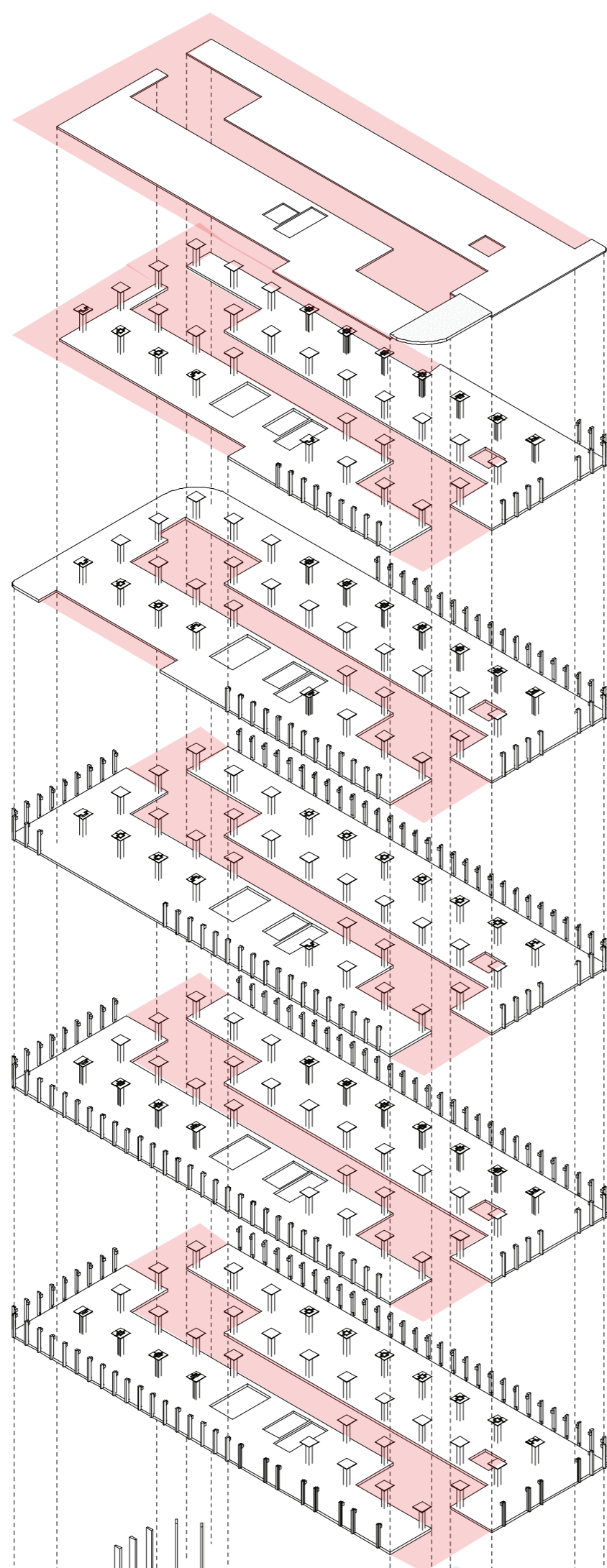
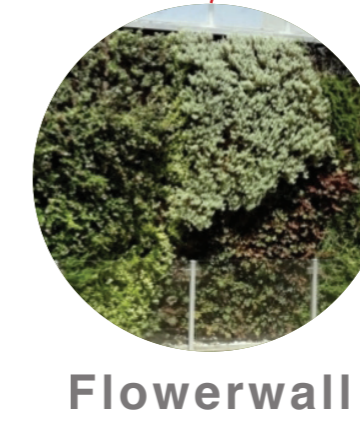
