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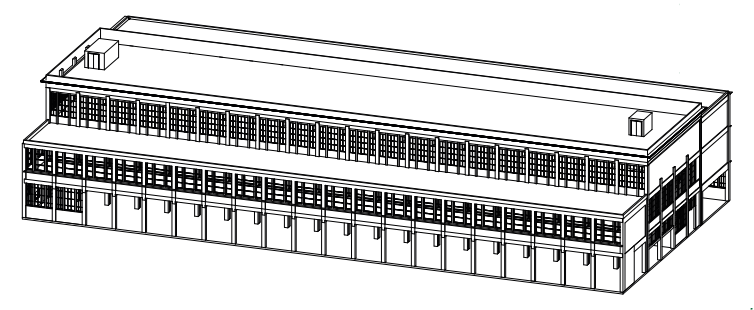
The greenhouse : Breathing life into the uninhabitable.

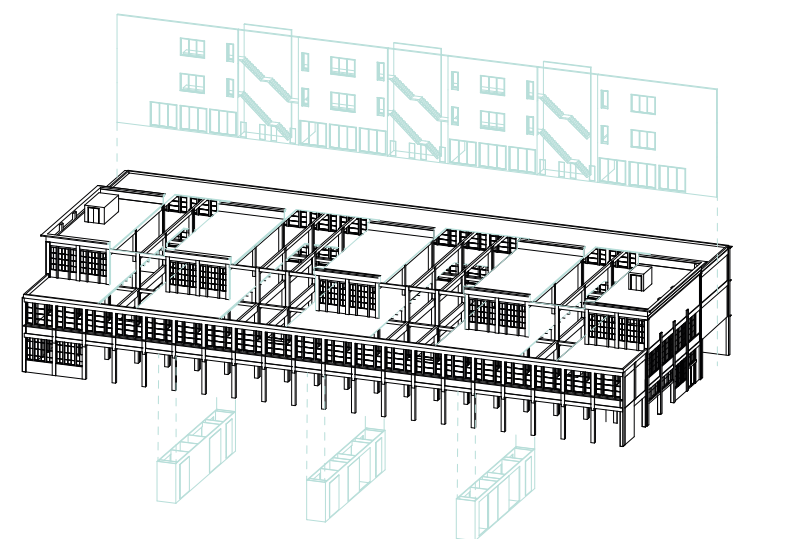
Repurposing of an old industrial building in Lyon into housing, using greenhouses as an appropriable buffer space.

The city of Lyon faces an important housing crisis nowadays, and abandoned industrial sites in the city's 7th arrondissement are being transformed into big housing development projects. However, the main methodology for this process is currently the tabula-rasa, which completely erases the architectural history of the sites and does not take advantage of the possibilities and ecological advantages offered by repurposing the existing industrial buildings. The objective of this project is to repurpose an abandoned cable factory hall into housing units, using the greenhouse as a way to create the conditions for the habitability of the existing uninhabitable structure.

Existing building

The industrial hall is a three story building made of concrete columns and beams. Each floor is an open space with tall ceilings and big openings on the facade, but its depth doesn't allow any light to come into the center and the lack of insulation renders the building uninhabitable.





Openings, technical cores, and insulated heat regulating wall

Light _ Big openings starting at the south facade and going into the building are created in order to bring light inside. The openings are bigger at the top and smaller on the ground floor since the floors containing the housing units need more light.

Installations_ Technical cores are integrated into the ground floor, housing the necessary technical infrastructure for the housing units' needs and incorporating modular spaces for storage and public activities (bar, market,...) as well as circulation on the ground floor.

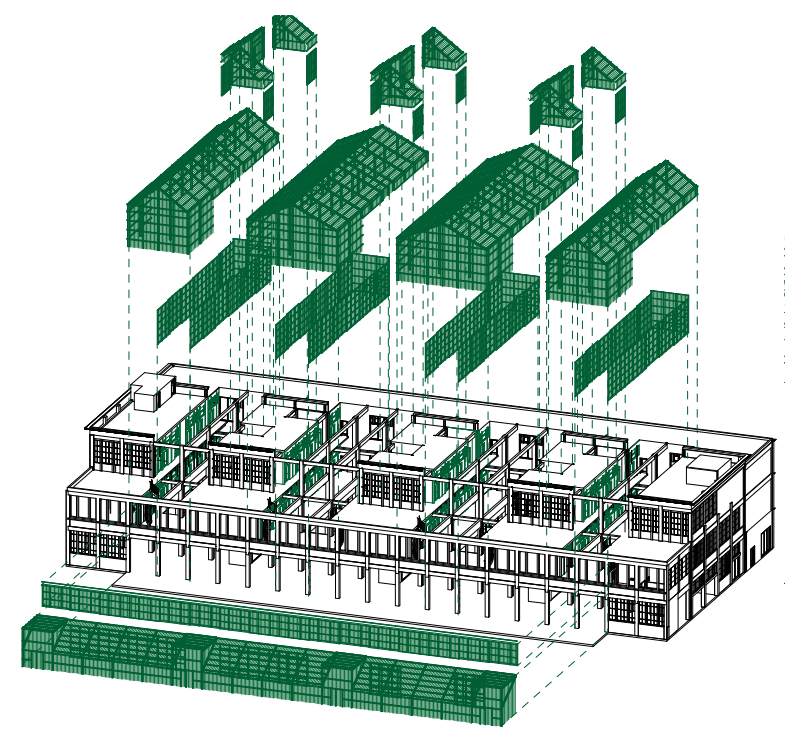
Heat_ The northern part of the building is completely insulated by a wall with an adobe finish. The adobe has good thermal inertia and can stock heat created in the greenhouse during the day and redistribute it at night.

