Maintaining Microclimates

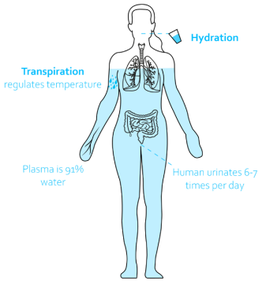
Location: 454 W 128th ST, West Harlem, NYC
Professor: Lily Wong
Collaborator: Anika Tsapatsaris

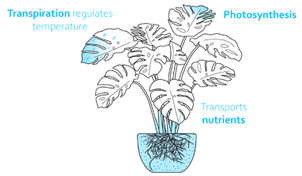
*All drawings showcased done by author

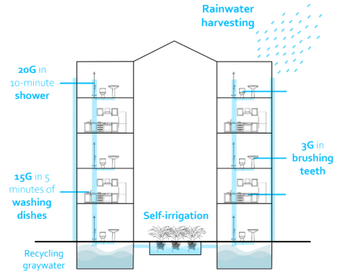
What does it mean to co-live with compost? How does soil shape our domestic space? Just by going about our routines, we are active participants in a sequence of microclimate interactions that maintain our bodies, our surrounding plant ecosystems, our buildings, and our communities.

This project is situated in West Harlem, surrounded by a network of community gardens. While many of these gardens are not well-maintained, they play a crucial role in empowering local communities by enabling them to take control of their food sources. Nevertheless, this initiative raises concerns regarding the additional labor burden it imposes on these communities. But understanding just how much additional labor preserving these spaces entails led us to ask: How can we make a building that both empowers residents to maintain their own public and private spaces, but also alleviates them of the burden of having to do all the work?

Maintaining Microclimates places compost at the core of the domestic routine, understanding the residence as a means by which communities co-produce byproducts, or "co-compost." In this project, co-composting is expressed through communal compost chutes which both serve as building waste infrastructure and create shared domestic experiences. Compost lands in a hot composting system beneath the building – a small routine act which kickstarts a larger building-scaled process: the upwards release of heat and humidity that maintains the courtyard and greenhouse space above. The building is thus understood as a living organism which plays an active role in the domestic routines of its inhabitants, for co-living is a reciprocal, symbiotic activity.

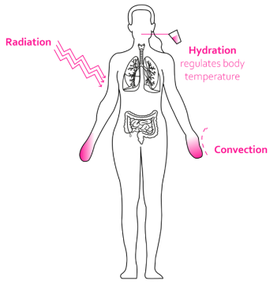


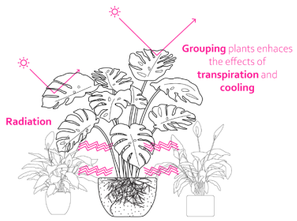


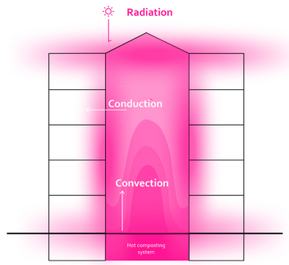


Human **domestic routines** contribute to plant maintenance

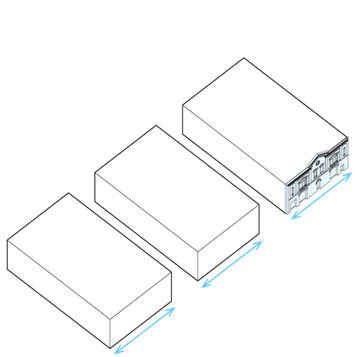
Plant byproducts contribute to **building maintenance**





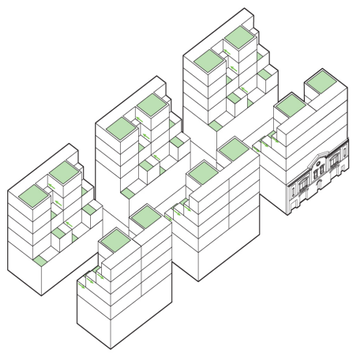


DESIGN STRATEGY



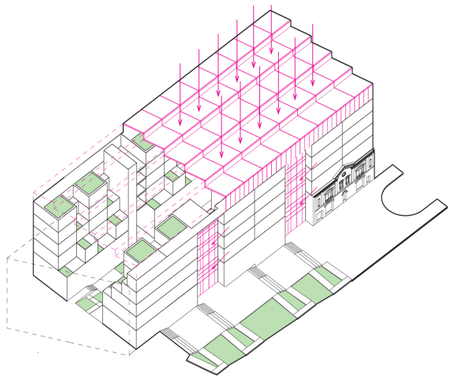
PROPORTION

The intervention adopts the proportion of the existing building.