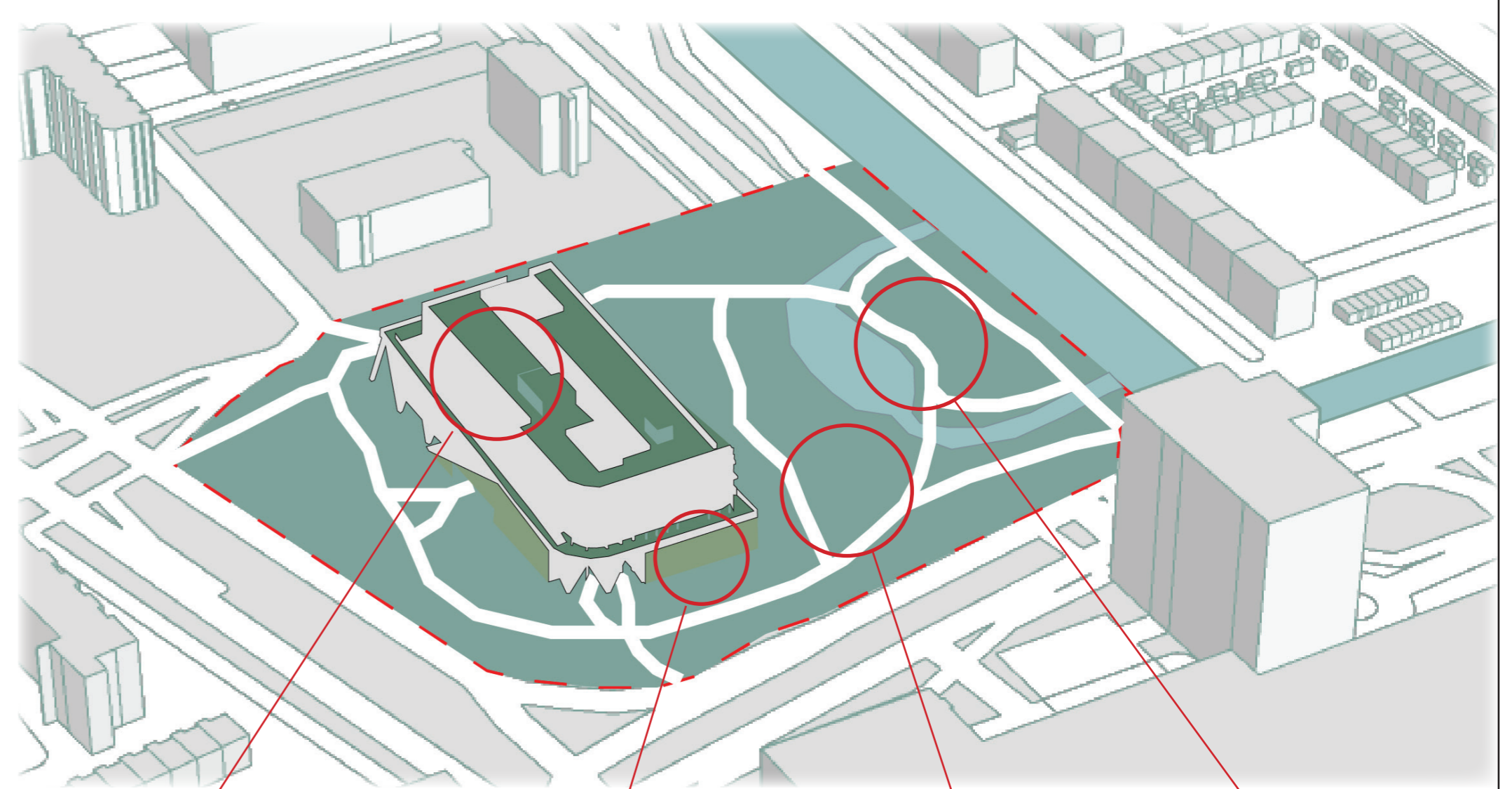
Building as park

