Common Harvest

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DES 3520-001 Design Product Studio 2
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Common Harvest

Feeding oneself and one’s family is central to life and wellbeing. A society's collective wellbeing can perhaps be measured by each member’s ability to feed themselves and their family.

However, the industrial food system of the United States is not designed to serve us all. Nutritional food access in this system is predicated on car ownership, wealth, and class.

This is a design proposal for an alternative to industrial food production, specifically catered to meet the needs of food-marginalized communities.

There is no such thing as a food desert.

I began this project with the intent of investigating a local food desert. This topic seemed one that a *designer* would look into. However, as I began research, I quickly discovered that my framing on this topic had been flawed and perhaps naive.

Karen Washington, founder of Rise & Root Farm and co-founder of Black Urban Growers says it this way[1],

> *What I would rather say instead of "food desert" is "food apartheid," because "food apartheid" looks at the whole food system, along with race, geography, faith, and economics. You say "food apartheid" and you get to the root cause of some of the problems around the food system. It brings in hunger and poverty. It brings us to the more important question: What are some of the social inequalities that you see, and what are you doing to erase some of the injustices?*
>
> Karen Washington

Washington suggests here that the language with which we describe social issues can itself be intertwined in the problem. Refraining from blanket statements like *food desert* is not merely a matter of nomenclature, but perhaps will help us see these issues as interconnected and nuanced.

1. www.guernicamag.com/karen-washington-its-not-a-food-desert-its-food-apartheid

~~Food Desert~~

The term food desert paints a picture of a barren and desolate landscape. It also implies that this is a naturally occurring system.

