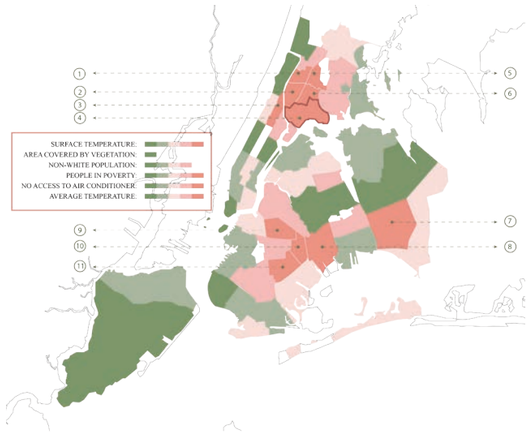
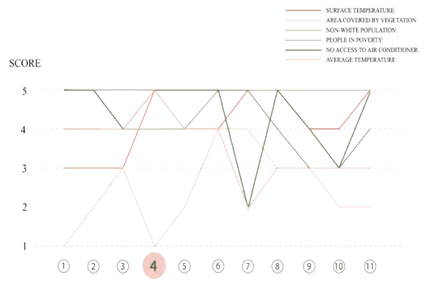
City Forest

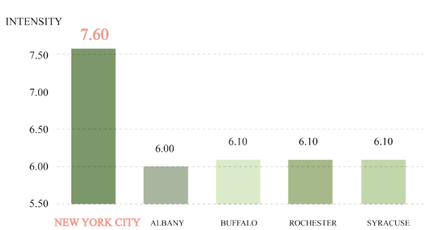
Site: NewYork, The United States
Instructor: Claudia Wigger
Type: Individual Work

Due to the heat island effect, the temperature of New York City is much higher than other place. Through our investigato. we found out that increasing tree canopy could efficiently mitigate the heat island effect. However, it is hard to get enough tree canopy in New York City due to the dense population. In order to increase shadow without infringing on private space, in this project, we propose a innovative method, which utilize the street space to provide tree canopy, while maintainly its original function at the same time.

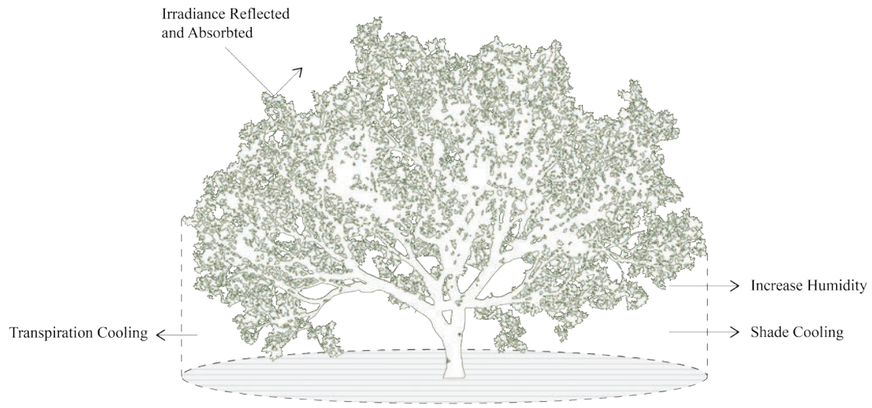


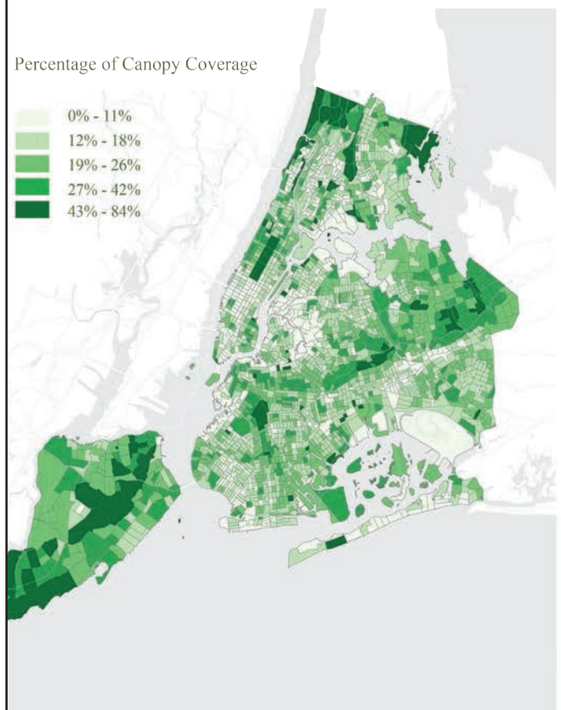


Vulnarability to Heat in New York



Heat Island Effect





Tree Canopy Map with Trees Has 30 Inches or Above Diameters

Compare with the nearby park, which temperature is 5 degrees lower than around, this area only has little grass and shrubs along the street, and cannot cover any inprevi-ous sueface

