

THE GARDEN IN THE GRID:
A HIGH-DENSITY RURAL LIVING SPATIAL LOGIC

A non-degree required thesis submitted to the Master of
Architecture Program
Department of Architecture

by

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advised by

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May, 2025

University of Virginia
School of Architecture

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ABSTRACT

The disconnect between cities (culture), nature and agriculture has had a problematic impact on human existence. Nature, at least within Western ideology, is perceived as hostile to the cultural project resulting in the alteration and destruction of systems necessary for human existence. Farming once a core part of the American ethos and its spatial organization has been taken over by large industrial agriculture. Its outcome: disease, obesity and a loss in community.

If the urban project could engage natural systems as equals to produce a synthetic construct of interactions and dependencies all able to be understood and operative within a public realm, the outcome ought to be a new model for future land development.

This thesis proposes a new spatial framework for what we know as residential living: a scaffolded, modular structure that dissolves the boundaries of conventional dwelling and redefines the home as a state of adjacency, openness, and spatial interdependence. Drawing from Japanese architecture’s spatial principles, defining interior space by transition, permeability, and proximity rather than enclosure, the project rejects fixed-use programming and expansive footprints in favor of flexible, layered, and relational spatial logic. Within this system, living conditions become fragmented - porous and flexible - allowing for moments of overlap, shared occupation and privacy. The scaffolding serves not only as a structural device, but as the infrastructural medium through which new forms of living emerge. By reimagining housing as a connective spatial field rather than a collection of isolated units, the project challenges the dominance of complete object-based architectural typologies and proposes instead a distributed, incomplete, and evolving spatial condition for community life.

DEDICATION

I would like to first thank my advisor Robin Dripps. I was extremely lucky to have her in my first semester and now in my last. Allowing for a certain closure as I leave the University of Virginia. Working alongside Robin and Lucia Phinney has given me insight for a future of hopefully having my own firm: To never lose sight of what is important, to trust my intuition, to try new things, to go big and to enjoy the work you do.

Next, I would like to thank Matthew Jull and Sasson Rafailov for asking questions and forcing me to make decisions.

Lastly, I would like to thank my fellow classmates for pushing me to become a better designer, communicator, and ultimately a better person. The work they have produced this past year has been nothing short of amazing and has driven me to try and keep up.

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THESIS STATEMENT

The architectural residential unit - sealed, fixed, and private - has exhausted its potential. This project rejects enclosure as the basis of domestic life and proposes, instead, a spatial logic explored through a scaffolded framework that is open, modular, and incomplete by design. Drawing from the relational logic of Japanese architecture, it envisions a new kind of dwelling - one that prioritizes adjacency over ownership, shared thresholds over locked doors, and collective presence over solitude. Here, space is fluid, boundaries are soft, and connection is built into the structure itself. This is not a house. This is not a building. This is an architecture for living together - differently, radically, and with intention. We can no longer afford to live in isolation.

ISSUES



CRISIS
OF THE UNIT - A SINGLE FAMILY
DETACHED HOME: SUBURBIA



70 %
OF NEW DEVELOPMENT IS LOW-DENSITY
AND CAR DEPENDENT



175 MILLION ACRES
OF RURAL LAND IN THE U.S. IS
CONSIDERED THREATENED BY DEVELOPMENT
PRESSURE



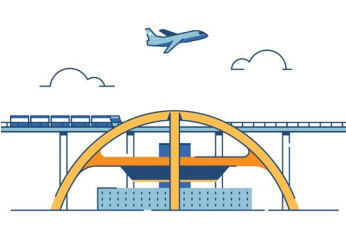
40 MILLION ACRES
OF HIGH QUALITY FARMLAND IS
CONSIDERED HIGH OR VERY HIGH RISK



60 %
OF RURAL COMMUNITIES ARE
EXPERIENCING POPULATION DECLINE



2X
MORE CO2 PER CAPITA IN SUBURBAN
HOUSEHOLDS THAN URBAN - DRIVING,
ENERGY USE, INEFFICIENT LAND USE



40 %
MORE PER CAPITA TO MAINTAIN
INFRASTRUCTURE AND SERVICE THANK
COMPACT COMMUNITIES



HALF
OF U.S. FARMLAND IS LOCATED NEAR
AND IS MOST AT RISK OF BEING LOST
TO SPRAWL

A NEW PROPOSITION

What if the urban project could re-engage natural systems as equals?

What if instead of separation, we cultivated interaction and interdependence?

This project proposes a new land ethic - one where the home is no longer an isolated shell, but a shared ecology.

A scaffold for growing, dwelling, and living with the landscape.

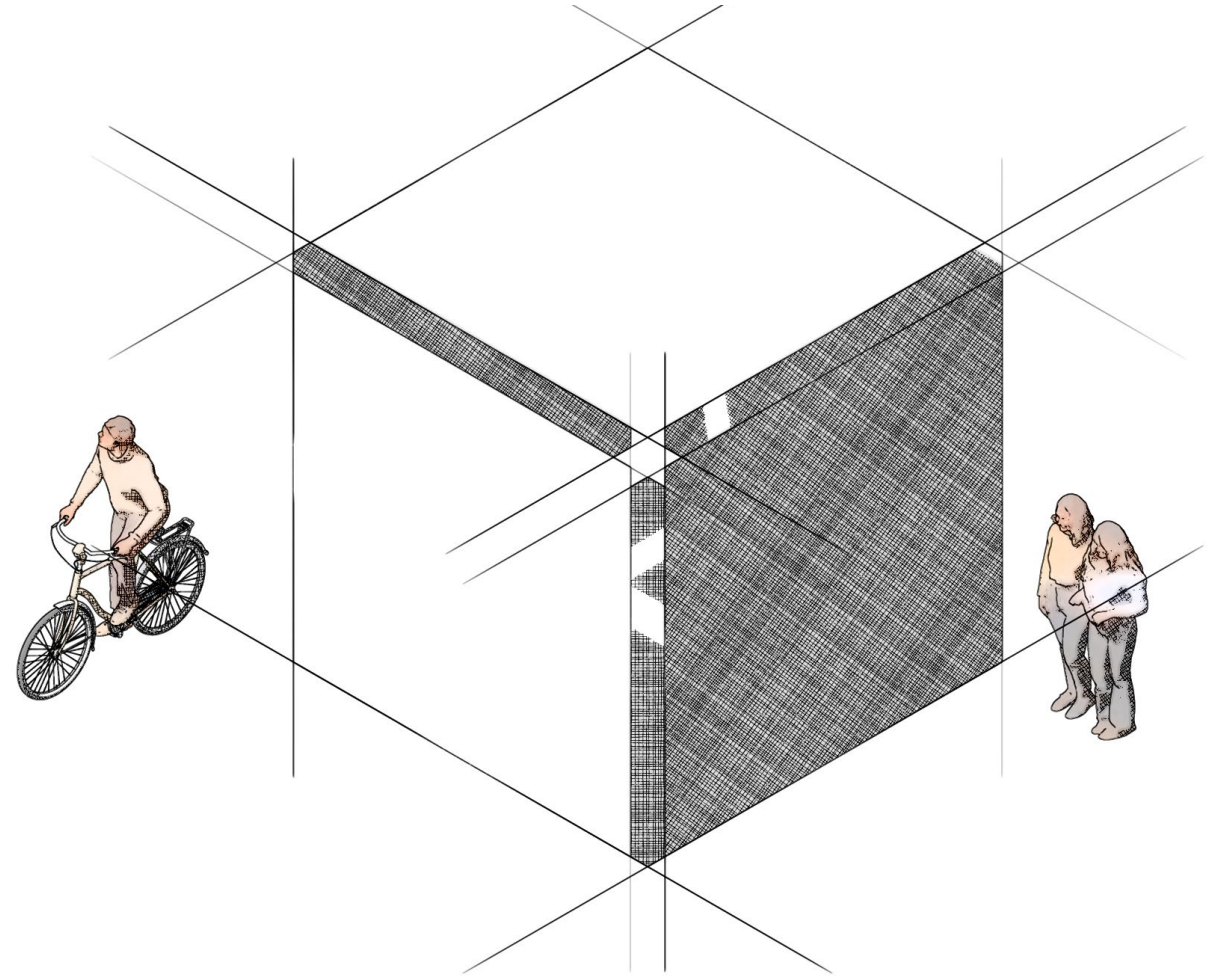
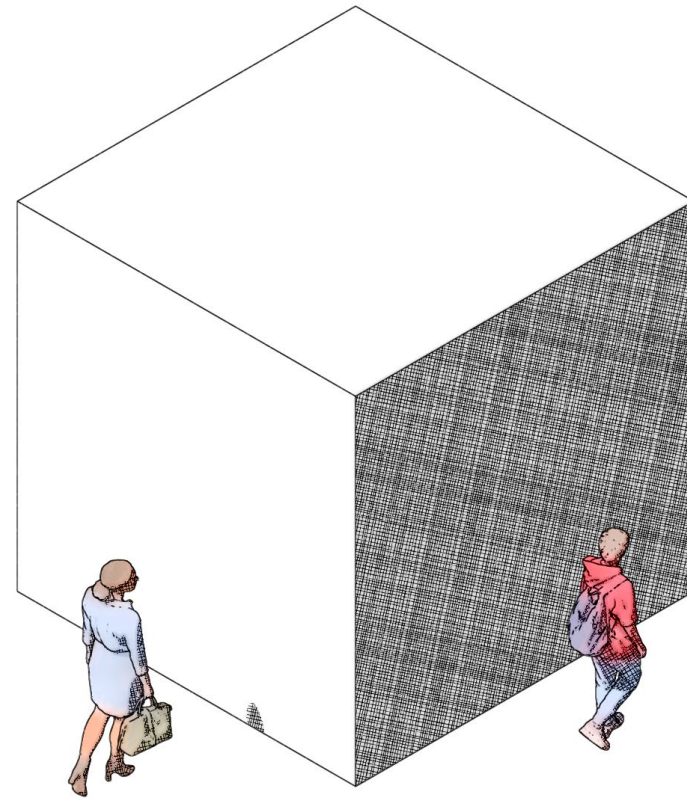


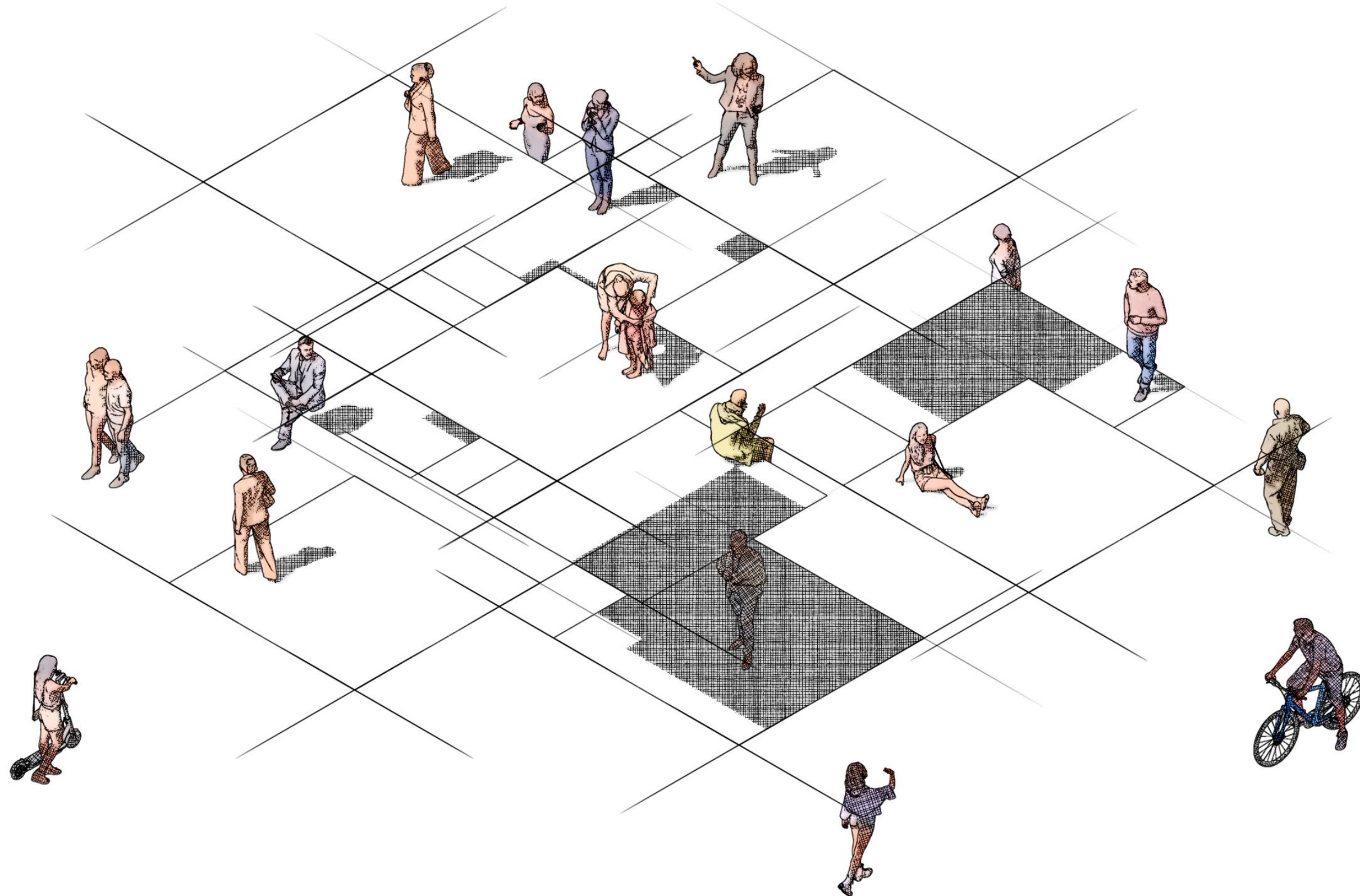
STEPS

This thesis is seen through 5 steps

STEP 1: DISSOLUTION OF A UNIT

Where private spaces collapse.
Boundaries blur. The home becomes a
condition, not a container