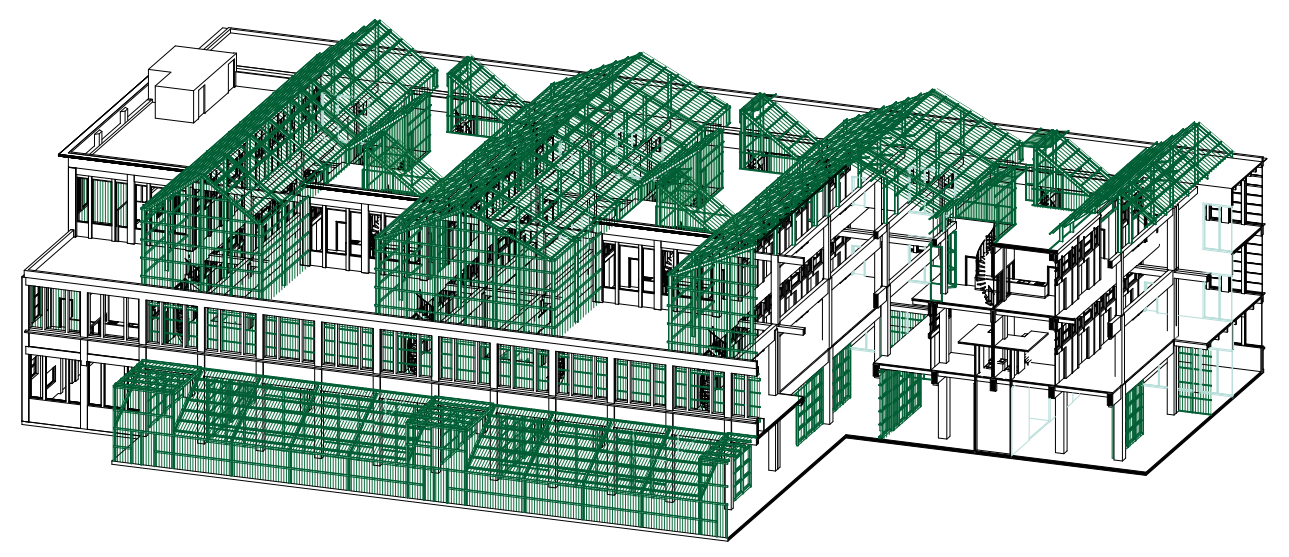
Greenhouses

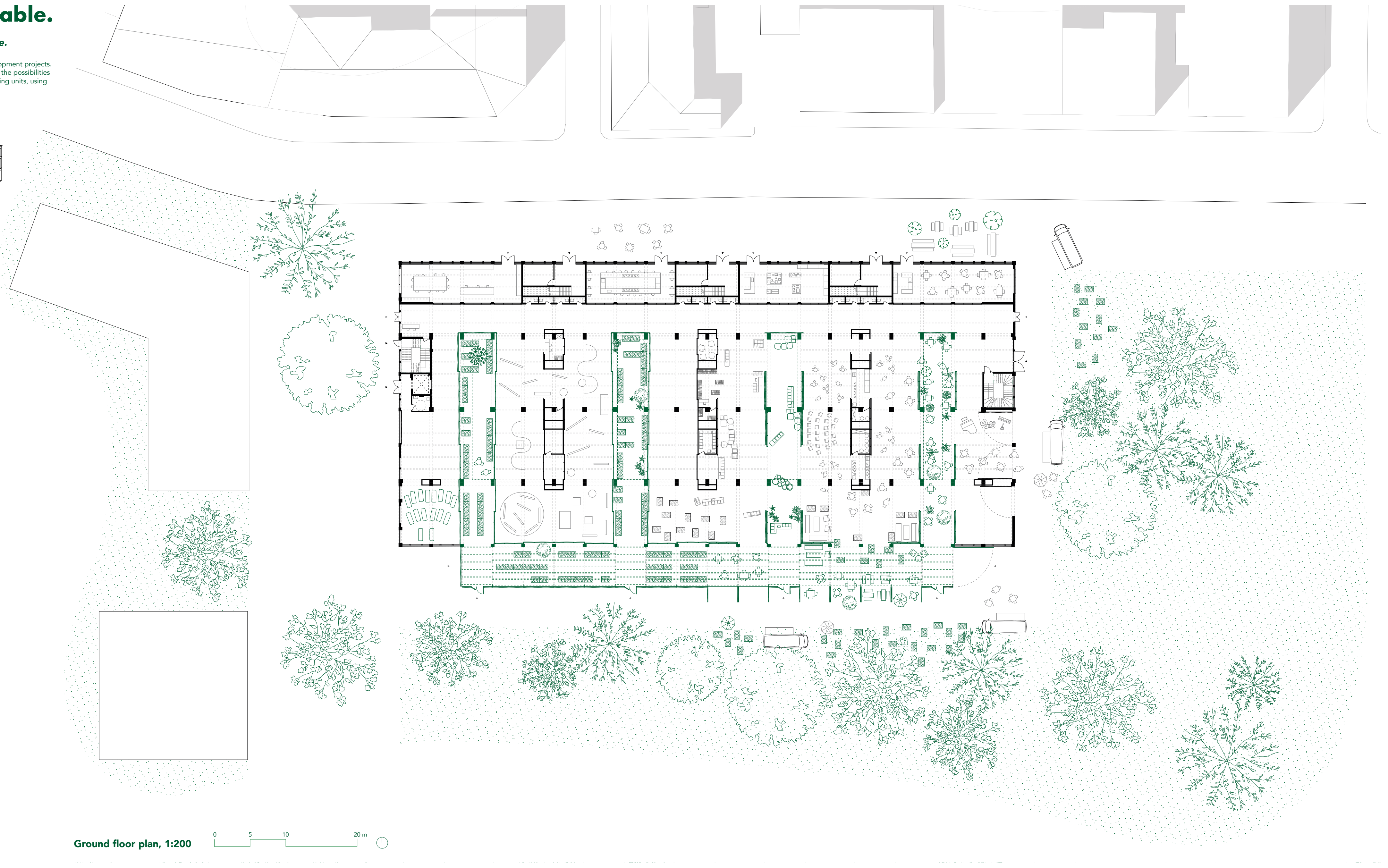
Common spaces_ Traditional greenhouses have a transparent facade towards the south and a heat regulating wall to the north to avoid heat loss. In this project the elements are dilated, the north wall becomes an insulated common space for winter use and the south facing greenhouses bring light and heat to create the conditions of habitability. The polycarbonate greenhouses form an open buffer space that can be appropriated by the housing typologies in different ways. This space is very luminous and tempered by the solar gains, keeping a higher temperature than the outdoors but similar conditions to this one due to its transparency.