TERRACES

The apartments are arranged in terraced formation to enable gravity -assisted irrigation and communal engagement in inner balconies

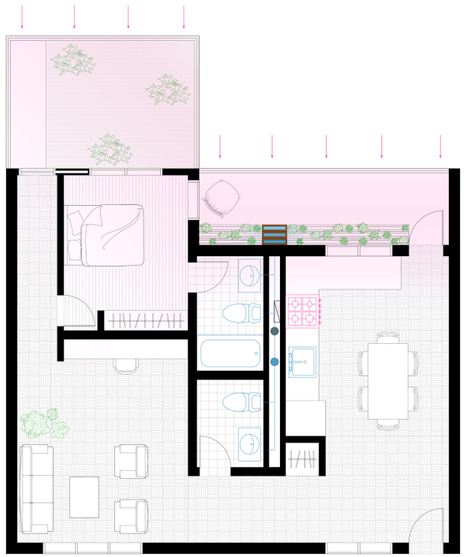


GREENHOUSE

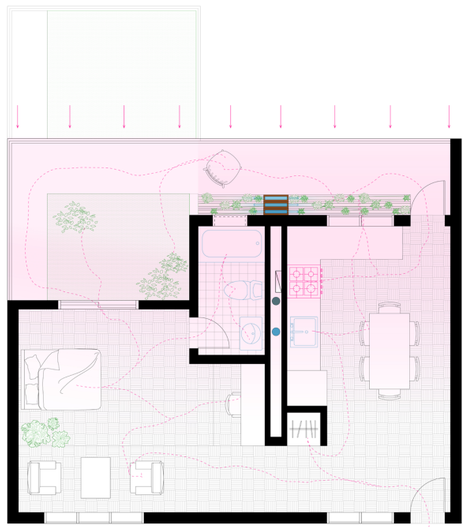
The buildings envelope creates a microclimate for the personal and communal growing spaces

APARTMENT PLAN

In the design of the residential units, rooms are strategically arranged around a central wall chute that houses all water pipes and a heat waste extractor. This setup ensures efficient use and recycling of water while also contributing to the optimization of the courtyard's microclimate. Additionally, all bedrooms are oriented towards the courtyard, allowing them to maximize thermal benefits from the collected heat, enhancing comfort and energy efficiency.