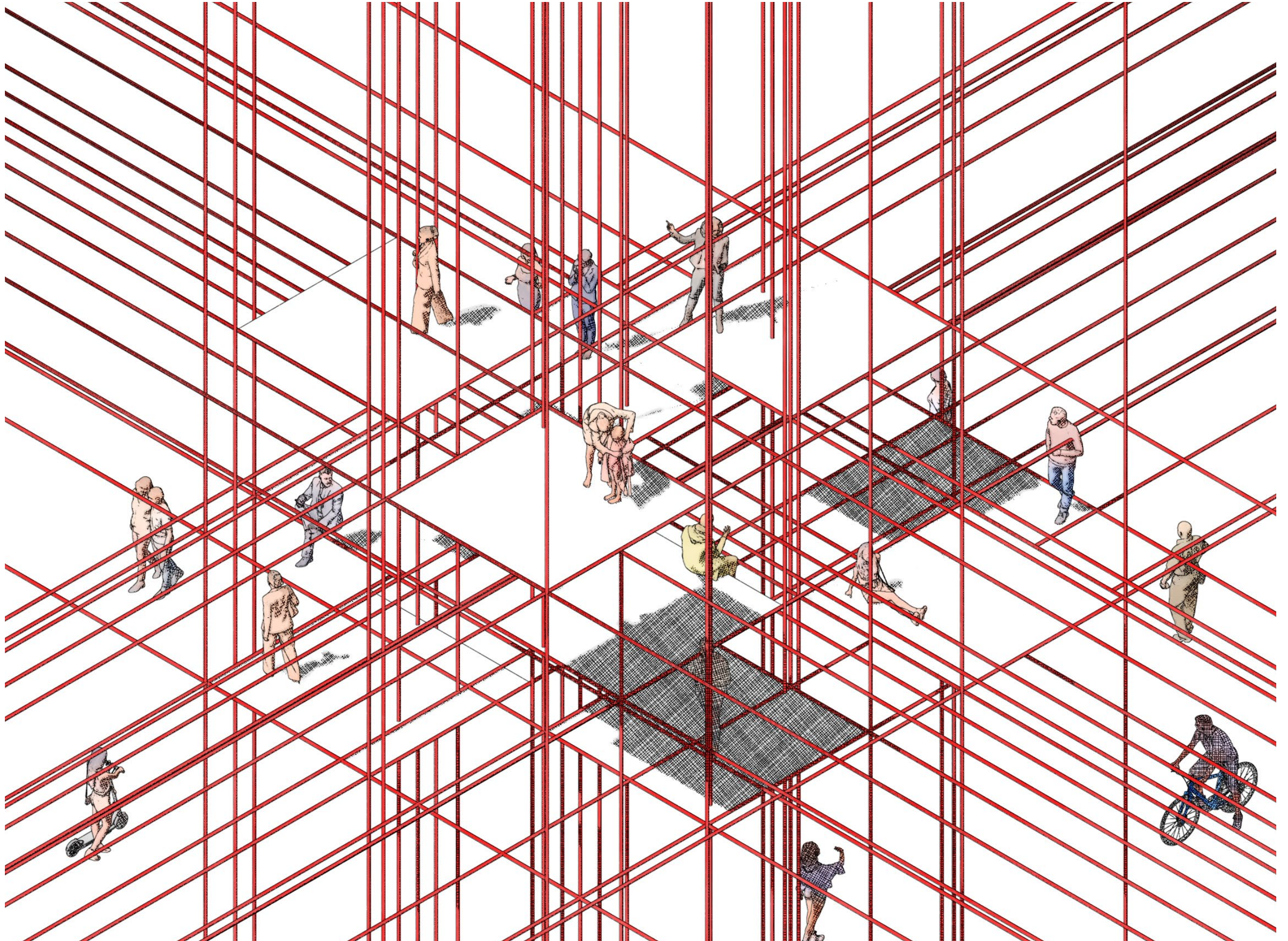


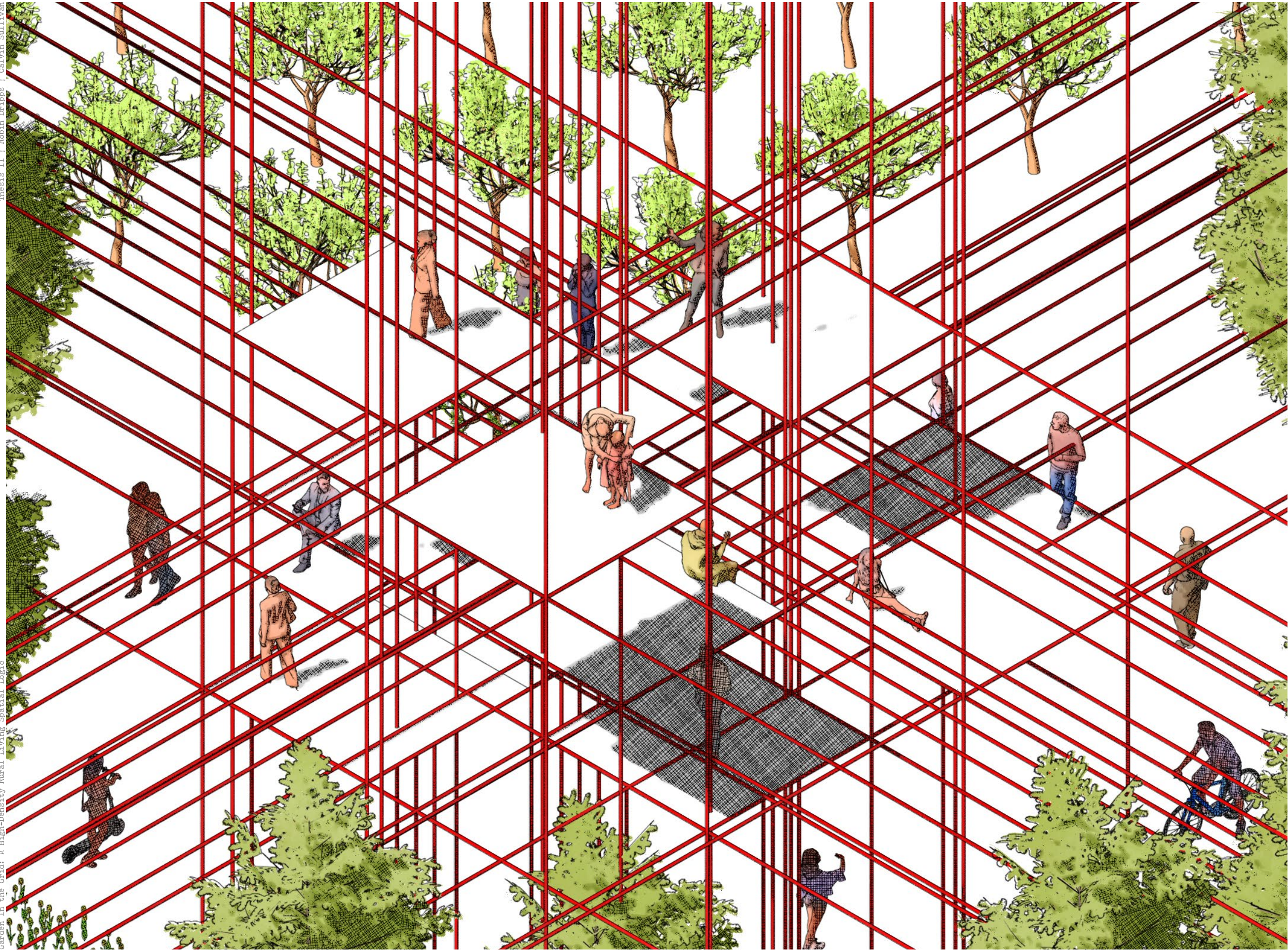
STEP 2: EMERGENCE OF SHARED GROUND

The scaffold holds adjacency, proximity, and spatial overlap -- where a new form of community grows within the void

STEP 3: THE ARCHITECTURE BETWEEN

Spaces unfold in thresholds -
layered, open, adaptive - defined
by relation.



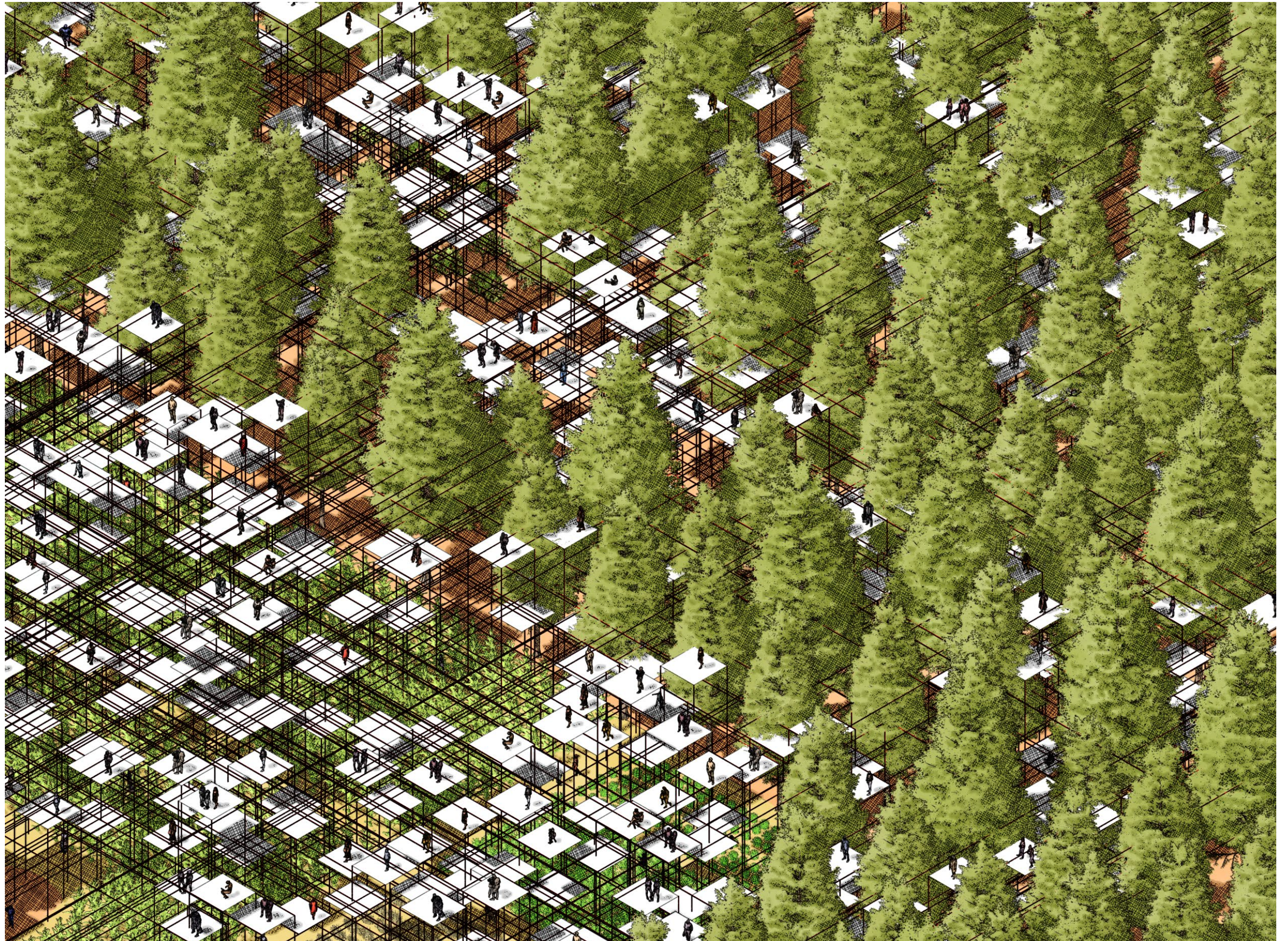


STEP 4: THE GRID LEARNS TO LISTEN

Structure no longer dictates life. It frames it, hosts it, and fades into the background. Architecture becomes quiet.

STEP 5: THE CITY WITHOUT EDGES

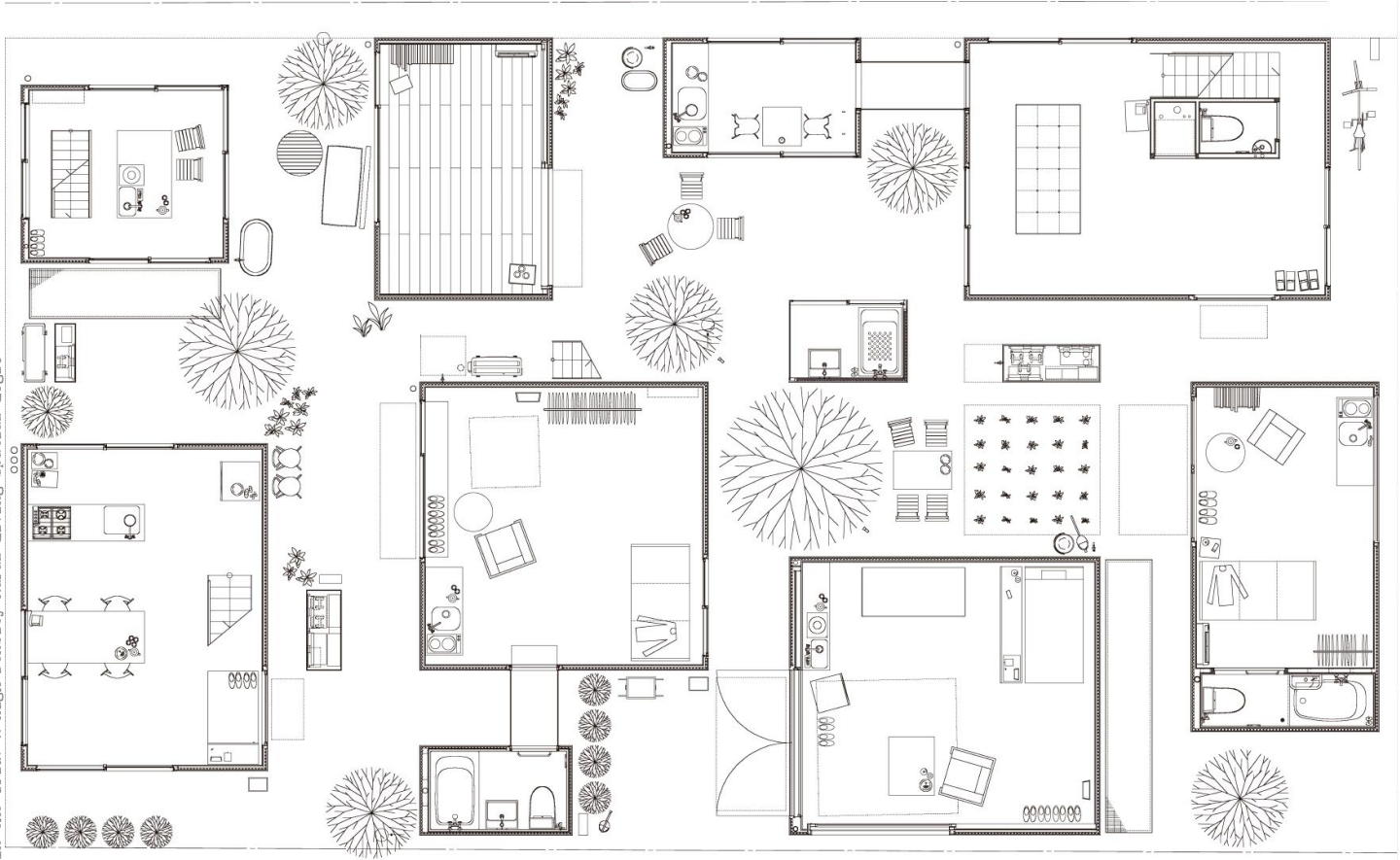
Where a community is without center, without end. Space continues. Connection remains. Form disappears.



PRECEDENTS

This spatial logic draws from Japanese traditions - where architecture defines space not by enclosure, but by transition, proximity, and permeability. Concepts like ma (the in-between), engawa (the edge), and layered thresholds offer a model for rethinking domesticity as relational and not bounded. The Moriyama House designed by Sanaa is one of many precedents that explore that as well as scale, spatial efficiency, indoor/outdoor harmony, modulararity, flexibility, sustainability, and an emphasis on nature.