Studio apartment_ The studio typologies are in direct contact with the communal greenhouse, which serves as a place for socialisation, acting as an extension of the typology and containing domestic activities such as the summer kitchen.

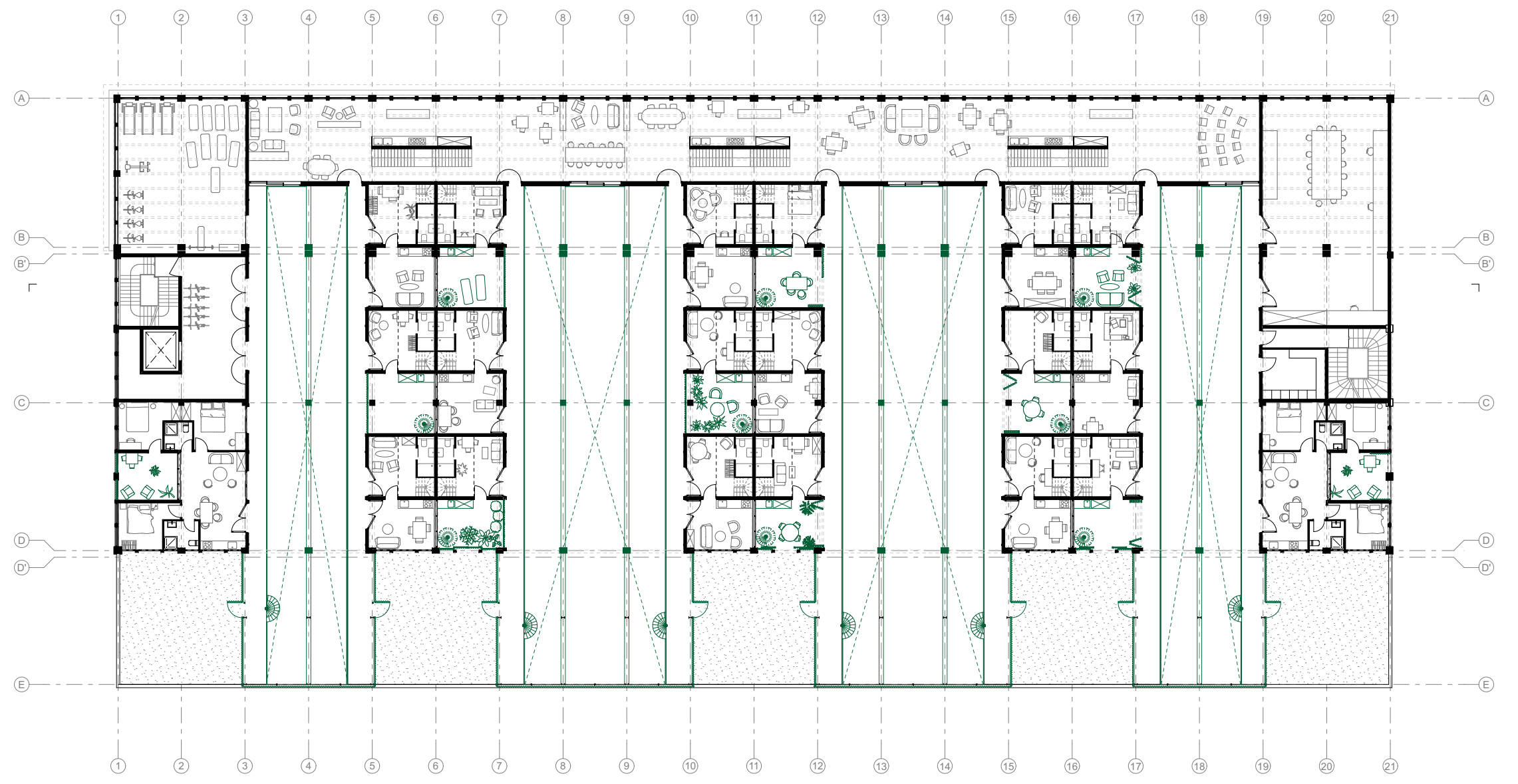
Two bedroom apartment_ The apartments on the second floor have their own private greenhouses but can open up into the communal greenhouse and interact with its inhabitants. The greenhouse offers the possibility for many collective and private activities, depending on the way the inhabitants choose to appropriate the space.