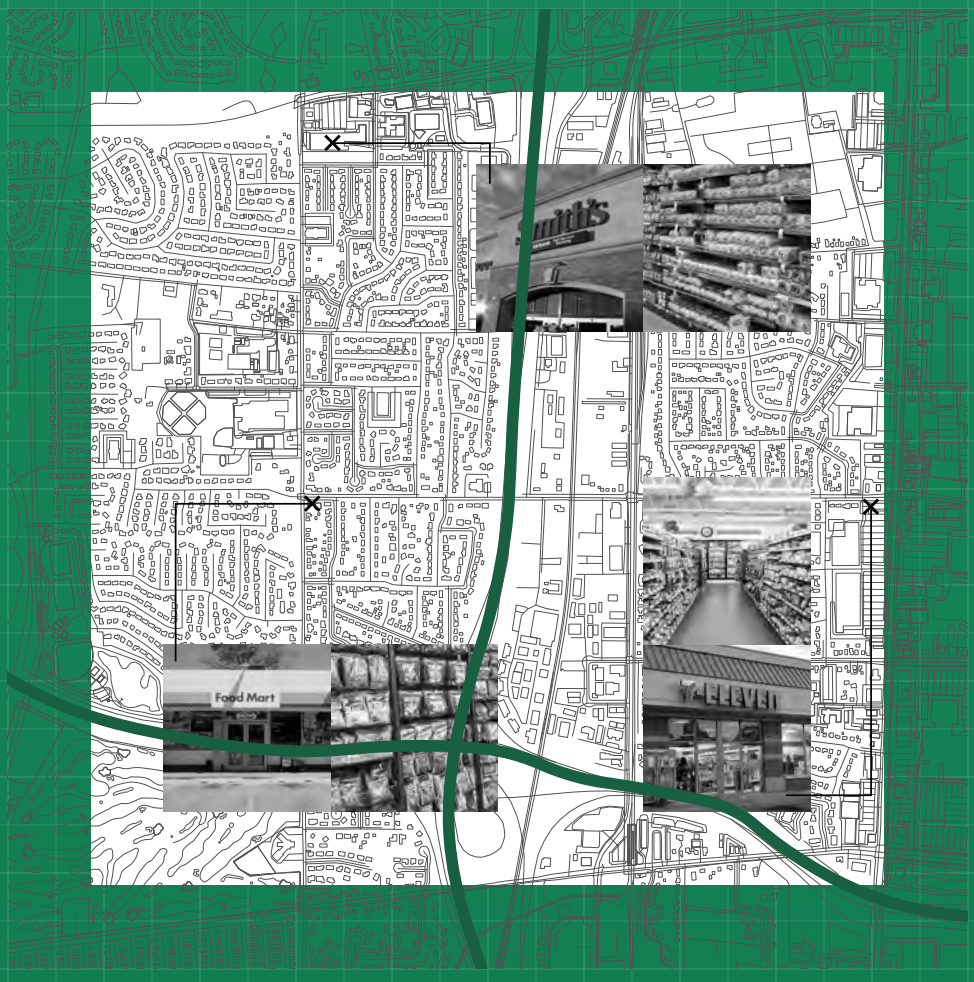
Food-Marginalized

This project will use the term food-marginalized. Rather than passive language, food-marginalized implies an intentional system that is deliberate in it's priorities.

Addressing food justice in South Salt Lake.

While geography plays a role in access to nutritional food, it is not the only factor at play. It is true that there are few grocery stores per square mile in South Salt Lake, but adding more grocery stores won't entirely solve the problem.

If one cannot afford food, it doesn't matter how close the grocery store is.



1. Map data - www.openstreetmap.org
2. Map linework - www.food4rhino.com/en/app/caribou

Divorce food access from capital interests.

If food is so vital to our lives, how is it that 10% of households in the wealthiest nation in the world are still experiencing food insecurity?[1]

We are hardwired to believe that food is something that we buy with money, that it requires large corporations to produce it for us.

These corporations too often place profit above people and planet.

This system yields inequity on many fronts, and disproportionately harms people of color.

Any group that desires control and sovereignty over their food production is a candidate to participate in collective management.

People living in food-marginalized communities stand to gain the most from communal production.[2]

1. www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-srace
2. *Food Justice, Hunger and the City* - Nik Heynen, Hilda E. Kurtz, Amy Trauger

Designing a New Food System.

Communal production served as a jumping off point in the design process. Additionally, there were certain characteristics from the research that I felt a new food system should embody.

First, the food system should be *stakeholder managed, owned, and operated*.

Second, the food system should require and foster *communal governance*.

Third, the food system should be *autonomous*, free to govern it's own affairs.

And fourth, the food system should be *resilient to crisis*.

Tactics of Communal Governance.

If this thesis is correct that communal production yields more equitable outcomes, we need a framework for how this may be achieved.

Elinor Ostrom[1], a political economist who spent her career studying the commons, traveled to diverse communities and observed how they successfully manage shared resources.[2]

She condensed her findings into 8 categories -

1. Commons need to have clearly defined boundaries.
2. Rules should fit local circumstances.
3. Participatory decision-making is vital.
4. Commons must be monitored.
5. Sanctions for those who abuse the commons should be graduated.
6. Conflict resolution should be easily accessible.
7. Commons need the right to organize.
8. Commons work best when nested within larger networks.

"There is no reason to believe that bureaucrats and politicians, no matter how well meaning, are better at solving problems than the people on the spot, who have the strongest incentive to get the solution right."

Elinor Ostrom

1. www.nobelprize.org/prizes/economic-sciences/2009/ostrom
2. *Governing the Commons* - Elanor Ostrom, 1990

Landing on hydroponics.

Hydroponic vegetable production[1] is a feasible option for addressing communal food security.

Vegetables grown in nutrient-film[2] hydroponic systems do not require soil, and therefore do not require land ownership. If our new food system is to operate on a decentralized, communal level, it is critical that the means of production are available to all, not just those who own land.