MORIYAMA HOUSE - SANAA

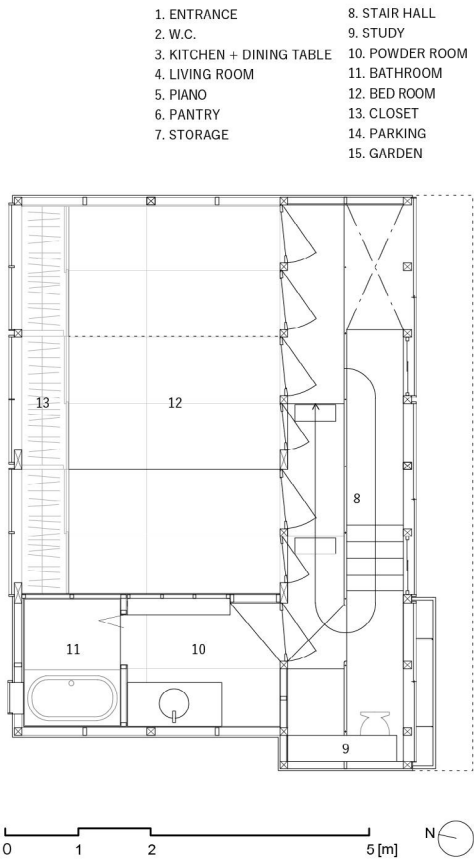
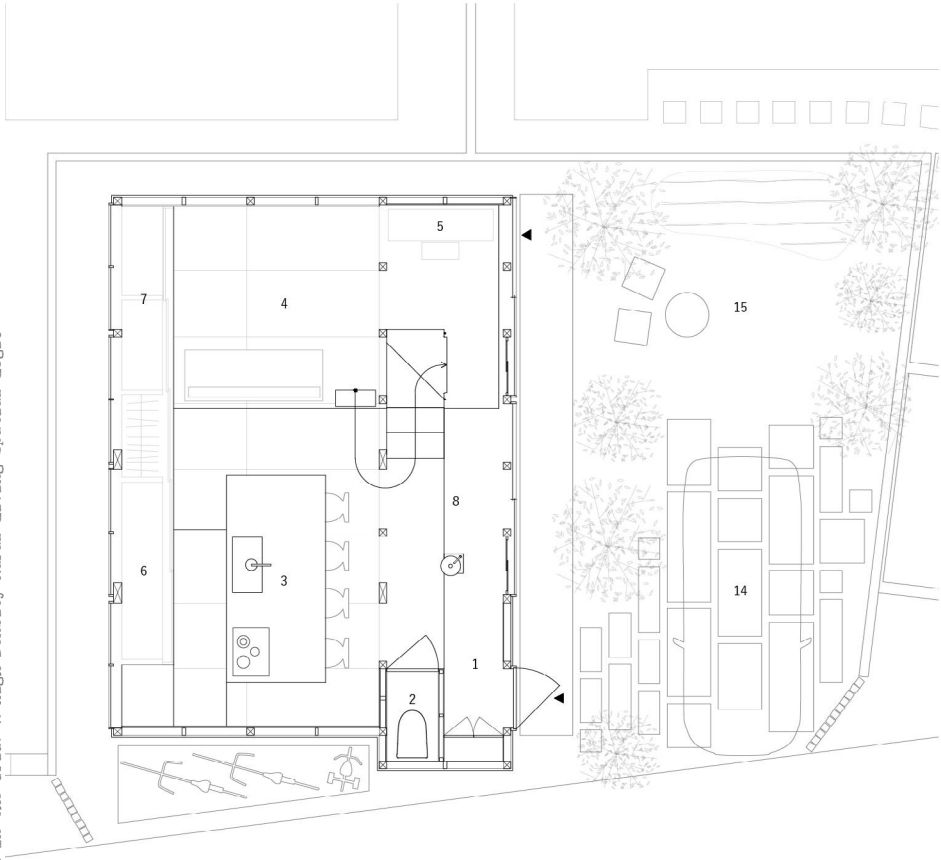
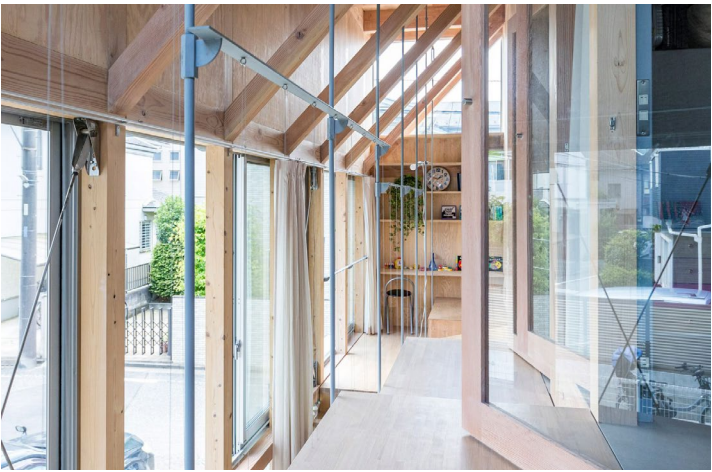


Garden In the Grid: A High-Density Rural Living Spatial Logic

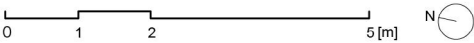
a primera First floor plan



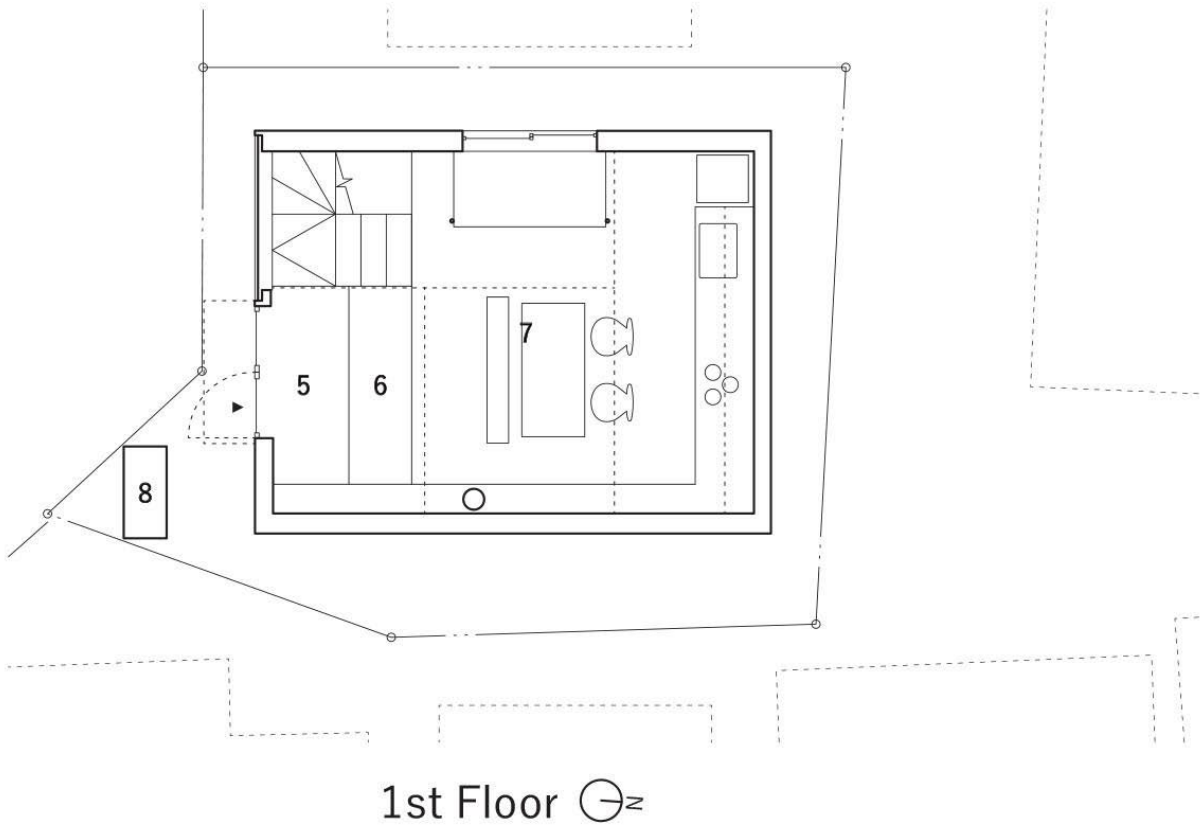
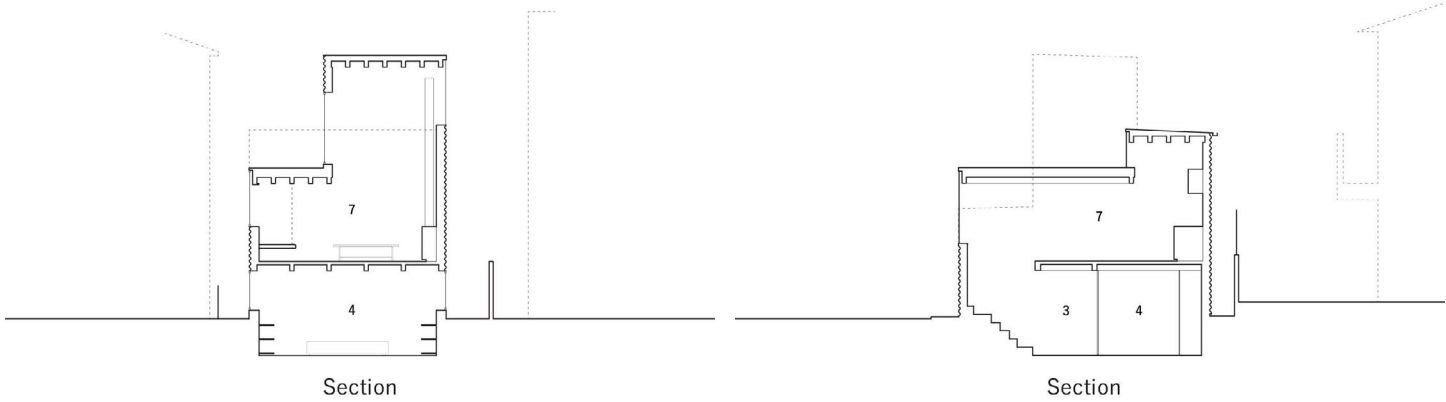
A HOUSE FOR A FAMILY OF FOUR
- KIRI ARCHITECTS



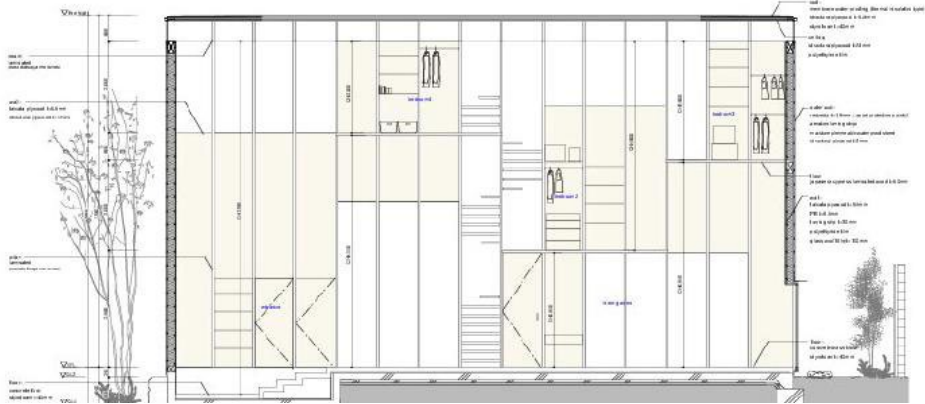
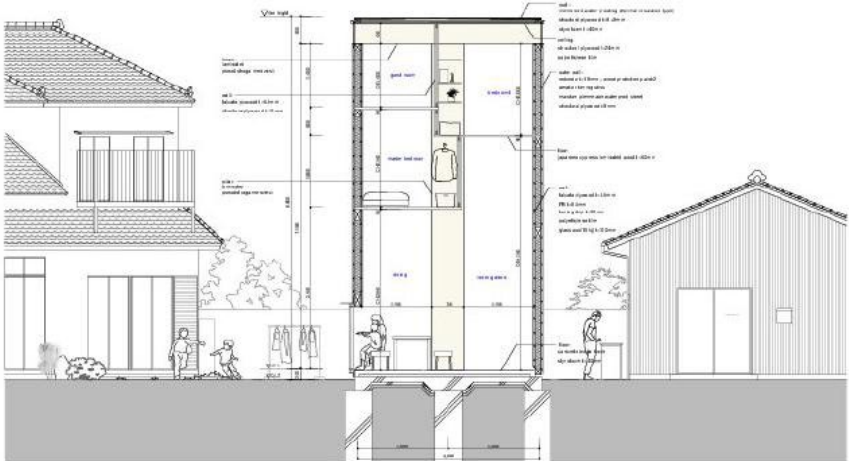
- 1. ENTRANCE
- 2. W.C.
- 3. KITCHEN + DINING TABLE
- 4. LIVING ROOM
- 5. PIANO
- 6. PANTRY
- 7. STORAGE
- 8. STAIR HALL
- 9. STUDY
- 10. POWDER ROOM
- 11. BATHROOM
- 12. BED ROOM
- 13. CLOSET
- 14. PARKING
- 15. GARDEN

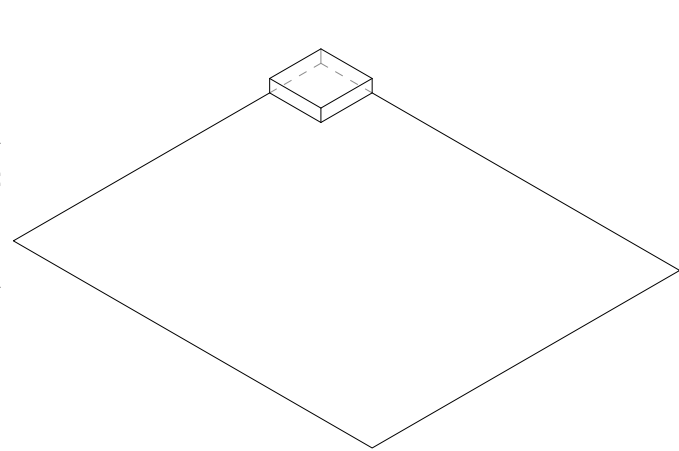


HOUSE TOKYO - UNEMORI ARCHITECTS

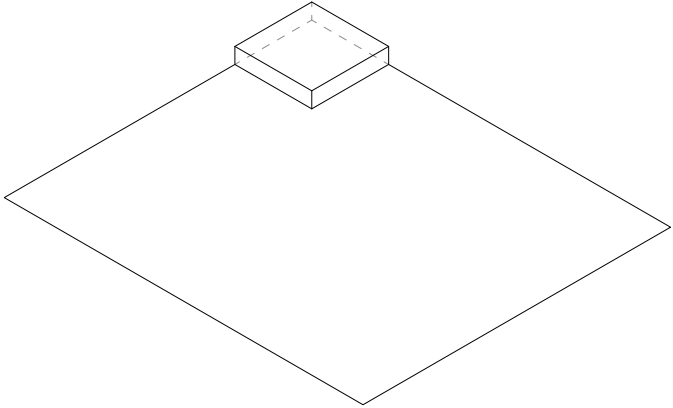


T NOIE - KATSUTOSHI SASAKI + ASSOCIATES

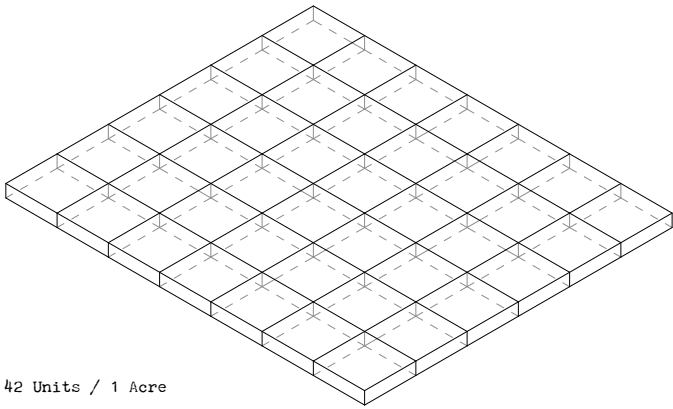




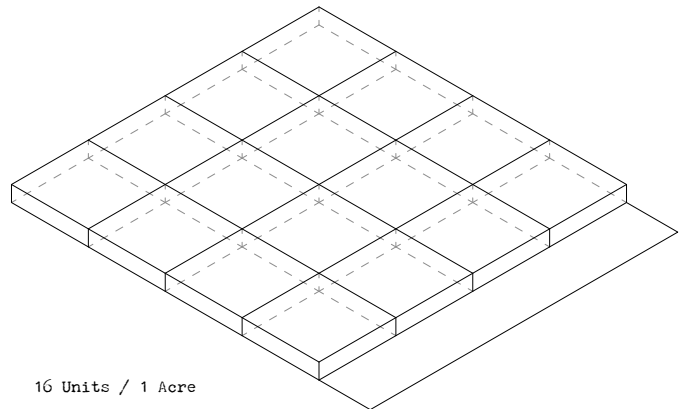
Average Size Home in Japan per 1 Acre
121 Sq m (1302.43 Sq ft)