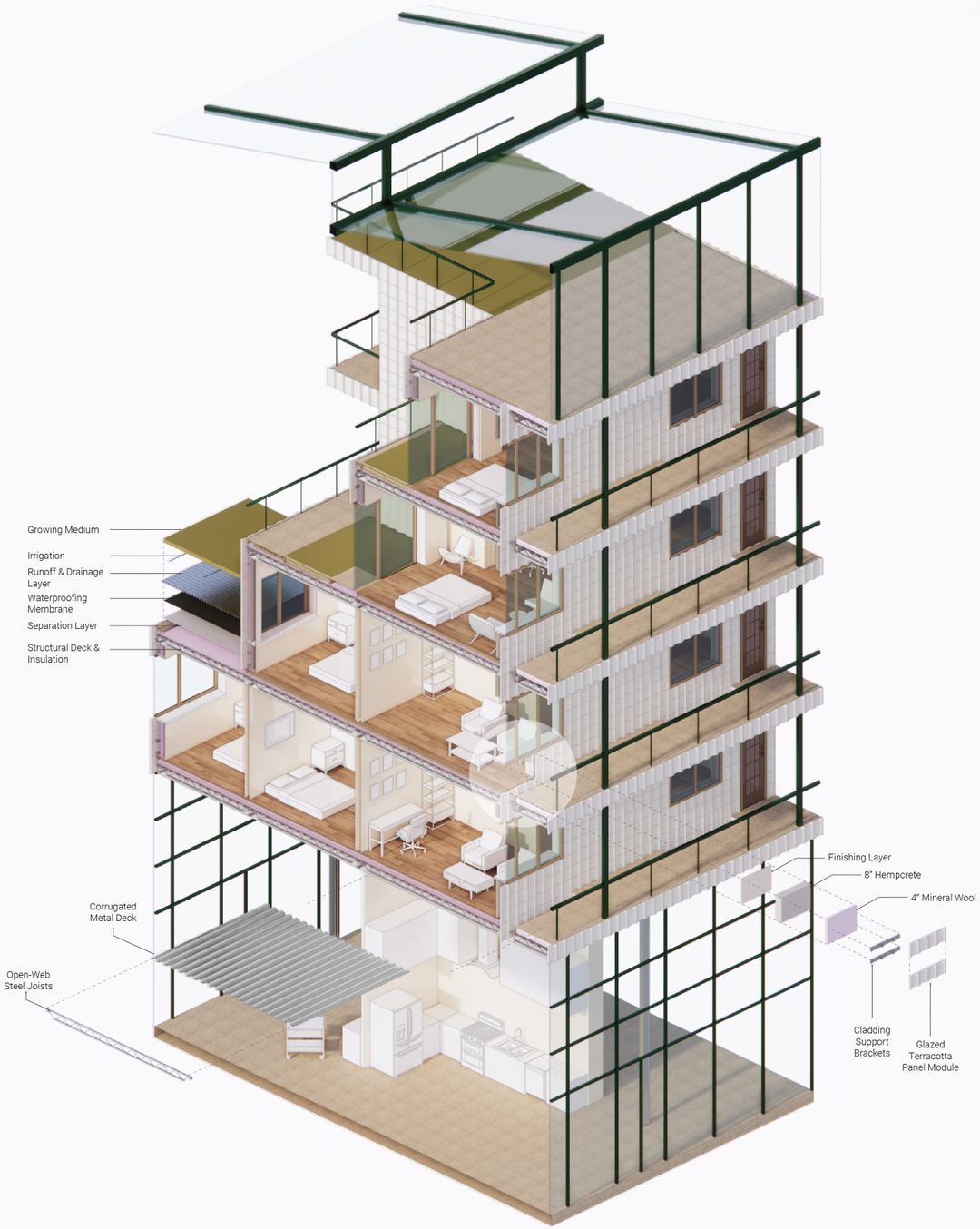


1 BD Apartment
785 sq ft

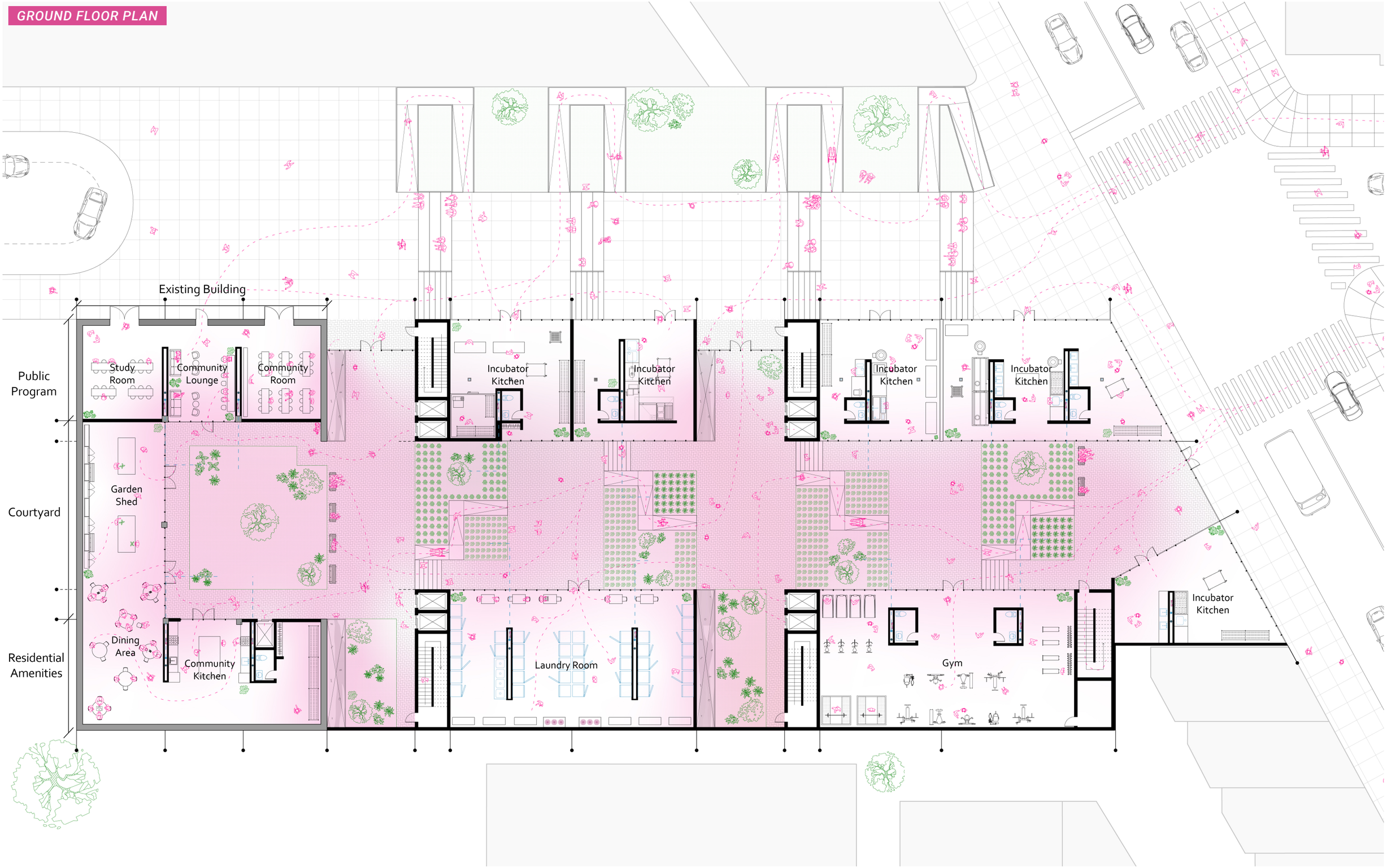


Studio Apartment
614 sq ft

FACADE AXON DETAIL



GROUND FLOOR PLAN



WATER SYSTEM DETAILS

HEATING SYSTEM DETAILS