Tree Canopy Map with Trees Has 30 Inches or Above Diameters

Compare with the nearby park, which temperature is 5 degrees lower than around, this area seldom has trees with 30 inchs or above diameters, which causes lack of tree canopy and high temperature

Impevious Surface Rate Map

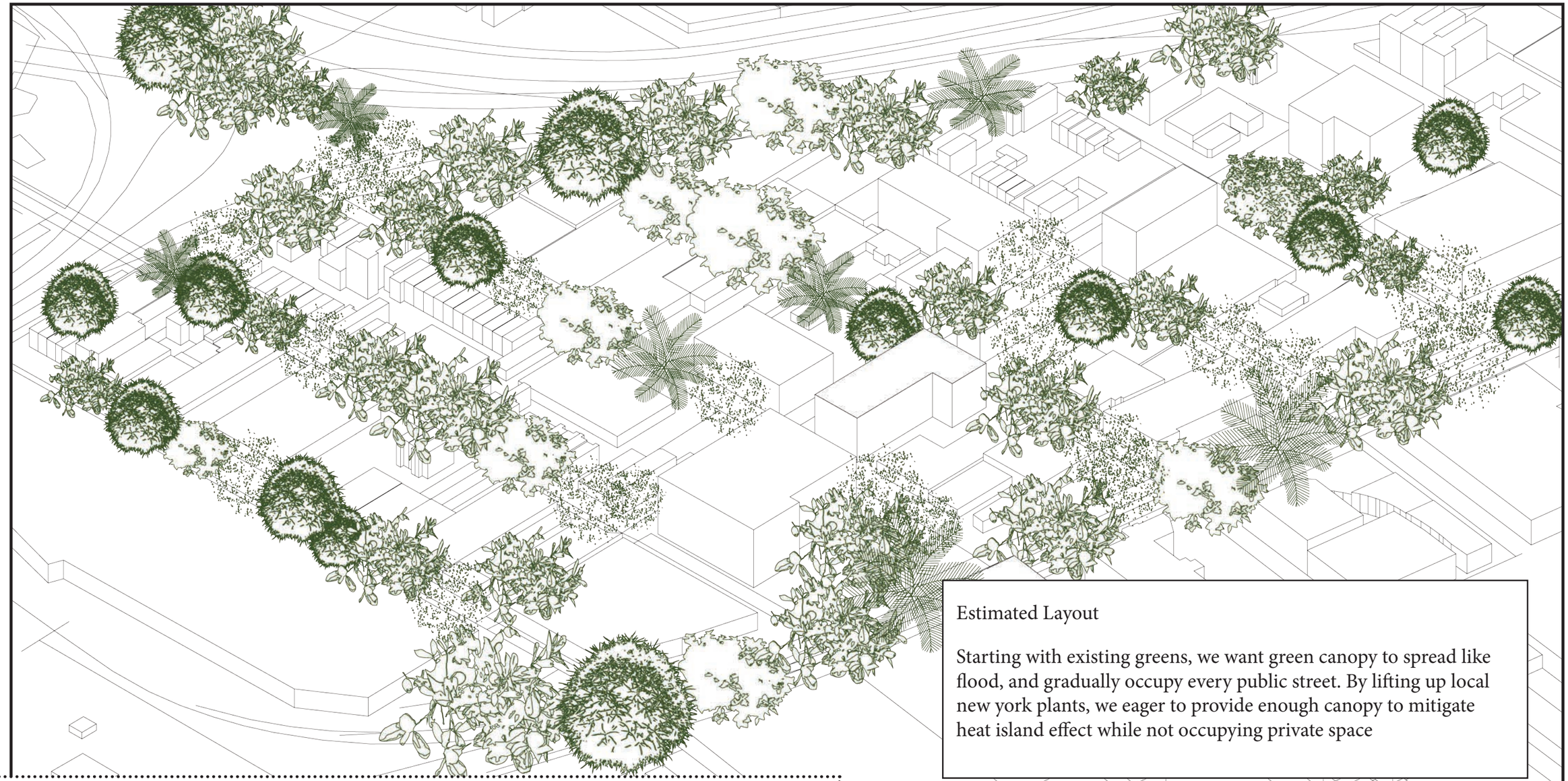
Impevious Surface

Non-impevious Surface

An impervious surface is a hard surface that prevents water from soaking into the ground, which causes high temperature, as we can, in this area impevious surface rate is above 90%