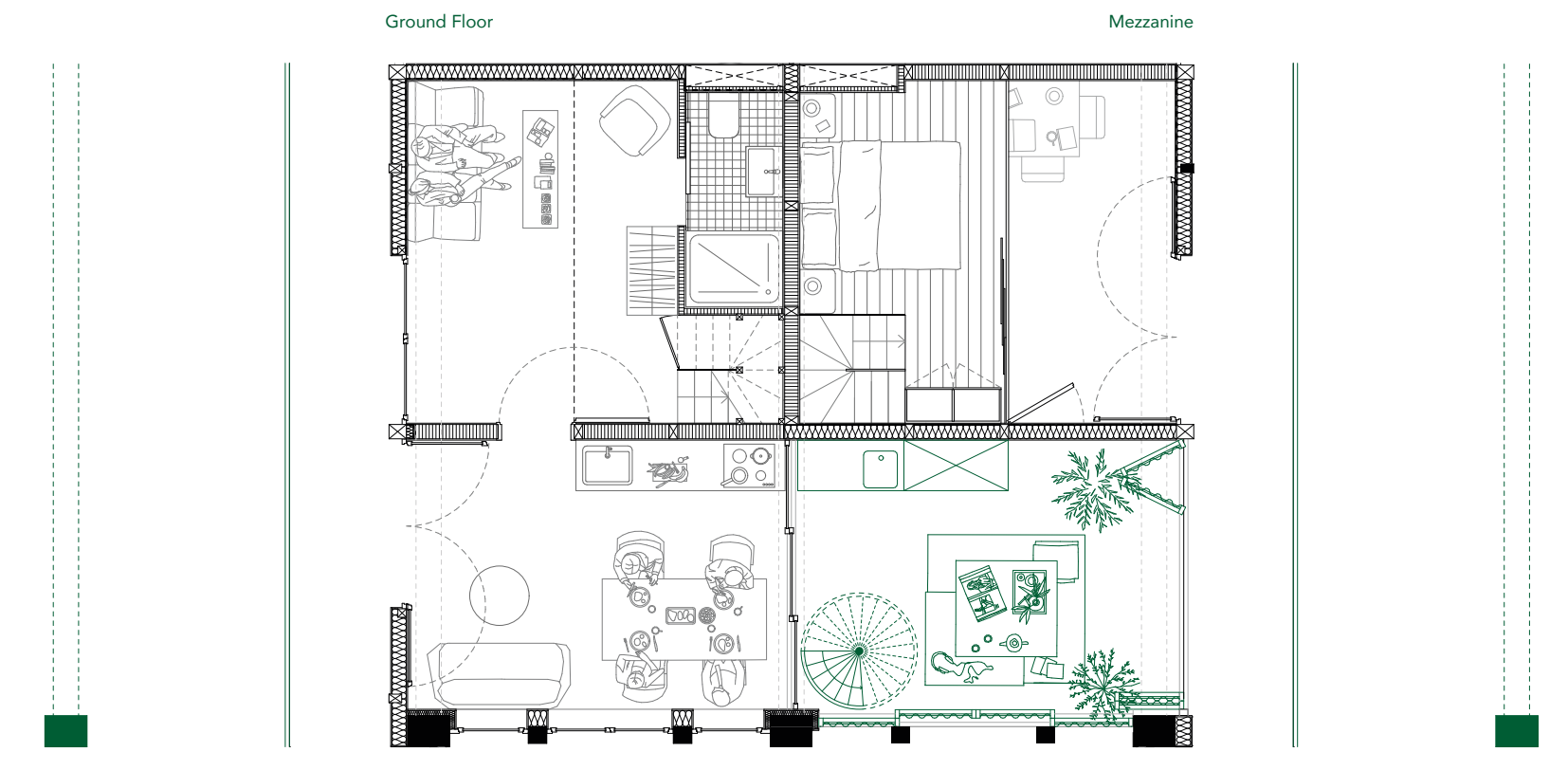




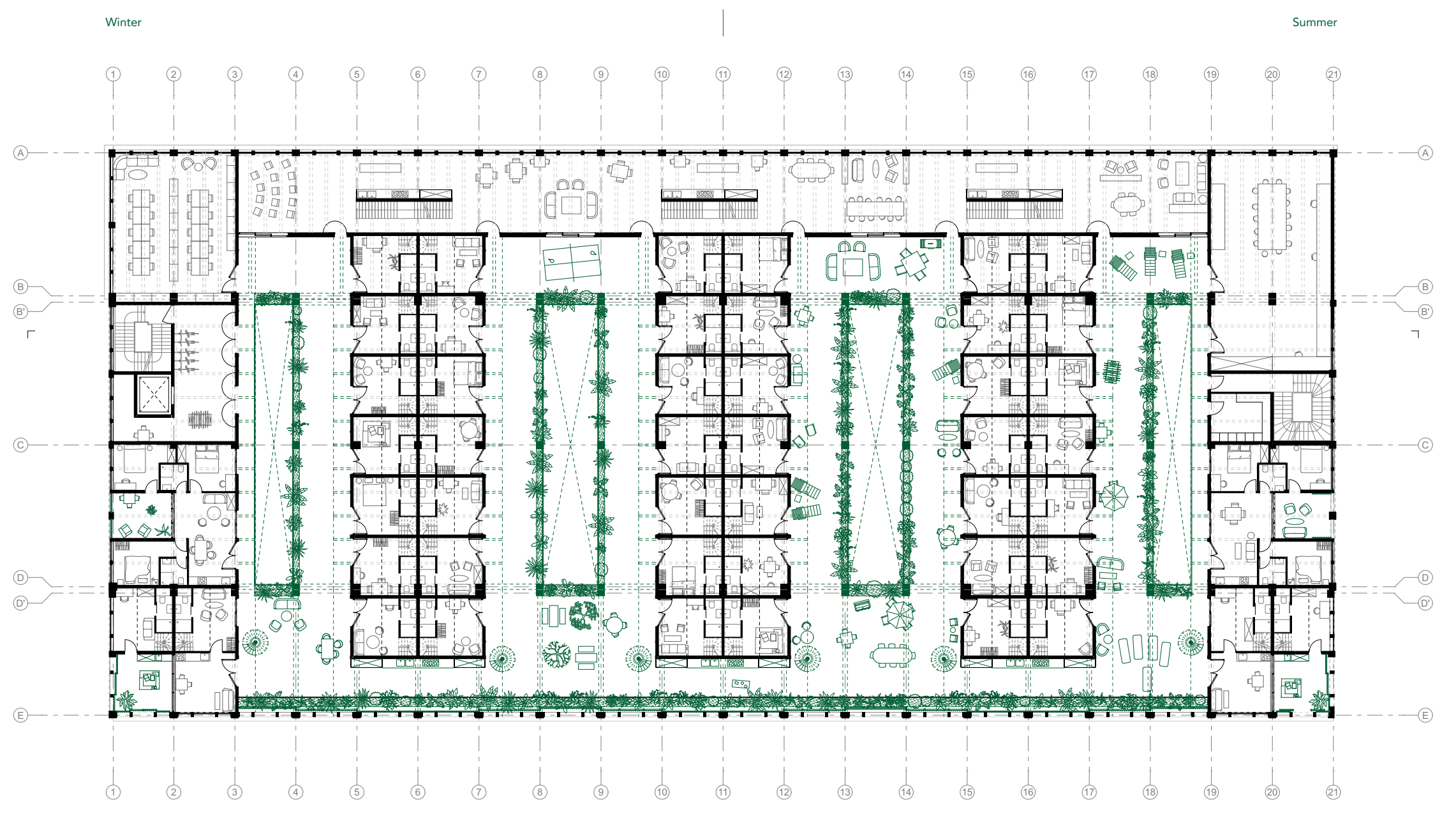
Ground floor plan, 1:200