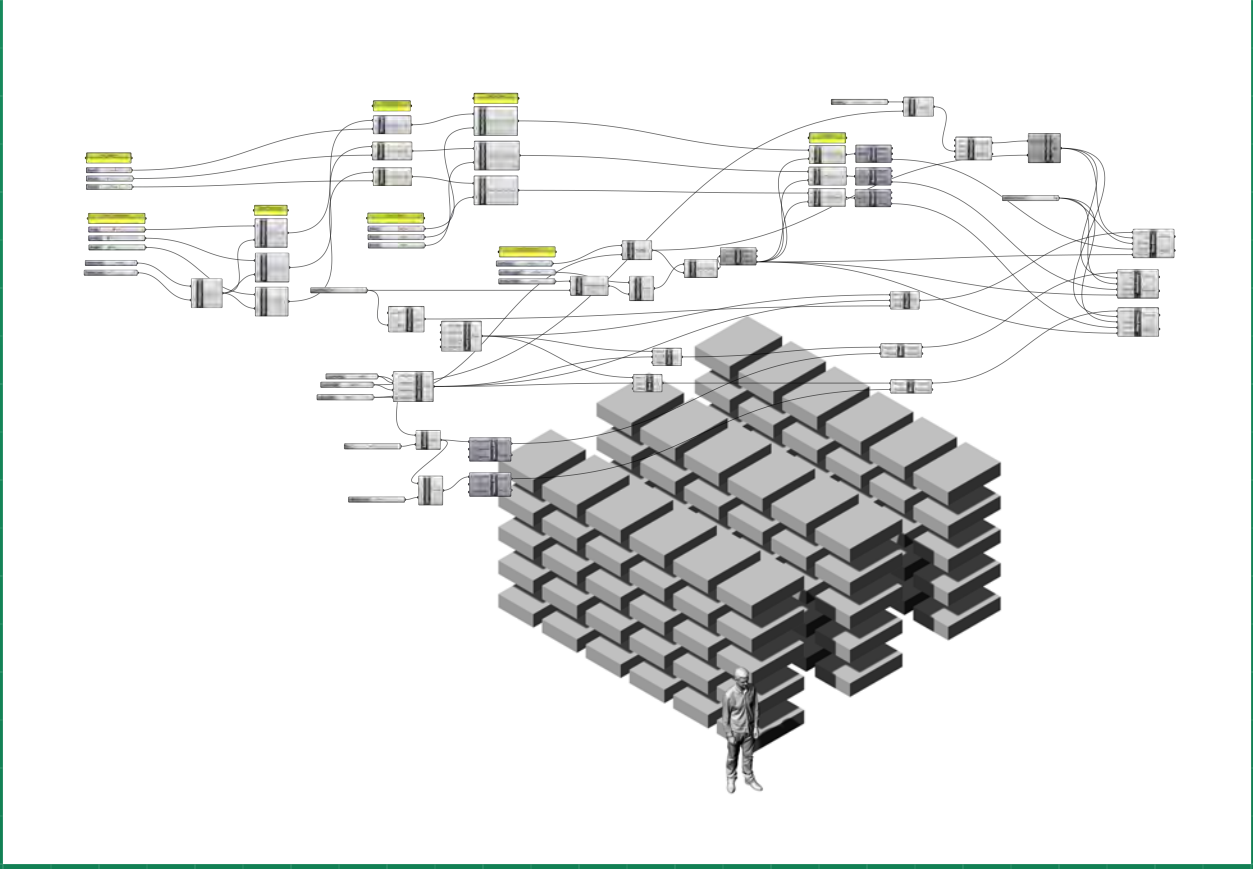
Additionally, the system can run year round independent of seasons, weather, and sunlight. This fits well into our aspiration of a crisis-resilient system.

1. https://www.nal.usda.gov/farms-and-agricultural-production-systems/hydroponics
2. *https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/nutrient-film-technique*

Determining scale.