To really subjugate the building as a hotspot for nature inclusiveness, bands are introduced around the building. These bands further increase use of facades as well as creating interaction between residents and nature.

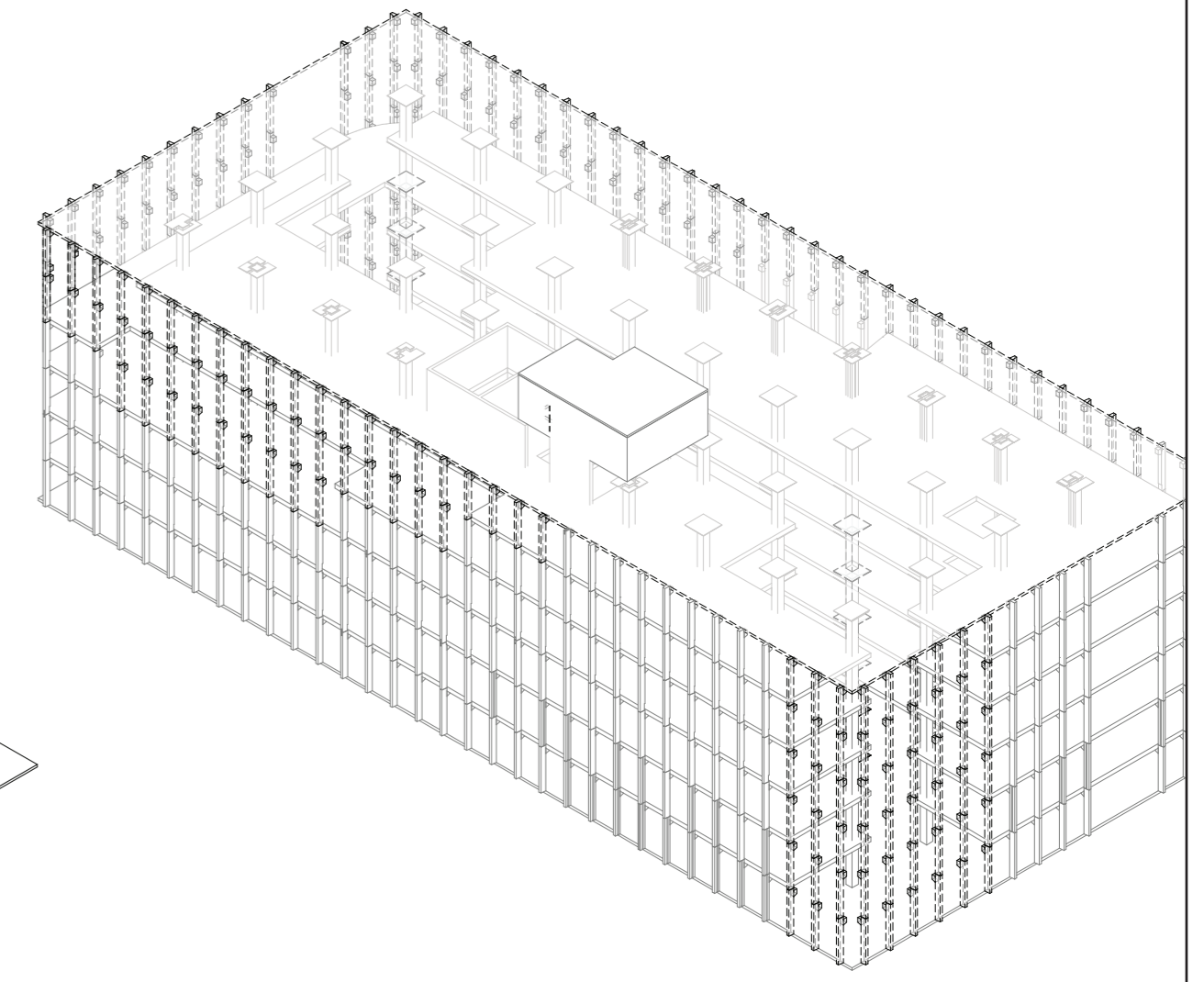




Peatland Biotope



New Construction



Existing Construction