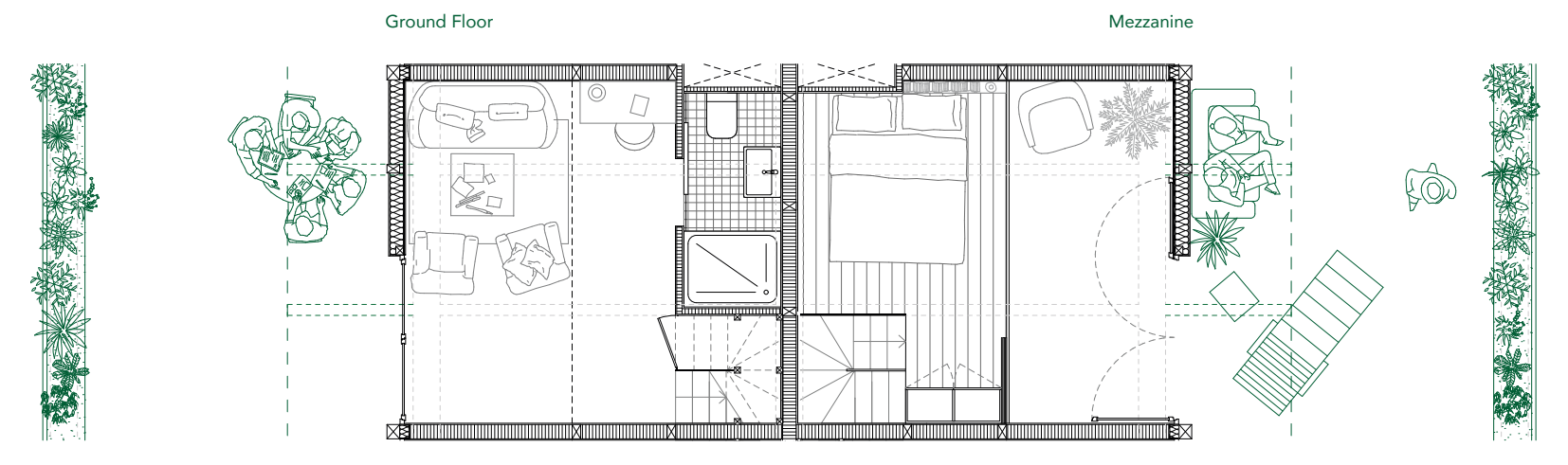
Second floor plan 1:200 - The private greenhouse apartments