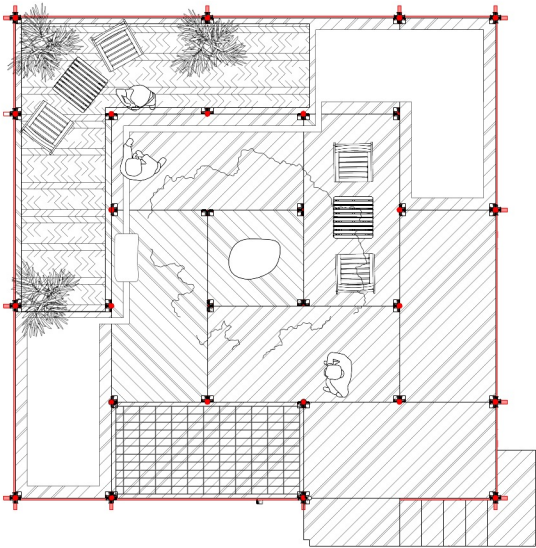
Average Size Home in United States per 1 Acre
225.75 Sq m (2421.88 Sq ft)



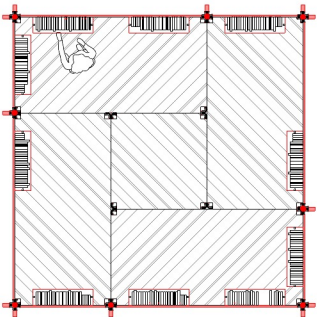
42 Units / 1 Acre



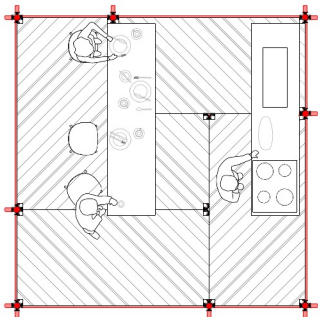
16 Units / 1 Acre



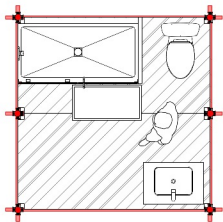
1/8" = 1' - 0"
Garden: 37.2 Sq m (400 Sq ft)



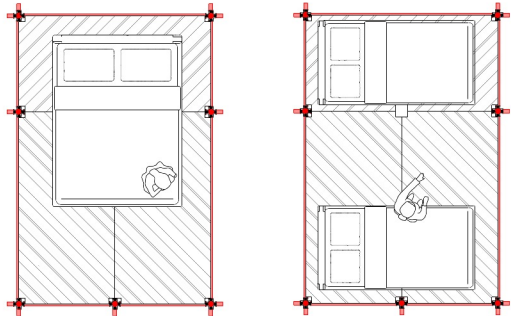
Library: 13.4 Sq m (144 Sq ft)



Kitchen: 13.4 Sq m (144 Sq ft)



Bathroom: 5.95 Sq m (64 Sq ft)



Bedroom: 8.92 Sq m (96 Sq ft)

CHAPTER 5: THE CITY WITHOUT EDGES

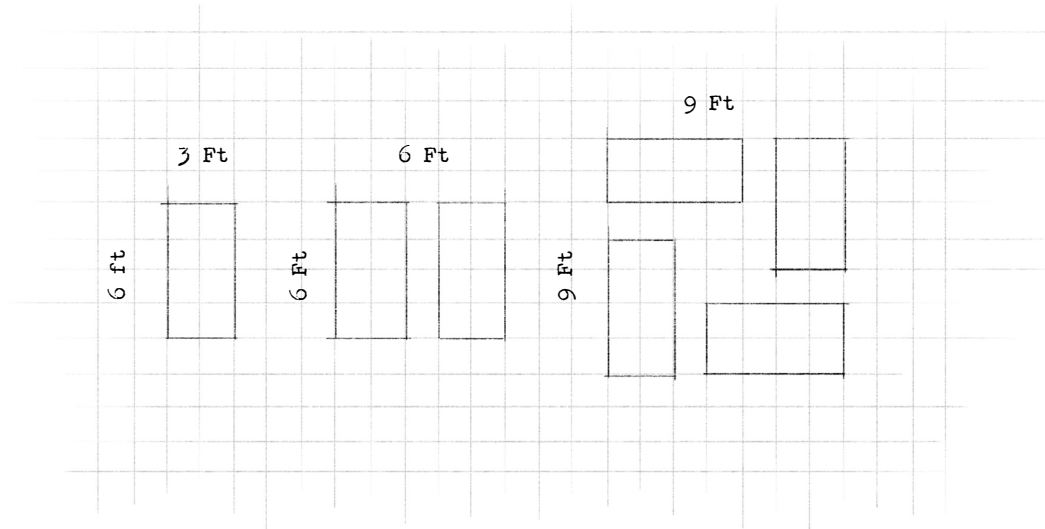
This thesis follows their process of designing to create similar scale living conditions. Allowing for a denser and more minimalistic city. Designed from the inside out. Starting with a tatami mat, in this case, one bay of a scaffold system and growing outwards.

Currently in the United States, the average size home is 225 sq. m, while in Japan it is 121 sq. m. with homes in Tokyo averaging 91 sq. m. Garden in in the Grid proposes a living condition ranging from 93 sq. m to 78 sq. m.

This thesis reinterprets those principles into a contemporary framework - one that allows collective life to flourish.

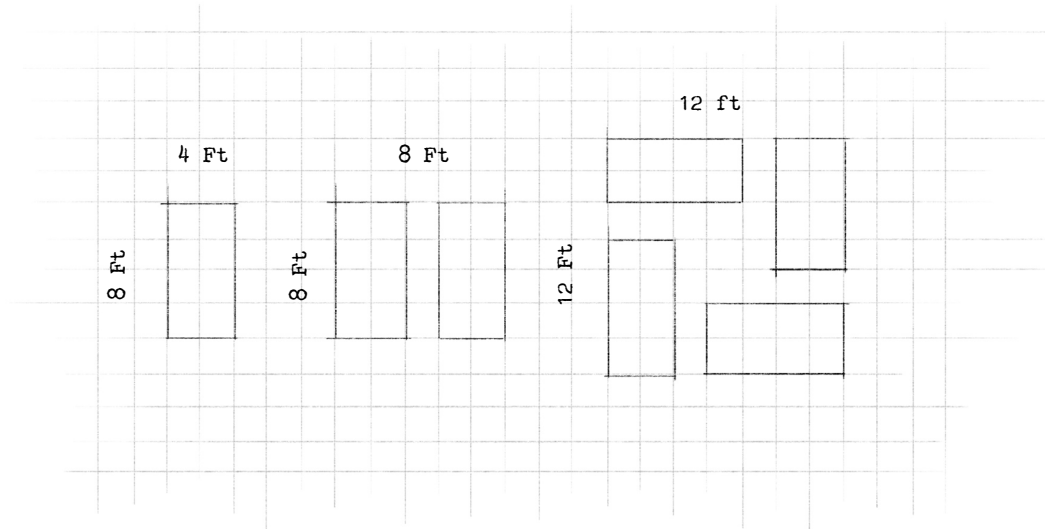
Average Size Home in Japan:	121 Sq m
Tokyo:	91 Sq m
Rural:	178.4 Sq m

Tatami Mats arrangement: Japanese Home



Average of 73 Tatami Mats in a Japanese Home

Scaffold Bay arrangement: Garden in the Grid



Max 28 Scaffold bays per living condition in Garden in the Grid

SCAFFOLD SPATIAL LOGIC

At the heart of the proposal is the scaffold.

It is not a finished object, but a framework – open, flexible, and incomplete by design.

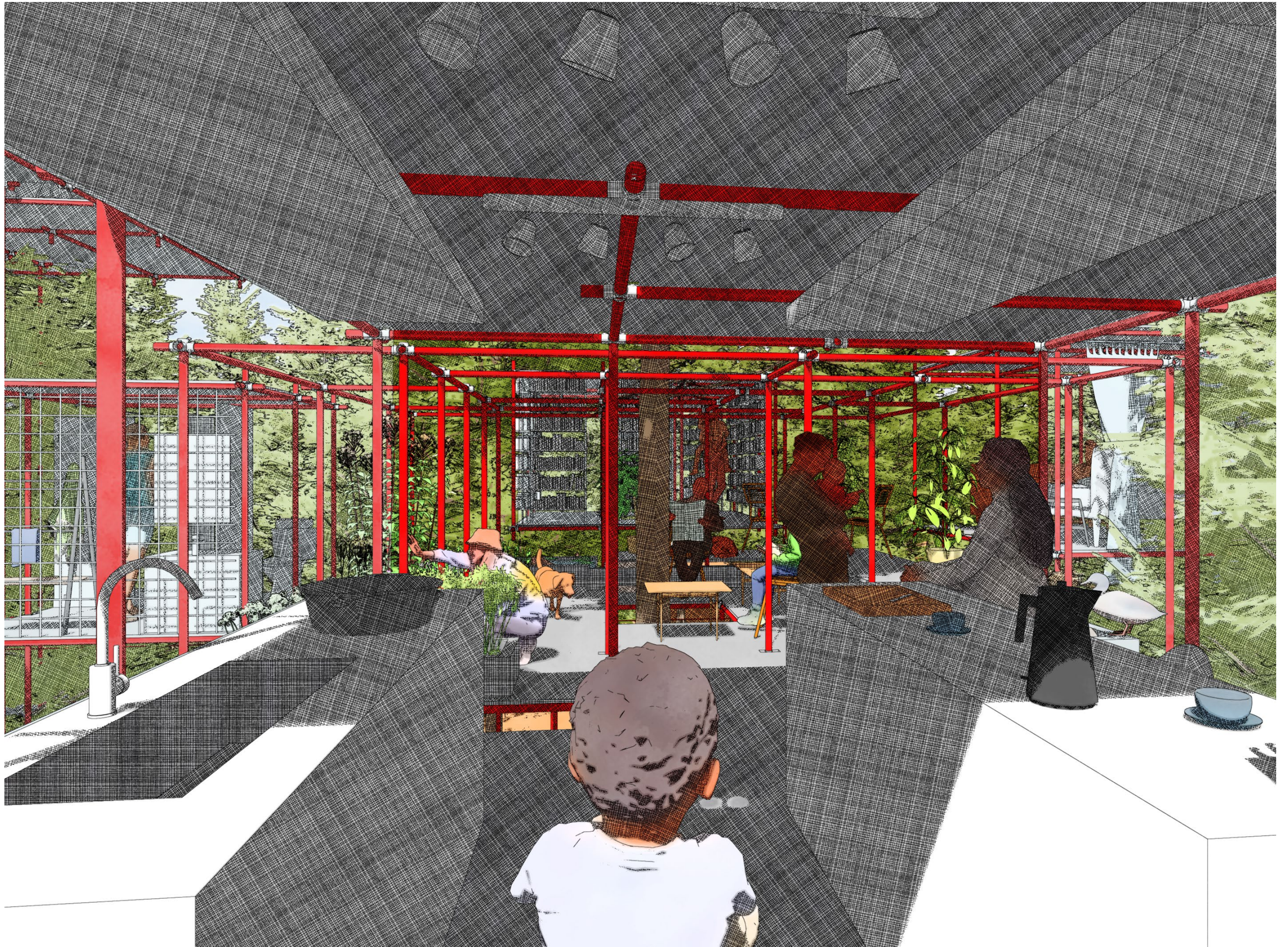
It supports modular programmatic plug-ins like – Bedrooms, Kitchens, Bathrooms, Libraries, Gardens, each designed with a designated size and configuration.

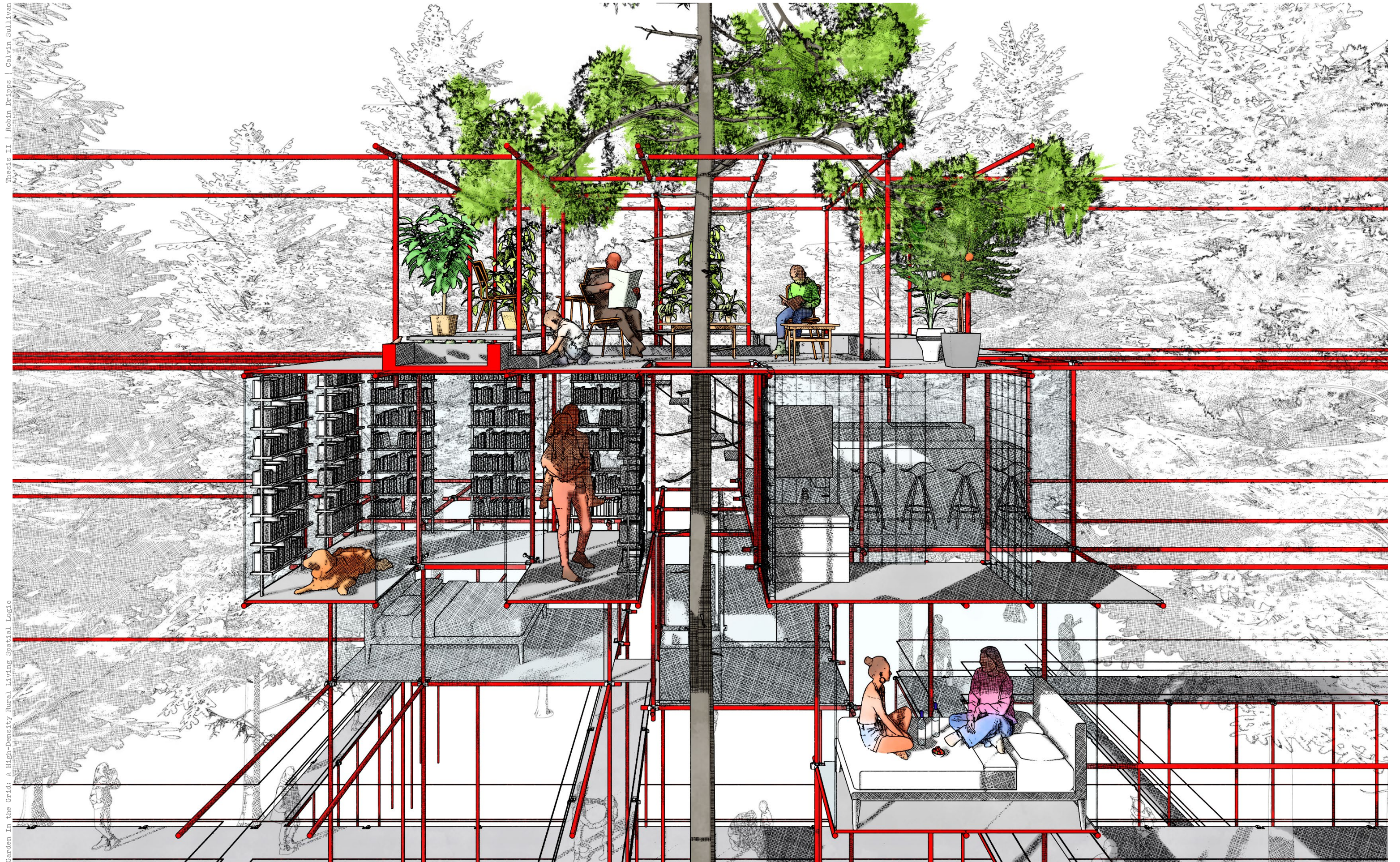
As well as other various single bay components that include: solar panels and water collection. Among others.