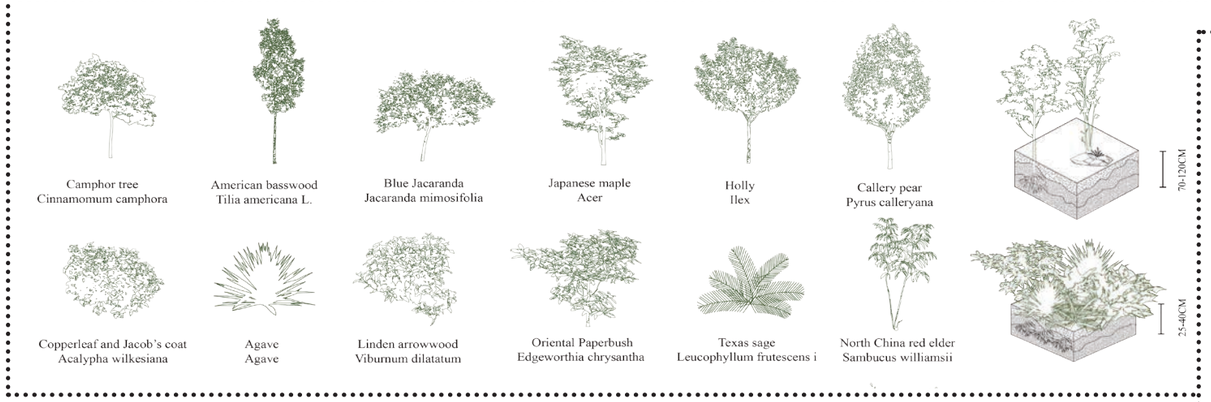
Tree Canopy Analysis

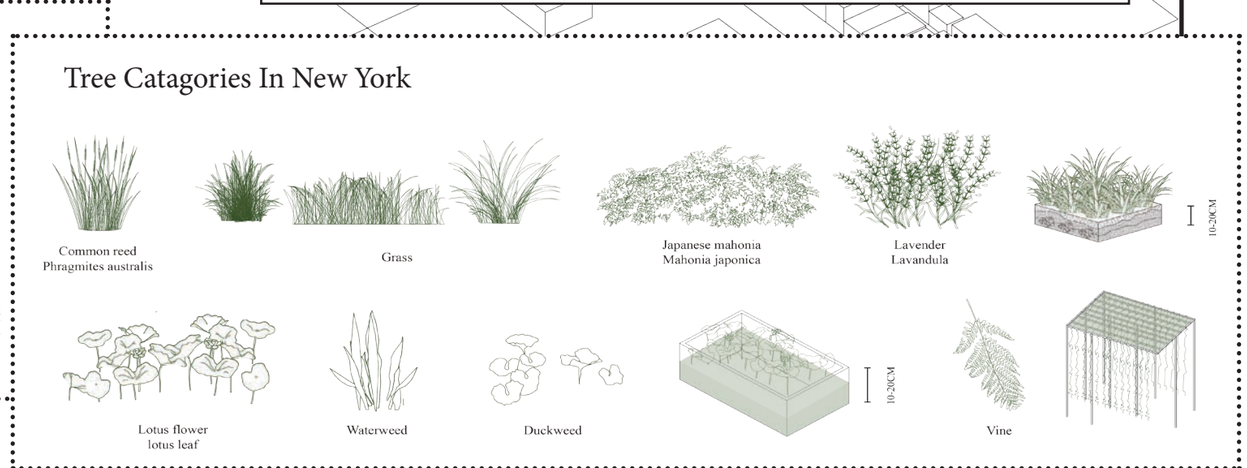
Site Analysis

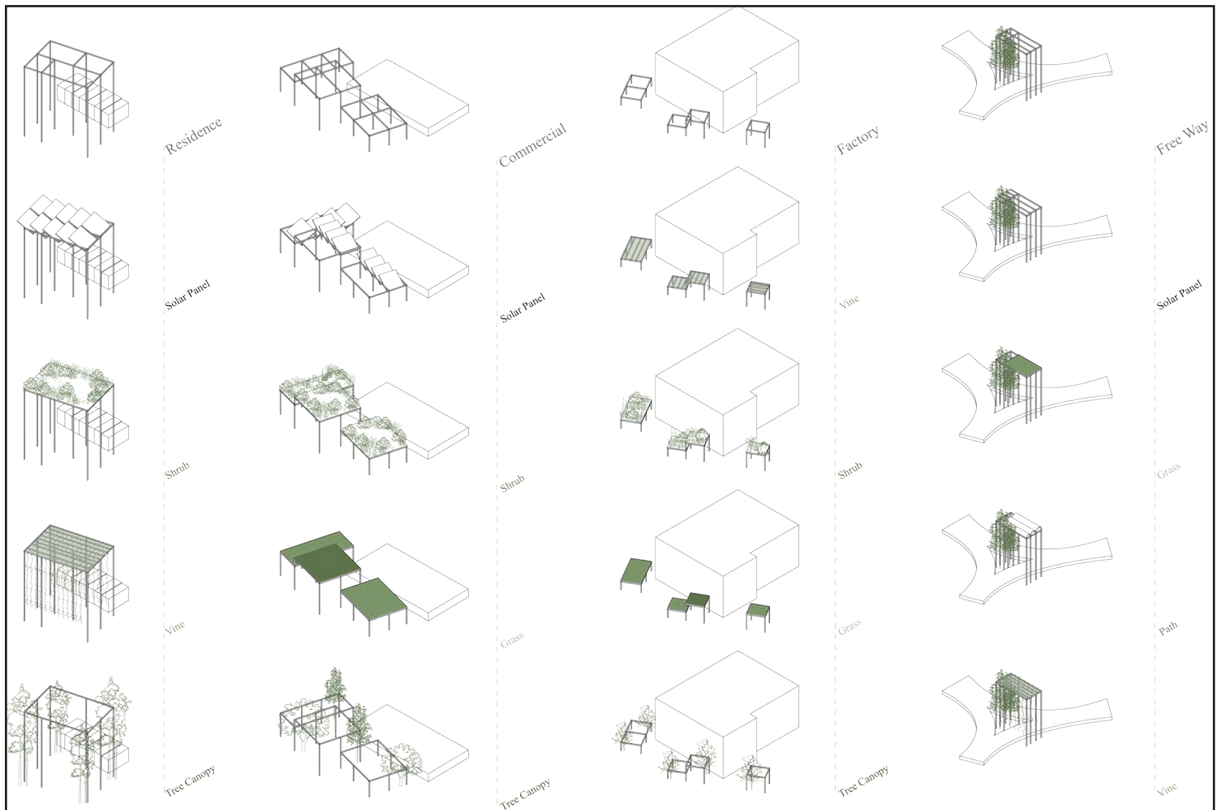


Estimated Layout

Starting with existing greens, we want green canopy to spread like flood, and gradually occupy every public street. By lifting up local new york plants, we eager to provide enough canopy to mitigate heat island effect while not occupying private space