Two bedroom apartment with private greenhouse, 1:50



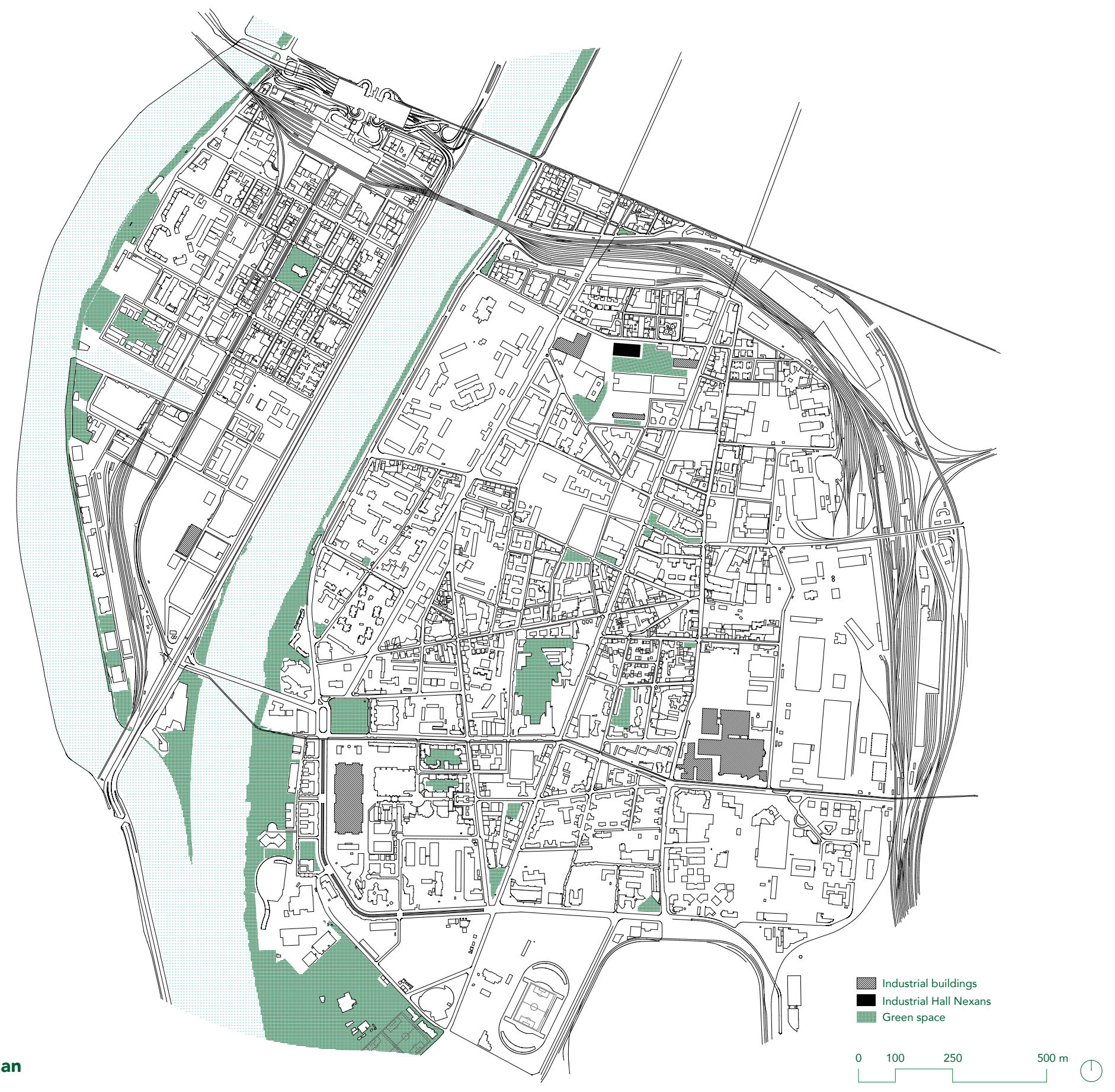
First floor plan, 1:200 - The communal greenhouse cluster