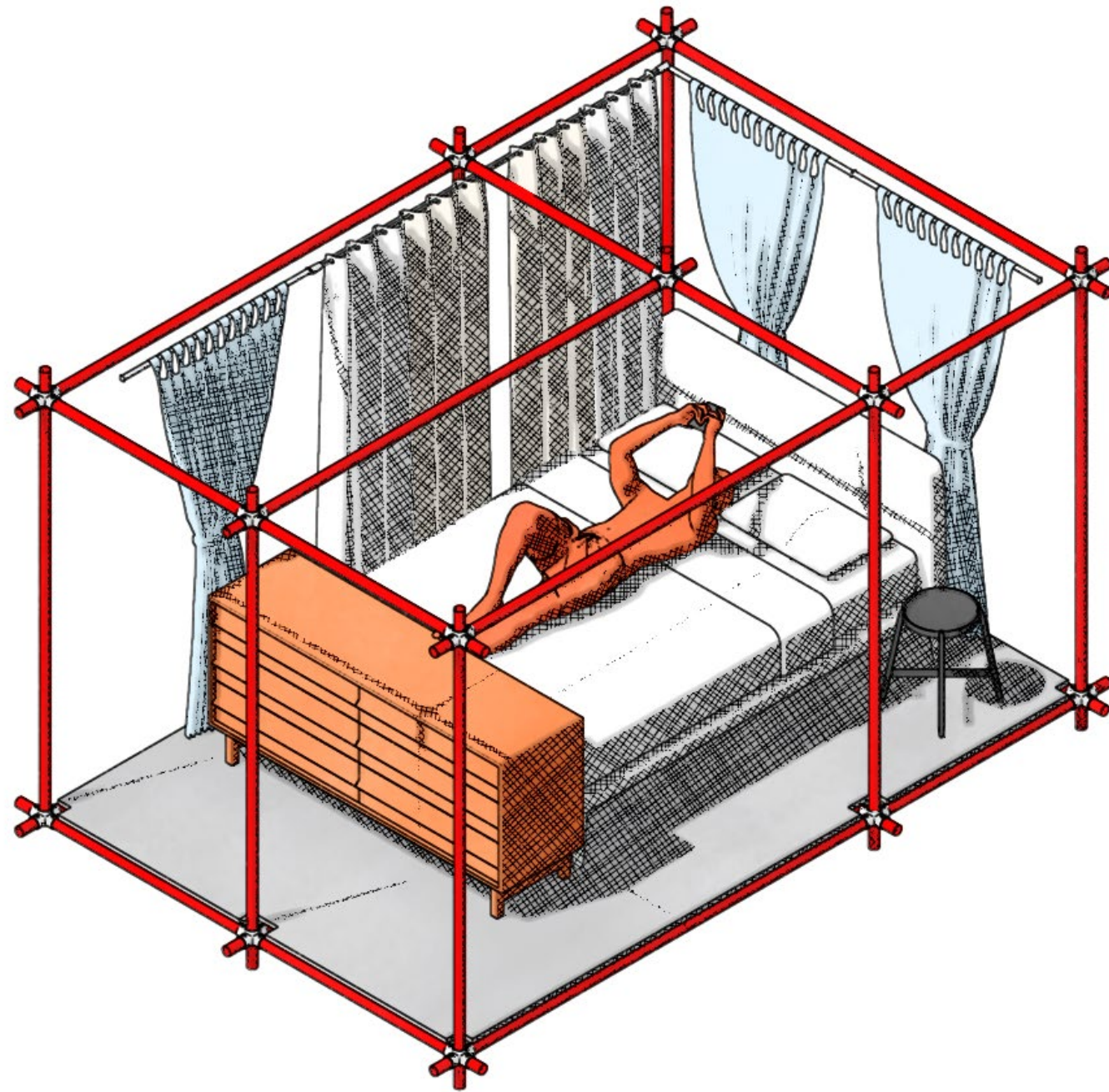
It adapts, grows, contracts.

It is a device for possibility, with 2 rules:

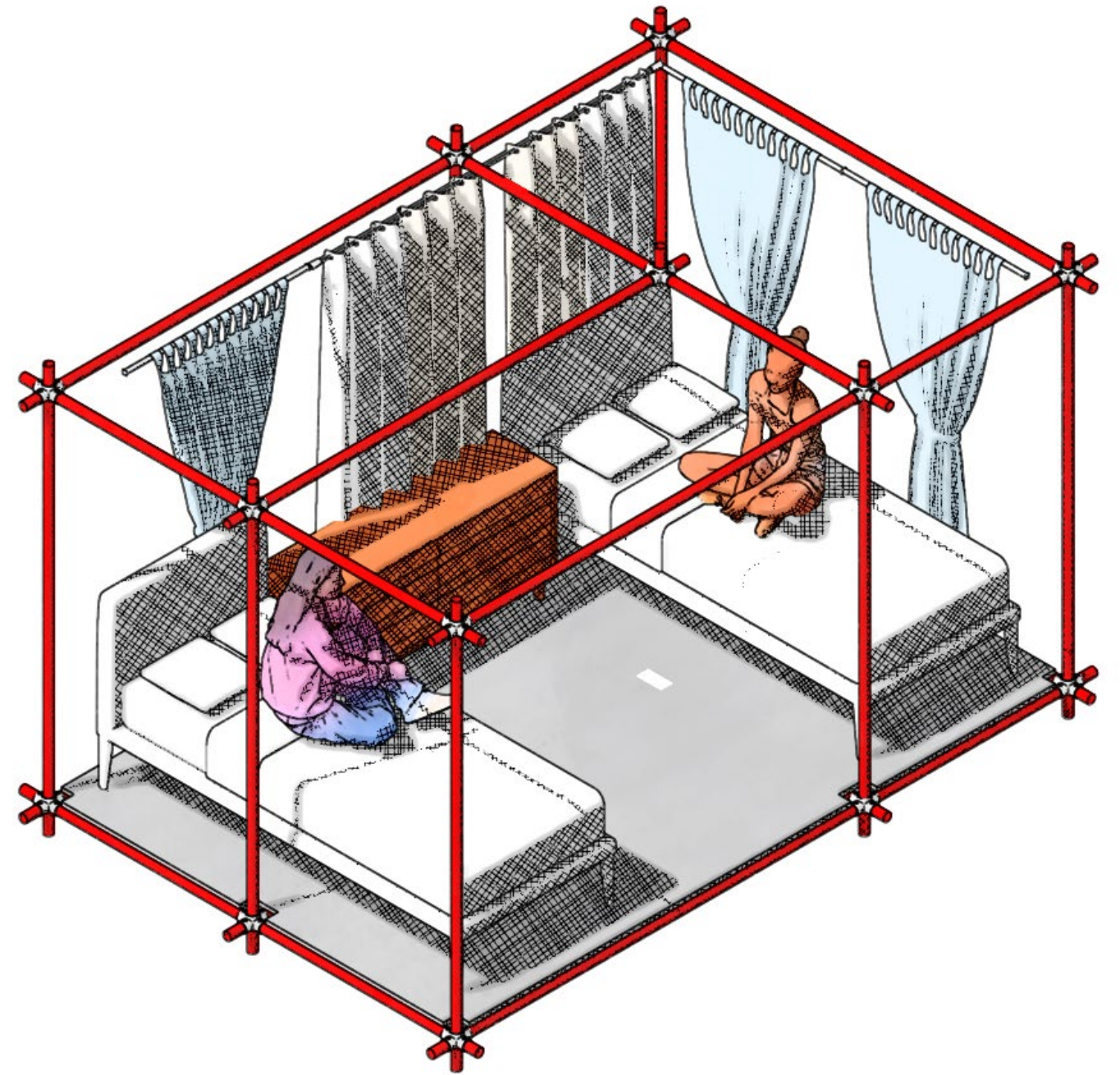
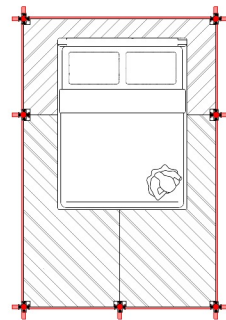
1. Each program needs to be attached to a residents private garden (vertically or horizontally)
2. You can not infringe on other people privacy.



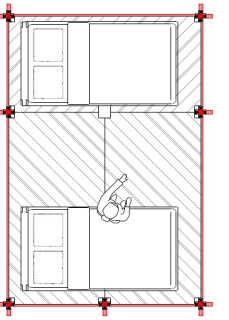


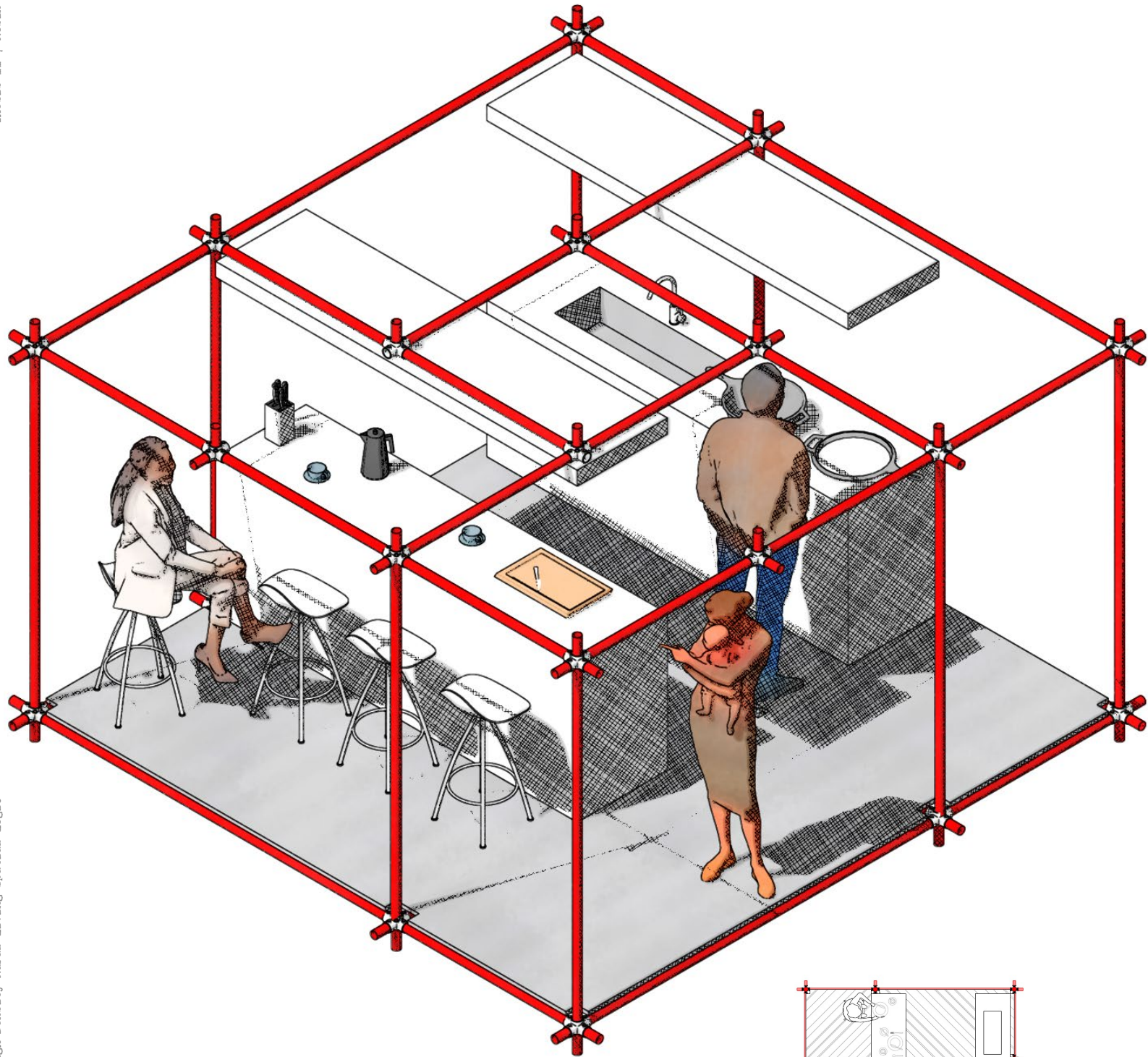


Bedroom: 8.92 Sq m (96 Sq ft)
1/8" = 1' - 0"

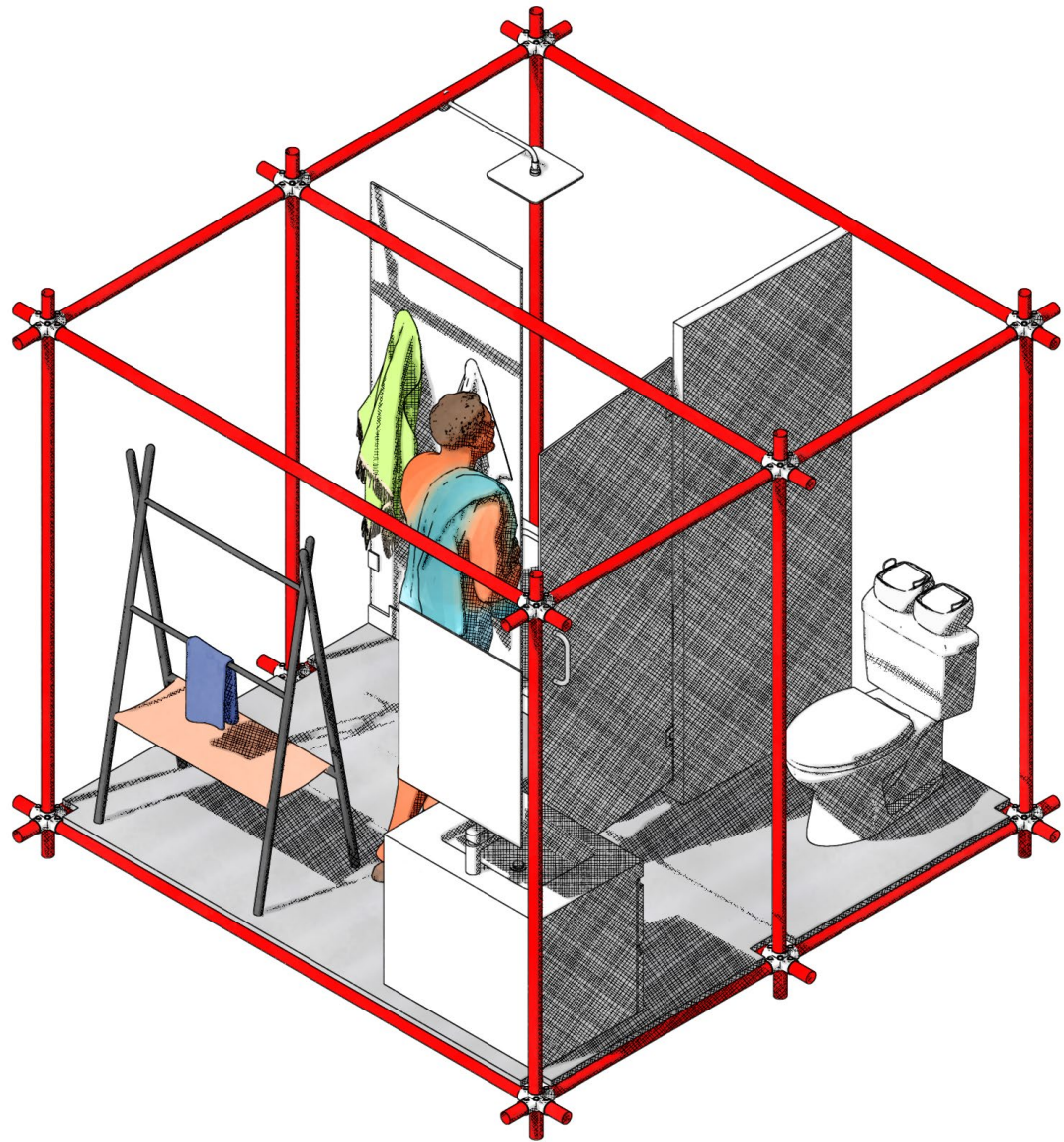
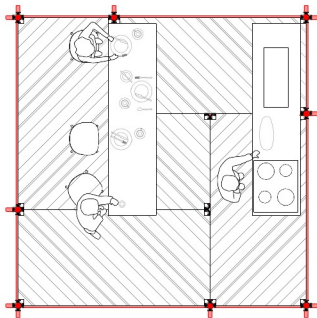