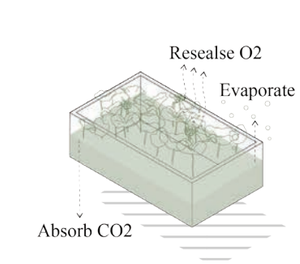




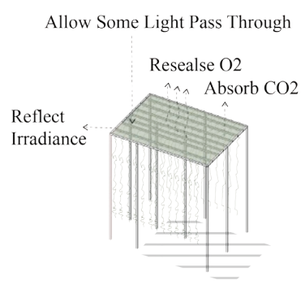


Relationship Between Building and Plants

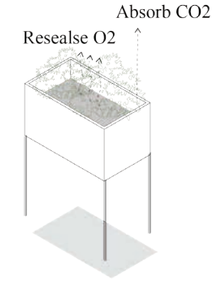
Relationship Between Space and Plants



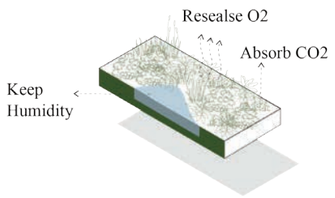
POTTED POND



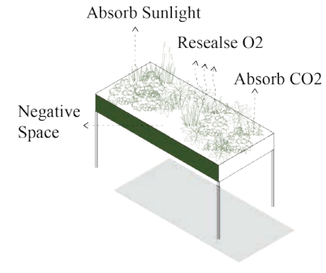
VINE



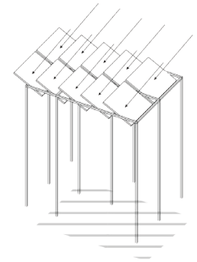
POTTED PLANTS



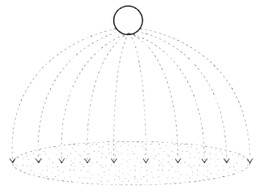