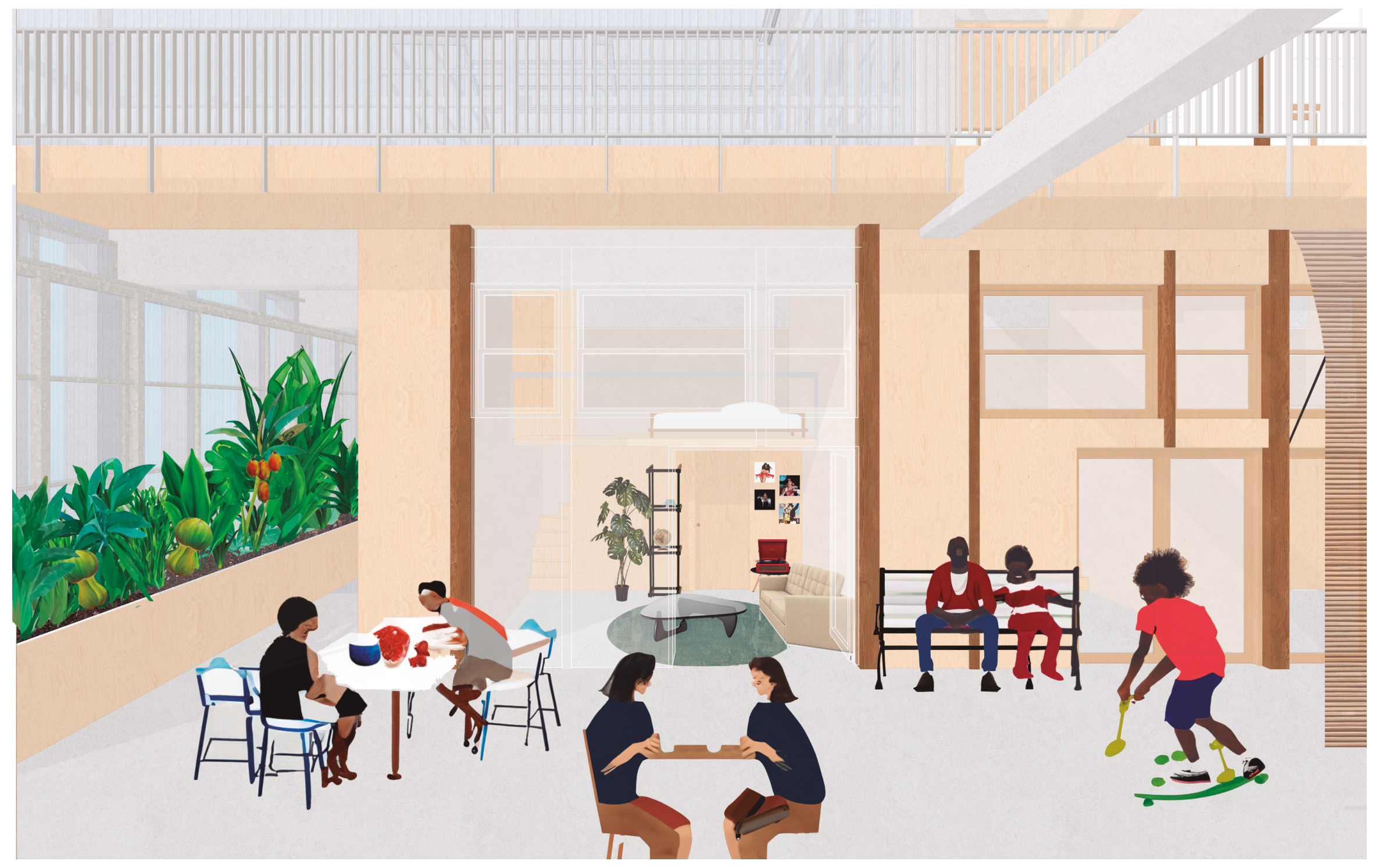
Studio apartment related to the communal greenhouse, 1:50

Roof
Gravel 6 cm
Waterproofing membrane
Existing concrete slab 20 cm
Insulation 20cm
Vapor barrier 2 cm
Plywood panel
Interior facade
Plywood panel 2 cm
Vapor barrier
Wooden frame/Insulation 20 cm
Plywood panel 2 cm
0
1
2.5
5 m