Bedroom: 8.92 Sq m (96 Sq ft)
1/8" = 1' - 0"

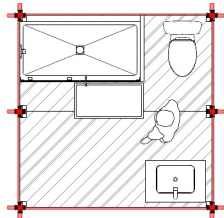


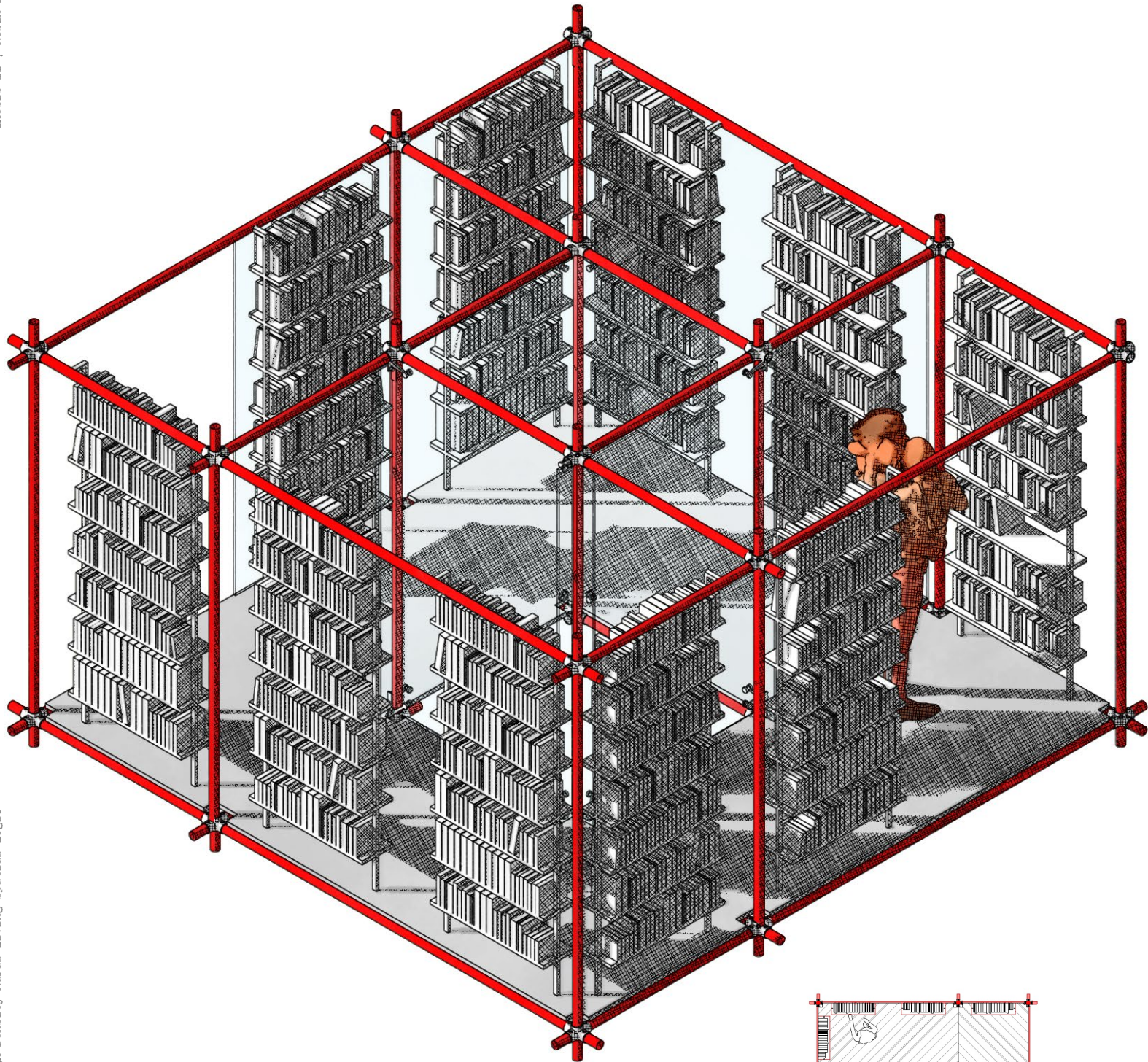


Kitchen: 13.4 Sq m (144 Sq ft)
1/8" = 1'- 0"

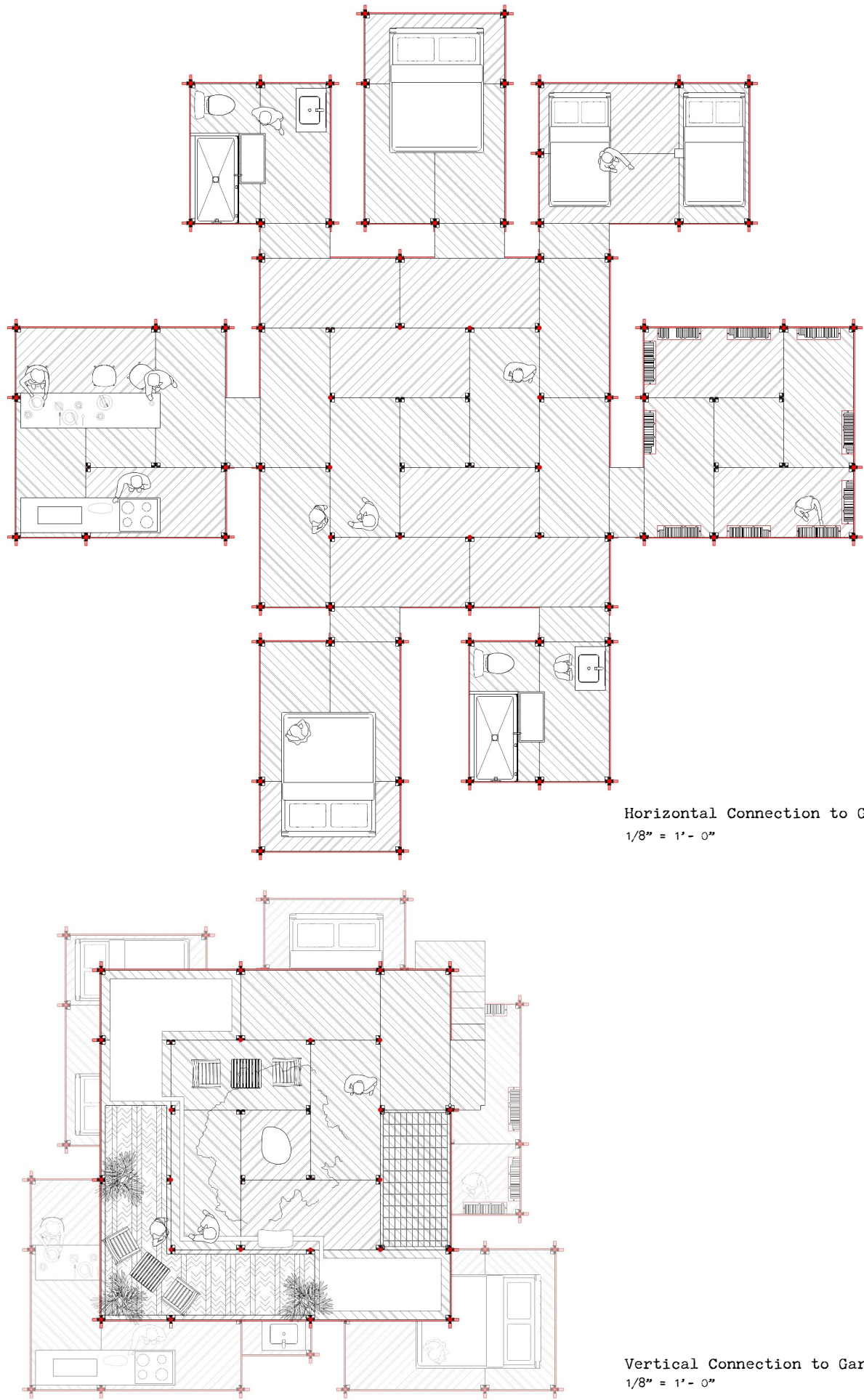
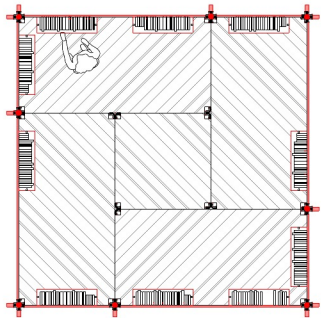


Bathroom: 8.92 Sq m (96 Sq ft)
1/8" = 1'- 0"



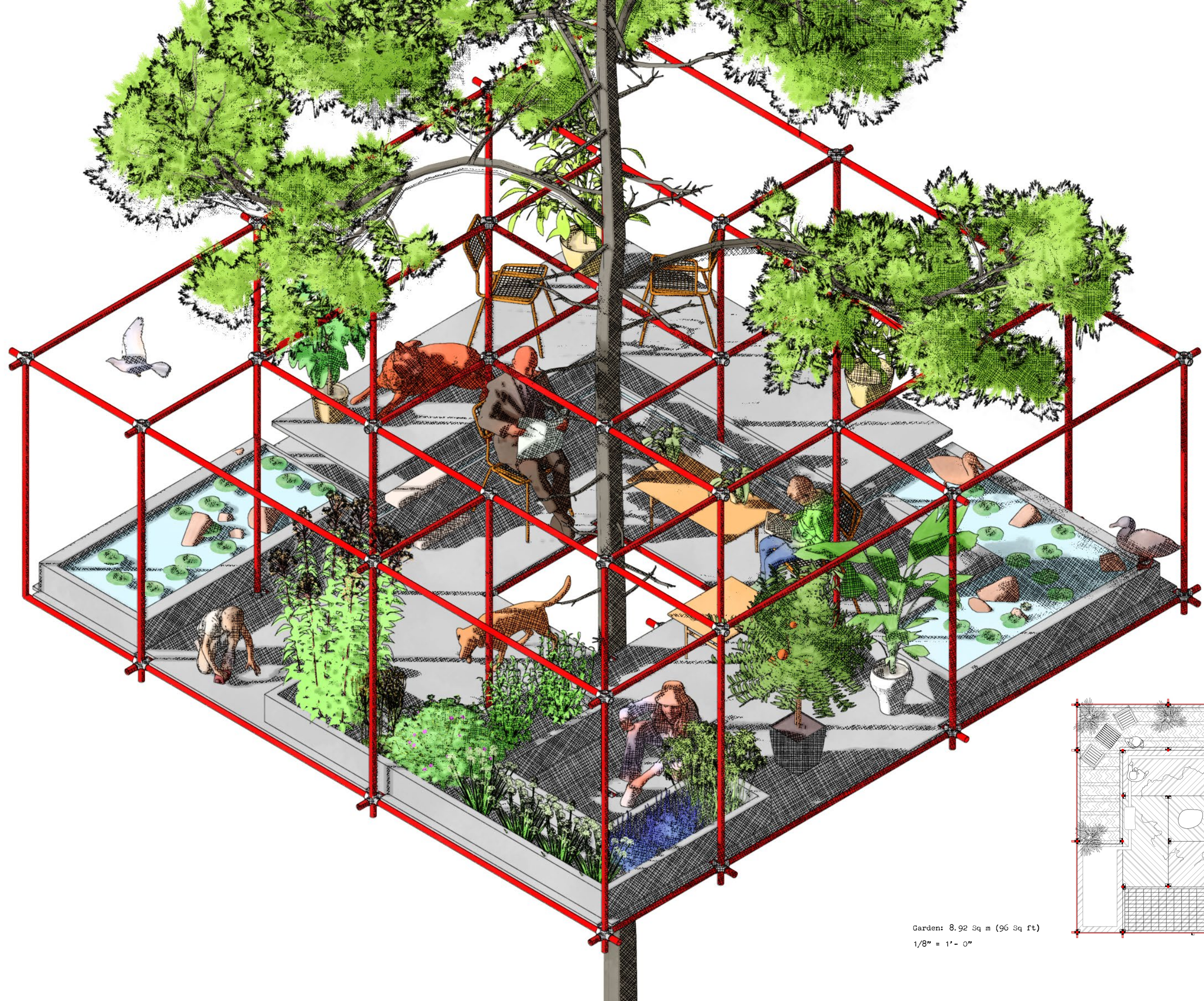


Library: 13.4 Sq m (144 Sq ft)
1/8" = 1'- 0"