TINY POND



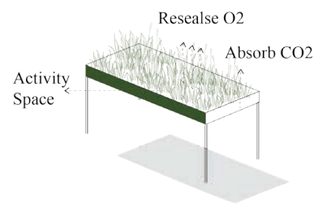
SHRUB



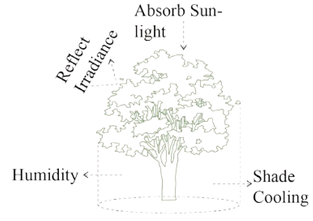
SOLAR PANEL



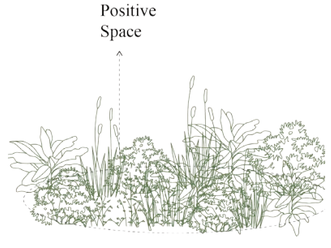
WATER SPRAY



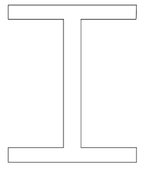
GRASS



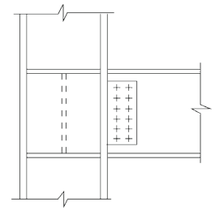
TREE



GROUND FLOWER BED

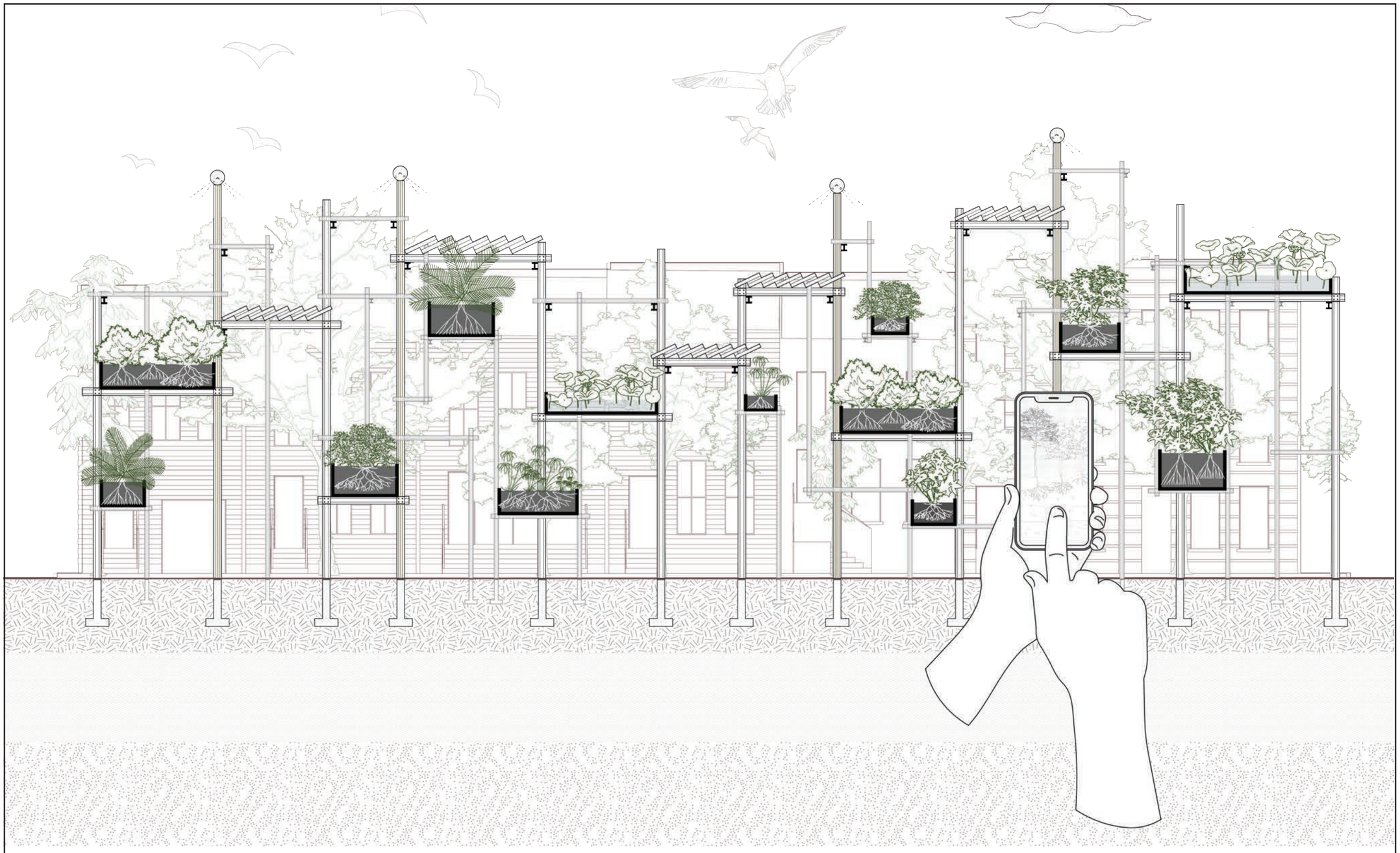


STRUCTURE - I BEAM

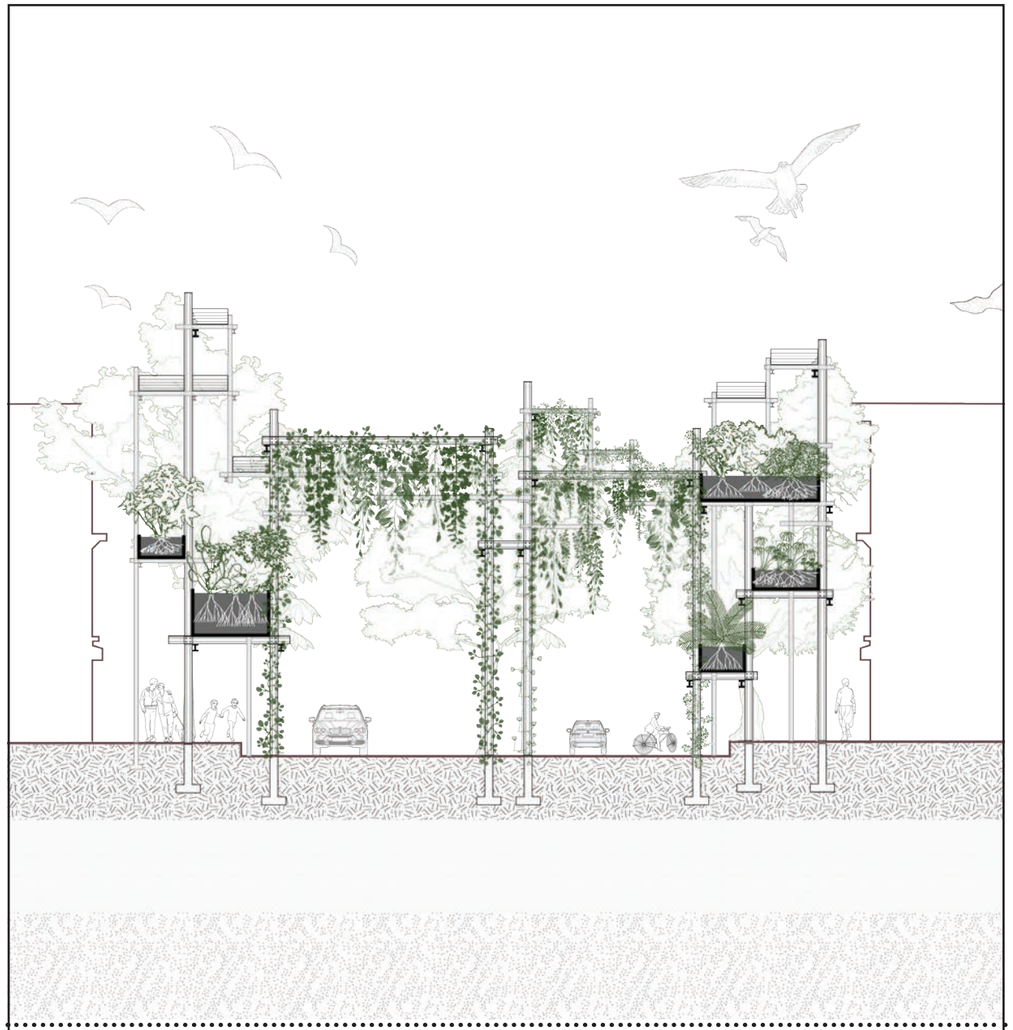


CONNECTION

Components Catagory