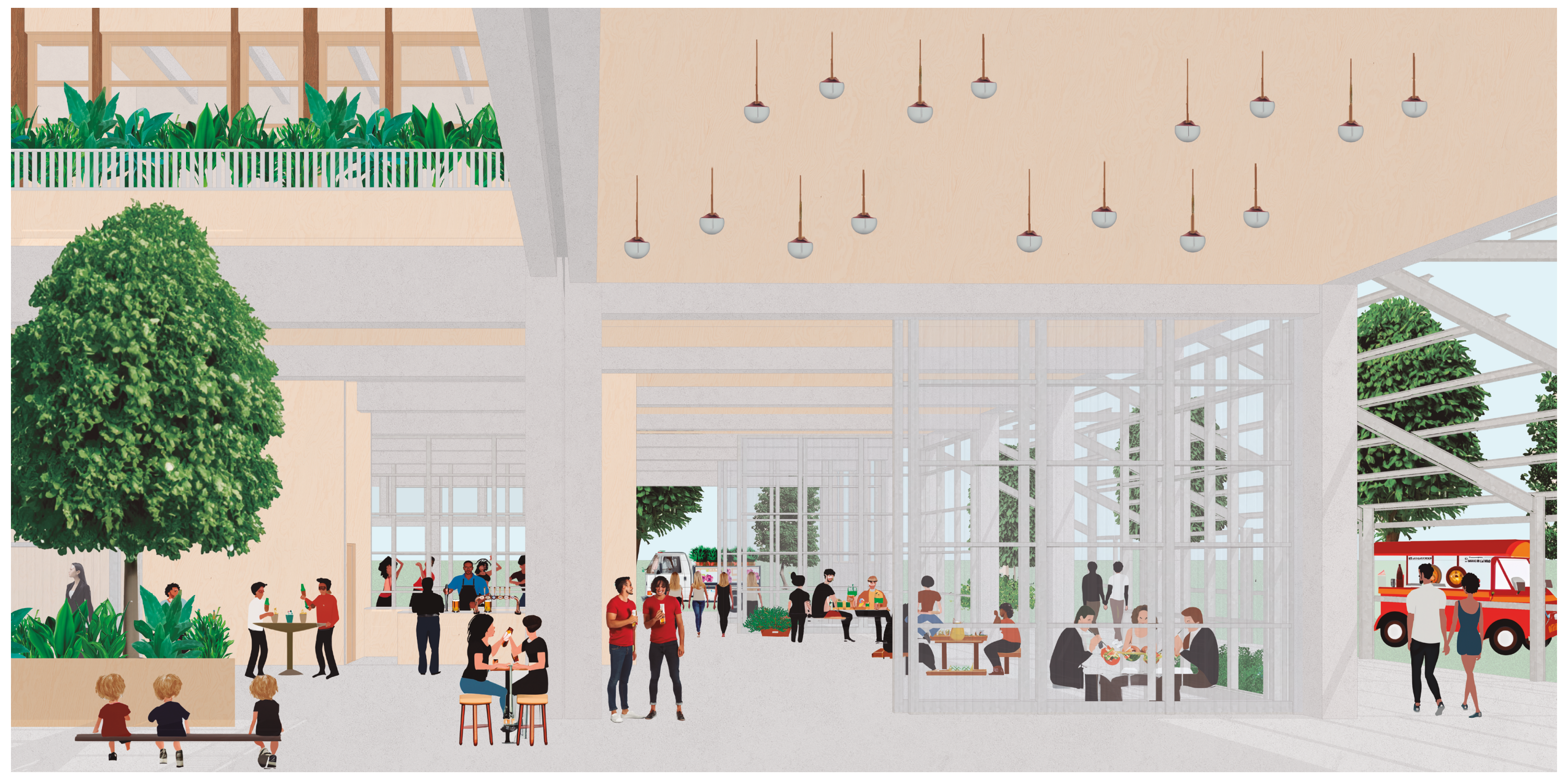
Perspective section



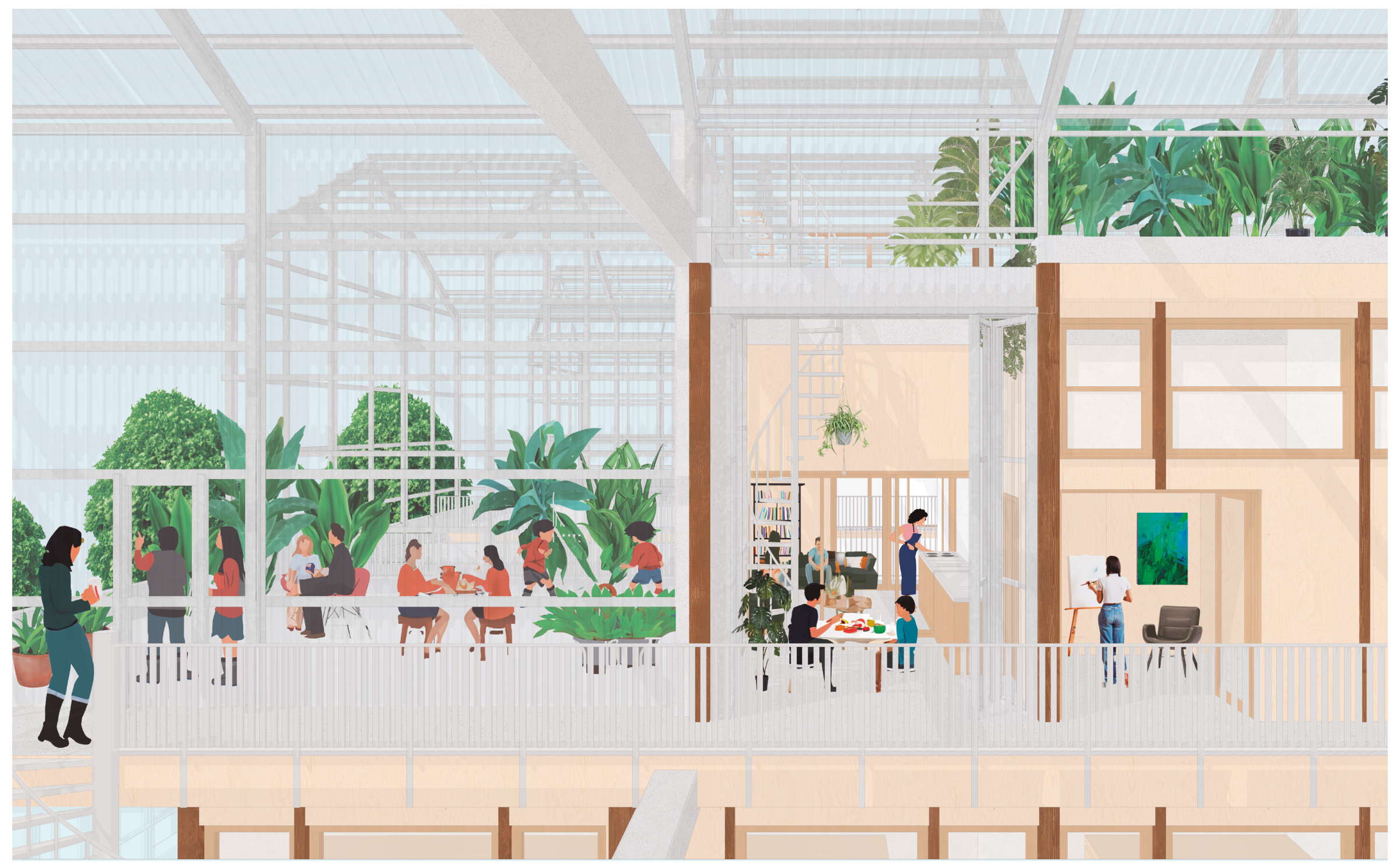
Site plan



View from the first floor - Studios overlooking the communal greenhouse



View from the ground floor - Succession of greenhouse and non-greenhouse spaces



View from the first floor - Apartments with private greenhouse