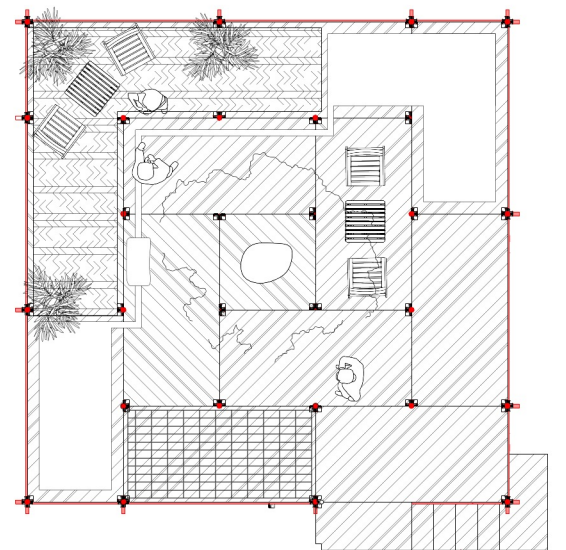


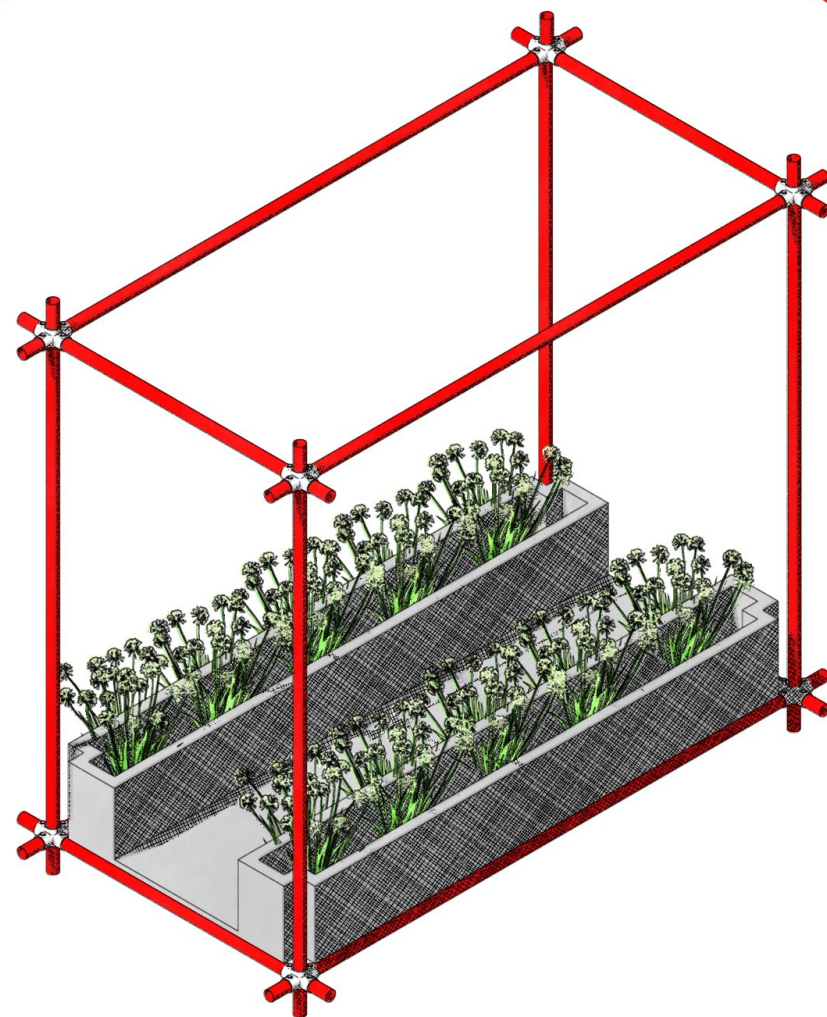
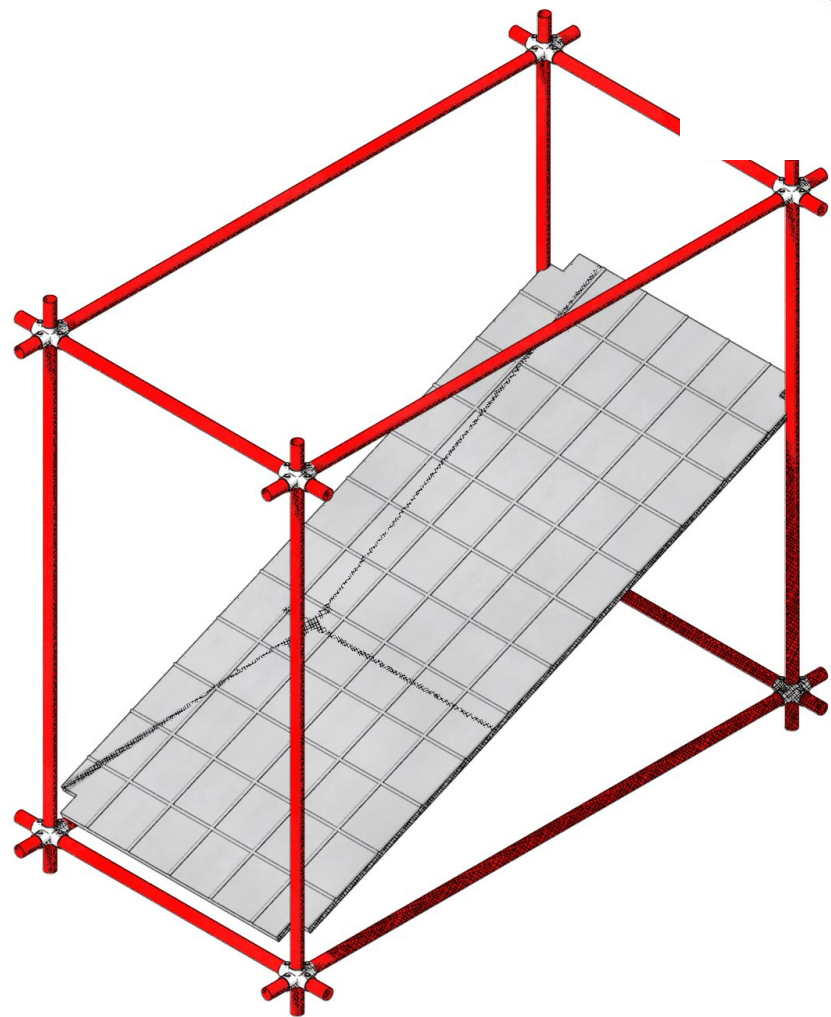
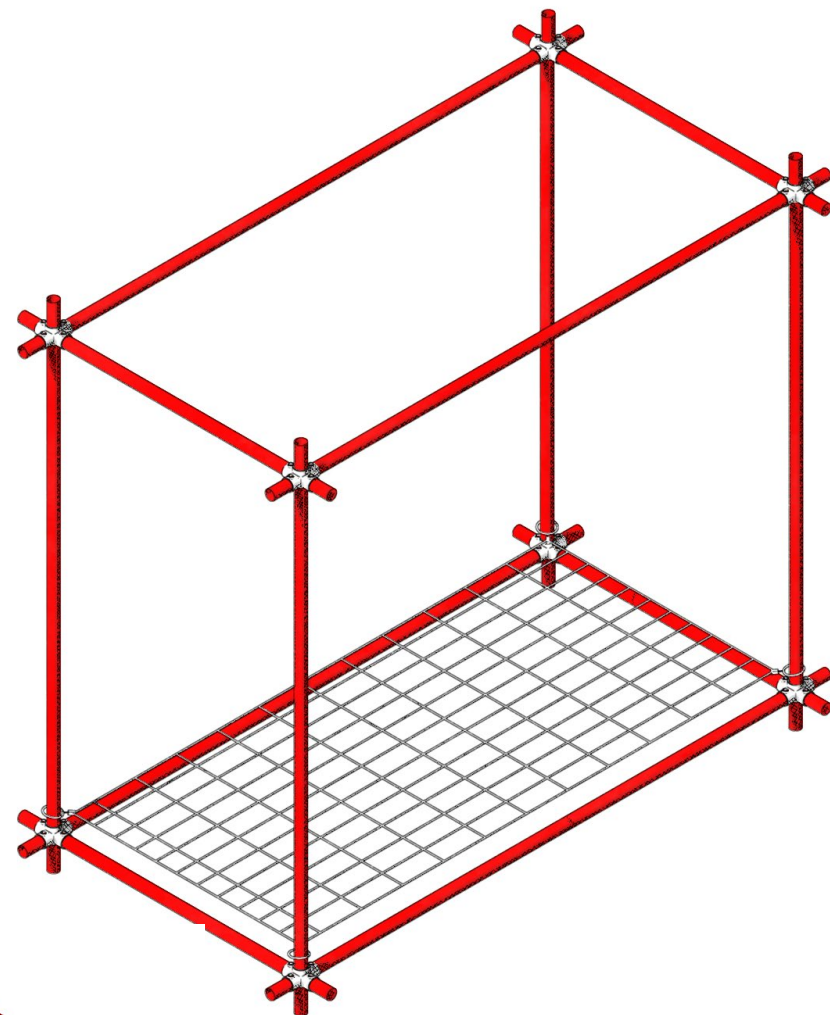
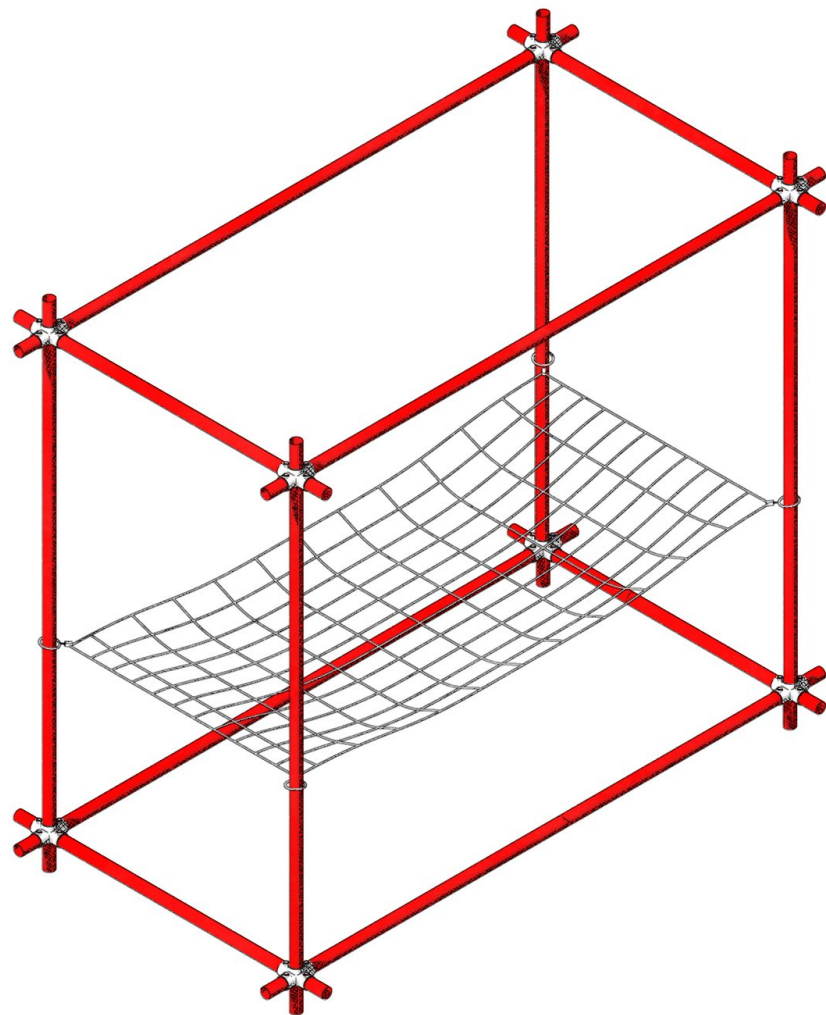
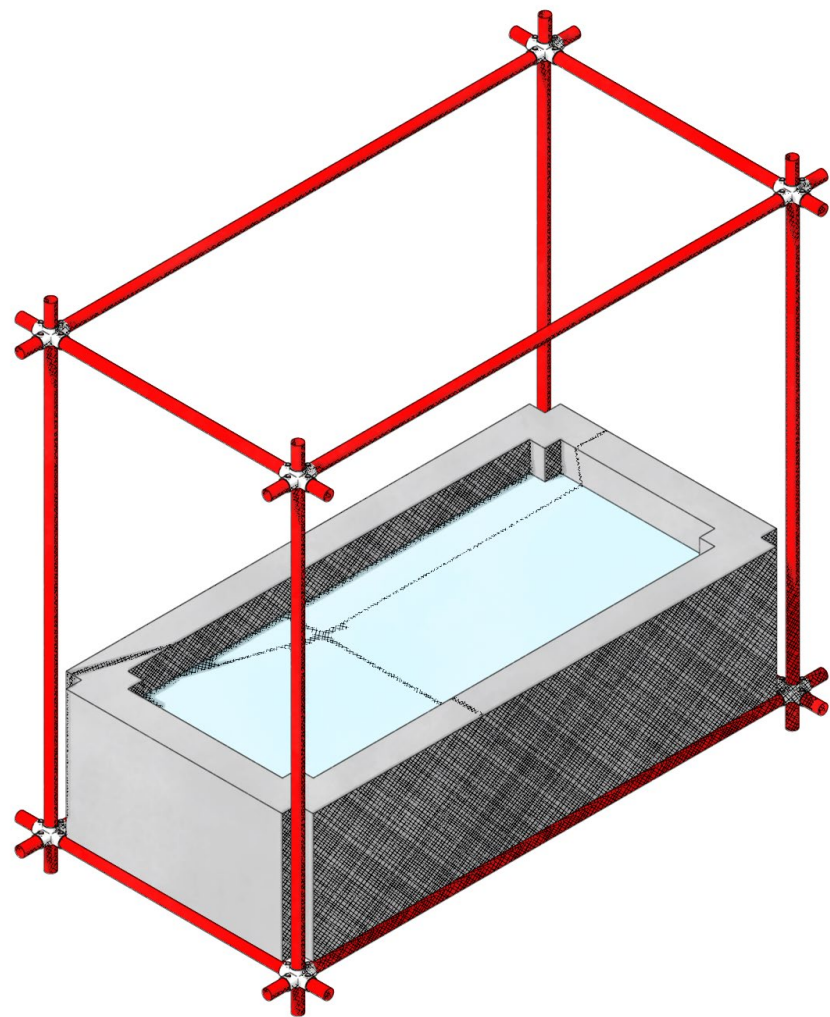
Horizontal Connection to Garden
1/8" = 1'- 0"

Vertical Connection to Garden
1/8" = 1'- 0"



Garden: 8.92 Sq m (96 Sq ft)
1/8" = 1'-0"

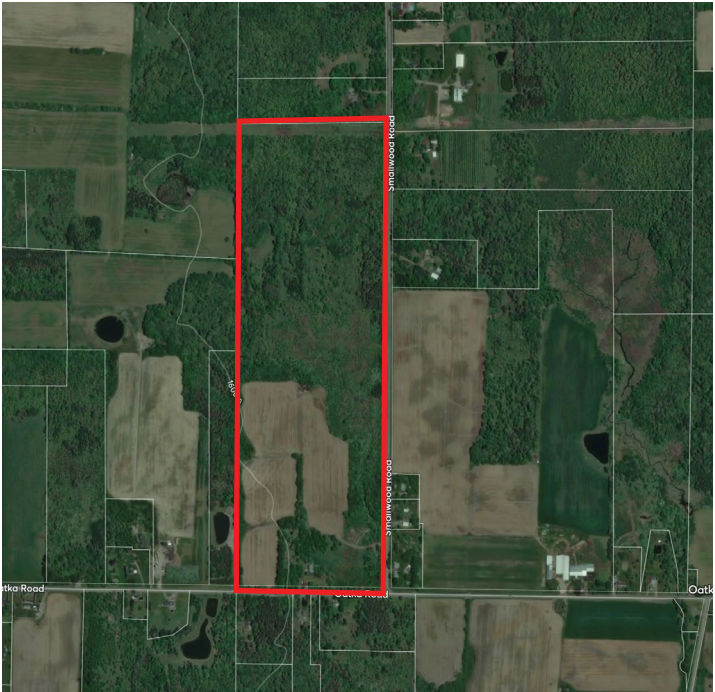
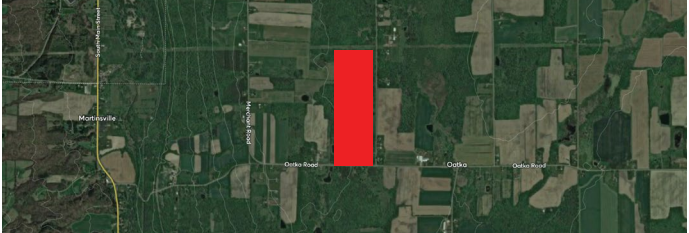






SITE

In order to ground this project I chose a 111 acre rural site located in Warsaw, NY that is currently for sale. 46 miles Southwest from Rochester and 45 miles Southeast from Buffalo. It currently has 30 acres of tillable land, 70 acres of wooded area, 11 acres of low brush areas and a stream cutting through from Southeast to the Northwest of the site



SITE

Beneath the scaffold:the agricultural and wooded area remains.

The ground is no longer unearthed for overly large concrete foundations - it is farmed, cultivated, and shared.

Water flows, compost loops, food is grown and eaten on site.

The home becomes a node within an ecosystem. All working together.

The residential condition floats above the landscape, touching down gently in strategic areas where the communal programmatic pieces connect with the communal landscape. These programs include and are not limited to: schools, daycares, laundromats, green houses, aquaponics, storage, battery storage, rain water collection, compost, grain bins, agricultural machinery and extra scaffold to be used in the future.