Longitudinal Section

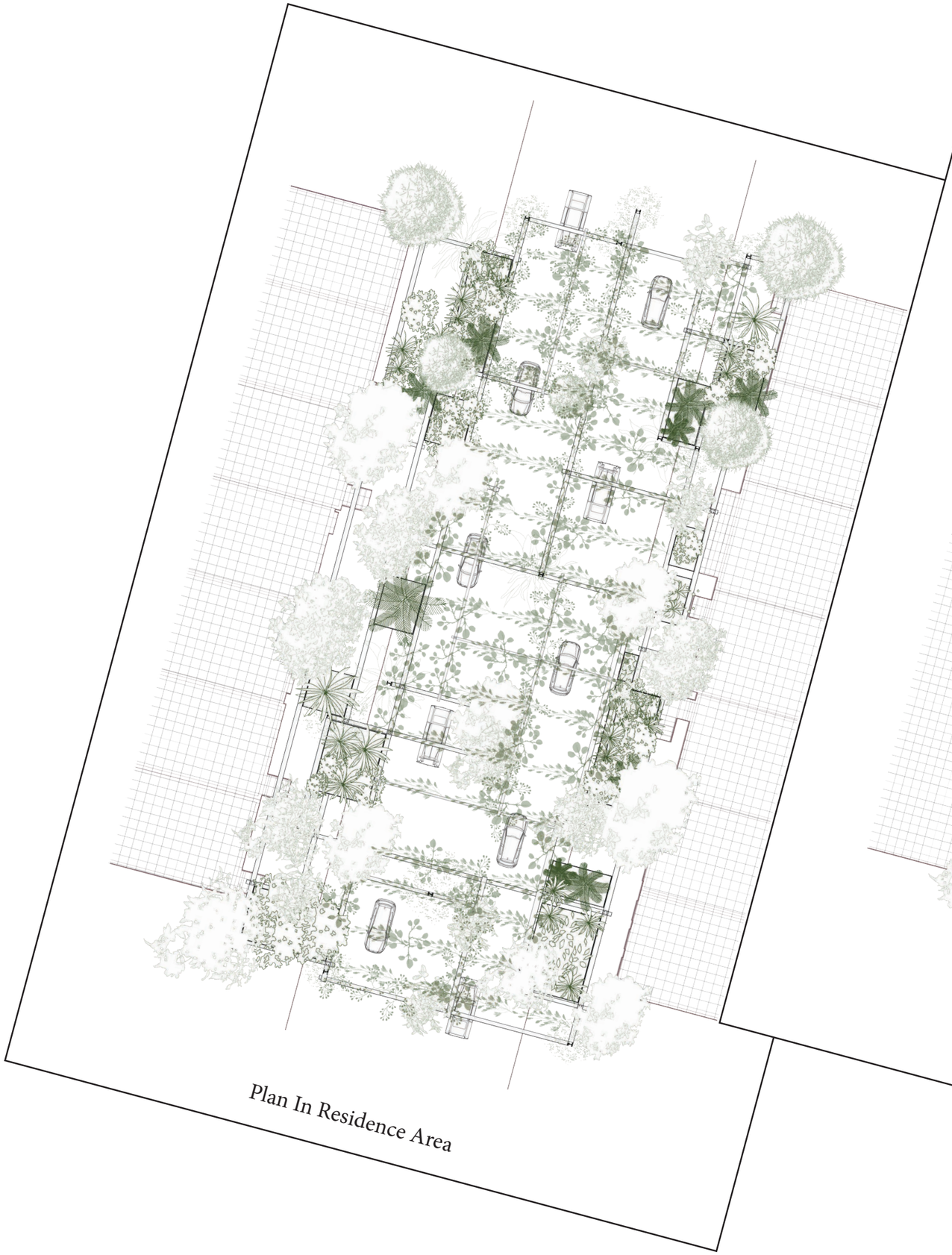


Transverse Section In Residence Area

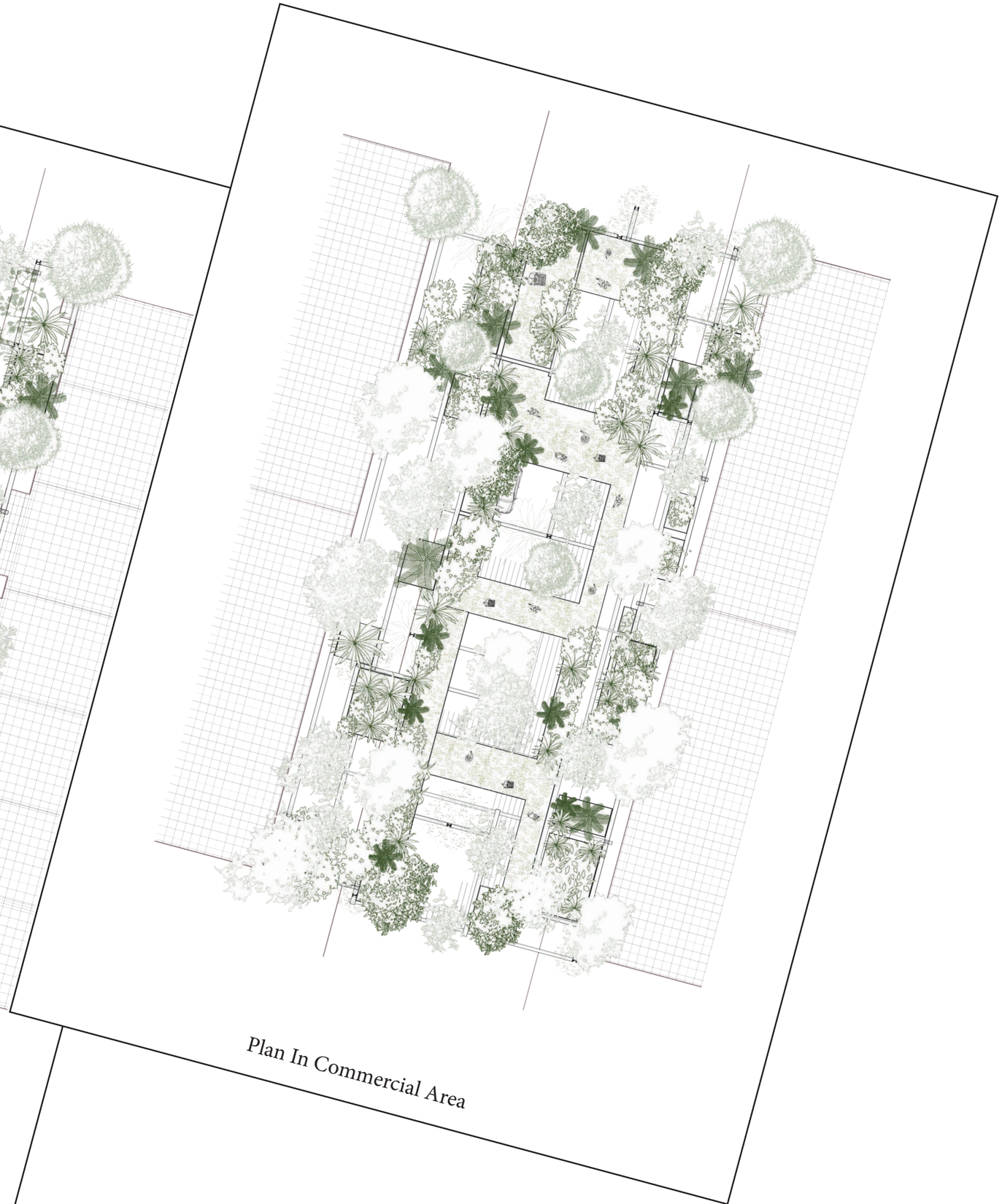
In residence area, we need to ensure that there is enough sunlight for people's daily life, as well as provide enough canopy to mitigate heat. Thus, we choose vine as canopy which let light path though but prevent heat.
The vine is also seasonal, they prevent heat during the summer and disappear during the winter.

Transverse Section In Commercial Area

In commercial area, we try to create more public space with greens, and the sunlight requirement is not as needed as residencial area, so we mainly provide solid canopy to give more activity space. we lifted plants up to convey an idea that "not only tree canopy could be canopy"



Plan In Residence Area



Plan In Commercial Area