Creating a fully self sustatining, regenerative city. With that being said, this is not proposed as a closed loop system.

Day Care

School

Laundry

Scaffold Storage

Metal Grain Bins - wheat, corn, soybeans

Silos

Grey Water System

Aquaponics

Wells

Rain Water Collection

Battery Storage - Wind + Solar

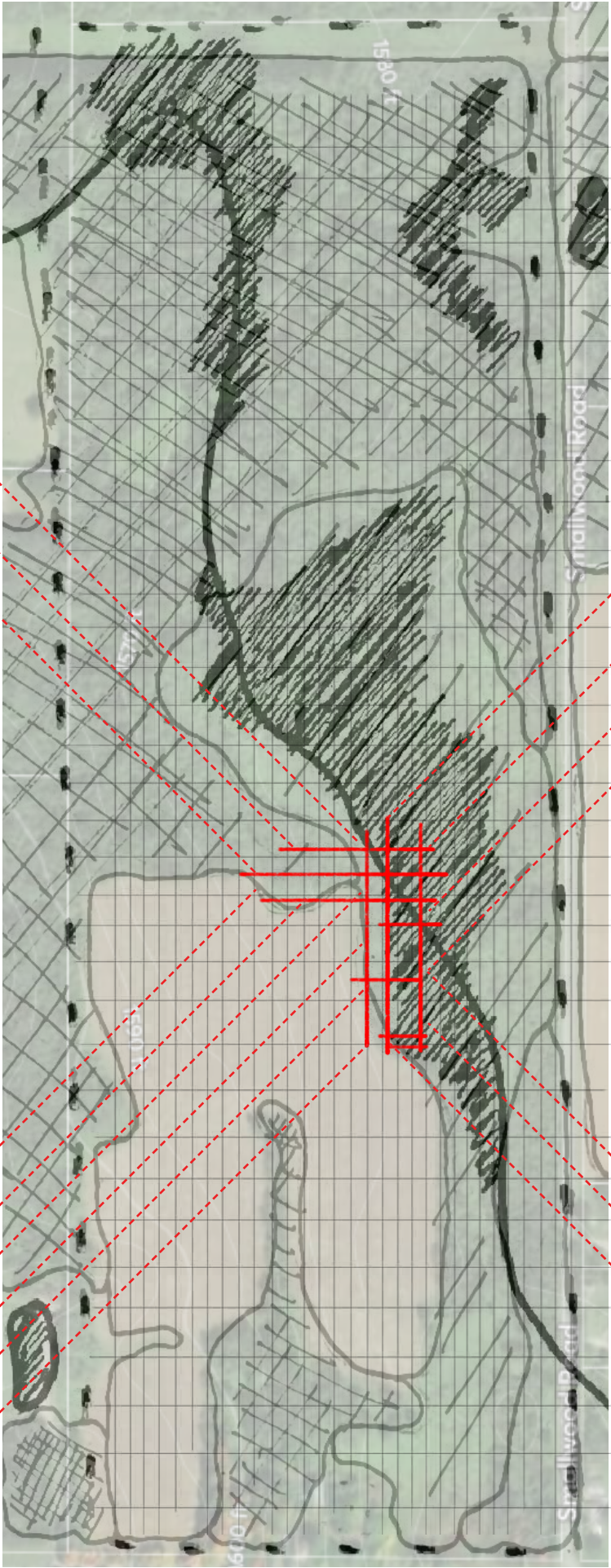
Bakery

Wash + Pack Station

Storage

Green Houses

Compost



GROWTH

The scaffold is built with humility, by the residents and the city.

Steel pipes met with kee klamps.
Light platforms.
Open to air, wind, sun, and rain

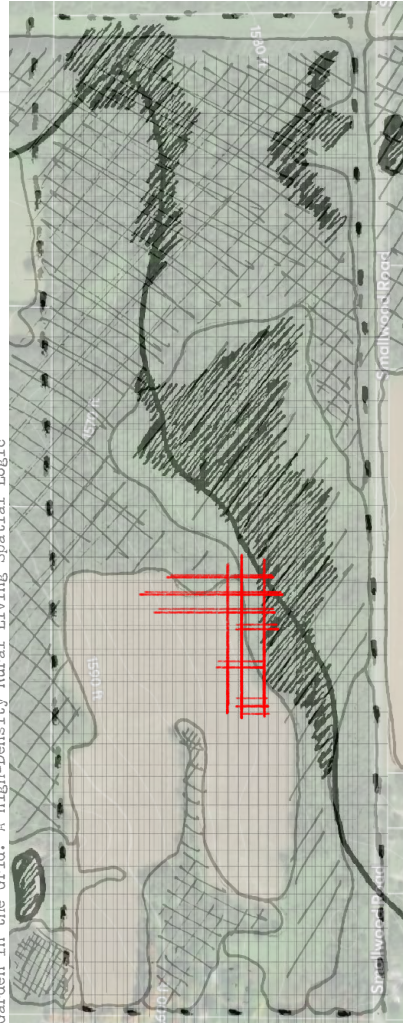
It does not conquer the land. It simply cohabits with it.

Material decisions here are not aesthetic – they’re ethical, ecological, social and site specific.



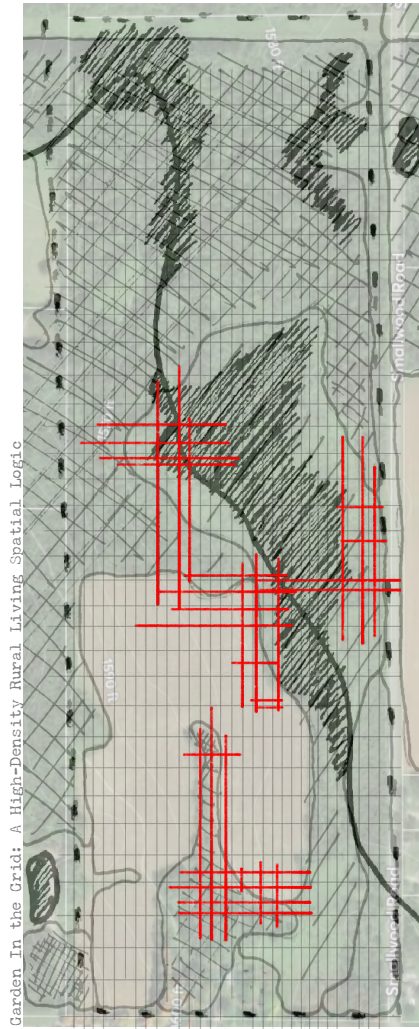
GROWTH

Families change, seasons shift,
modules come and go.



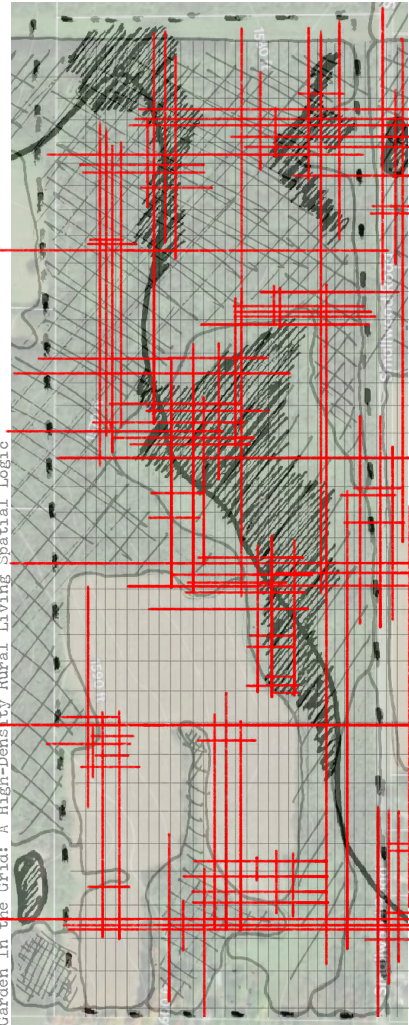
GROWTH

This is a spatial system meant to evolve.



GROWTH

The scaffold remains a kind of spatial chassis – a generative base for continual reinvention.



A NEW PROPOSITION

This is not just architecture.
It's a rejection of isolation.

It's a proposal for
interdependence, for adjacency, for
care.

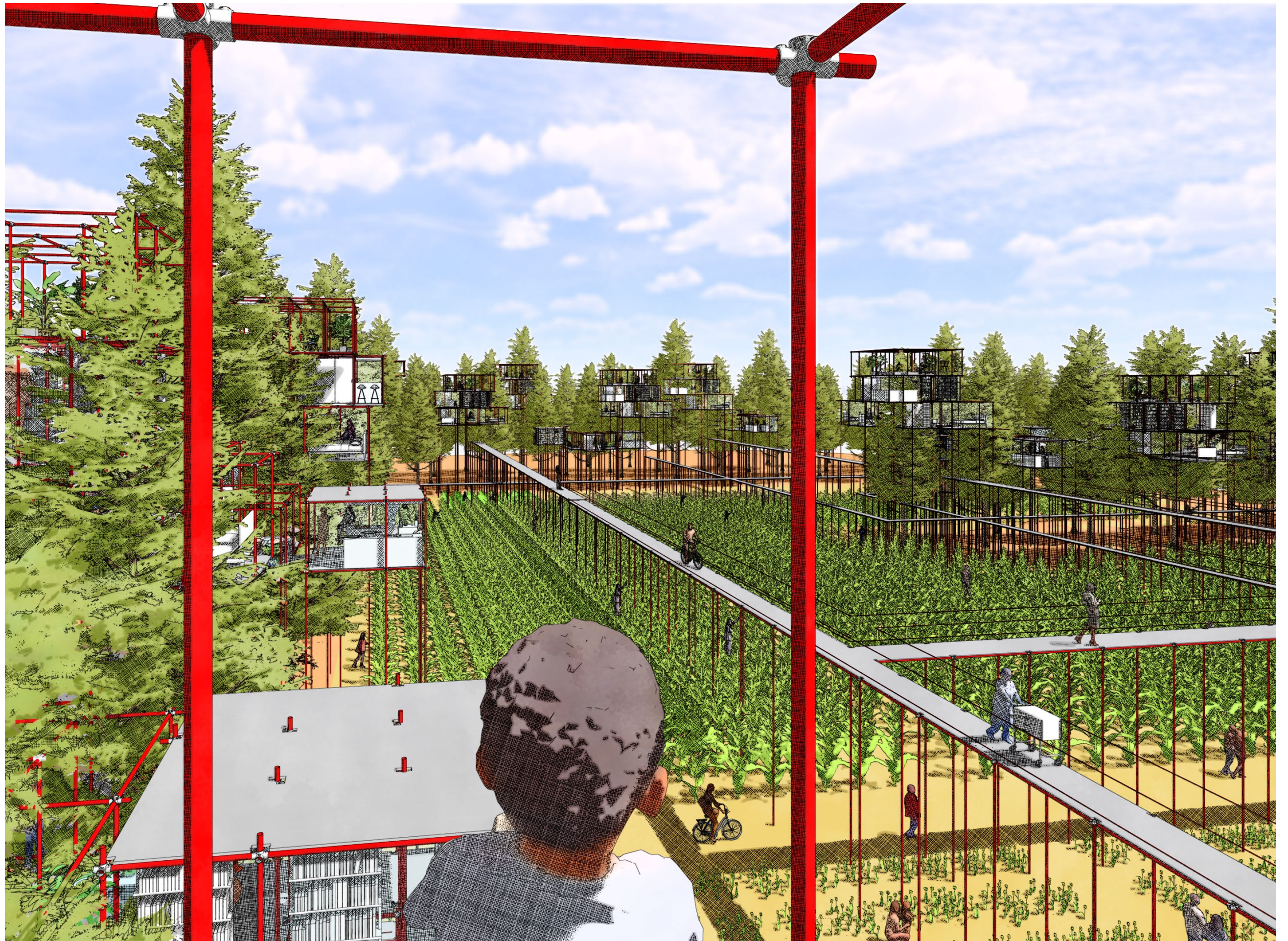
It asks:

Can we live with each other - not
just next to each other?

Can architecture hold us together
without sealing us off?

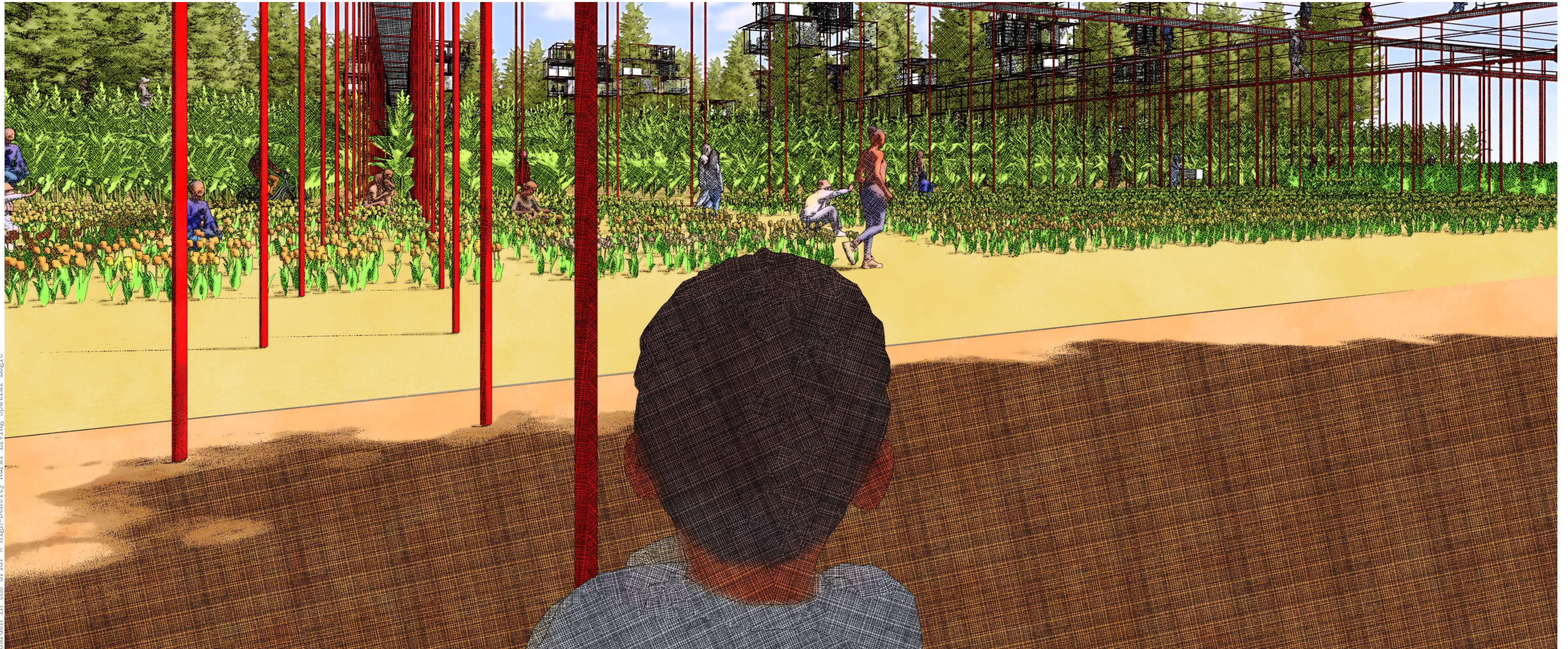
This thesis answers: yes.

But only if we are willing to
rethink our current idea of "home."





WE CAN NO LONGER AFFORD TO LIVE IN ISOLATION



THANK YOU!

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