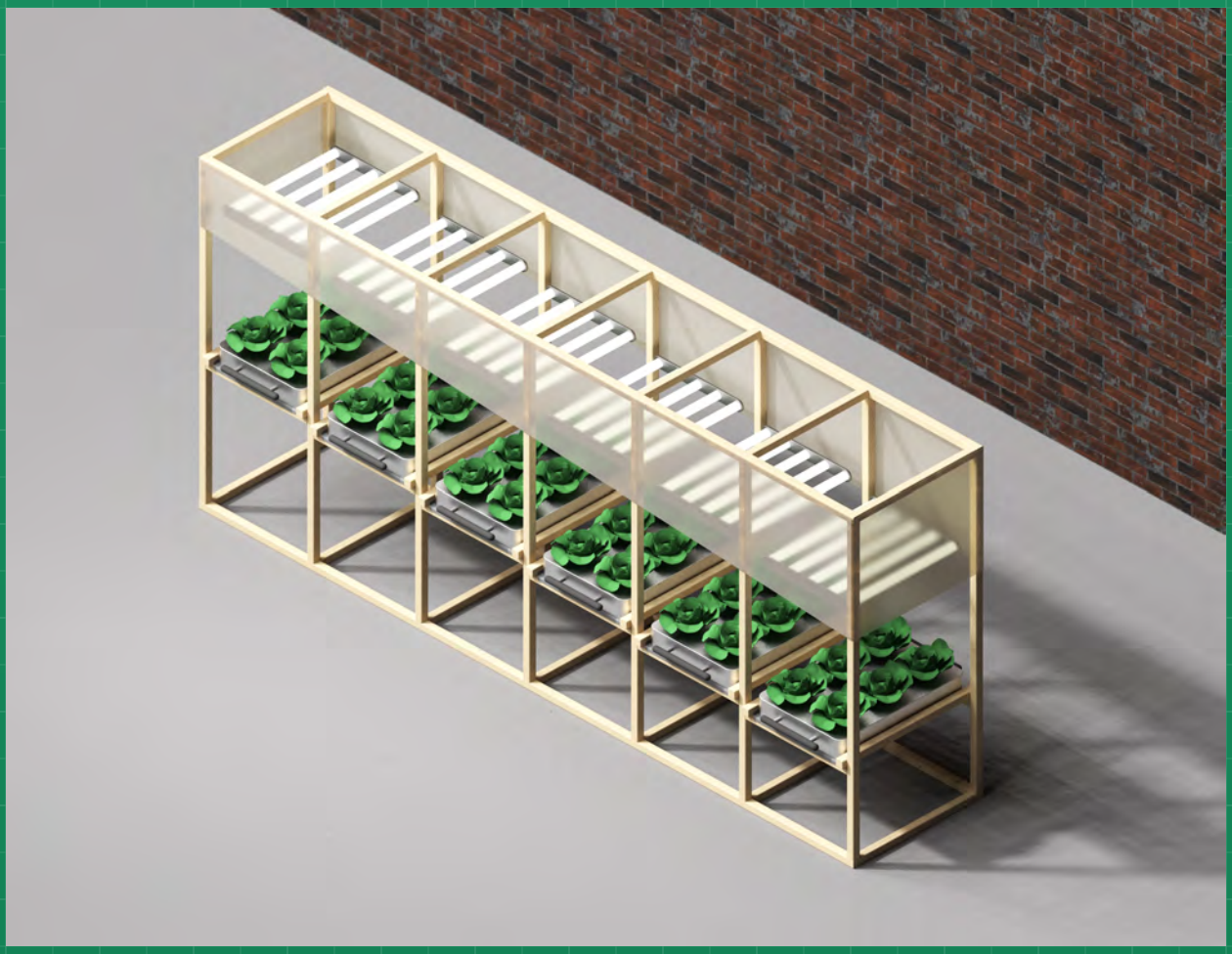
With hydroponics selected as our method of communal food production, we need to decide specifically what the *communal scale* really looks like.

For this purpose, a parametric model was created to synthesize the realty of the space requirements.



This model helped rough out the scale of the physical place of production. Using the size of each vegetable, multiplied by how many days they require to germinate, multiplied by how many families each building should feed, we start to materialize these constraints into a physical space.

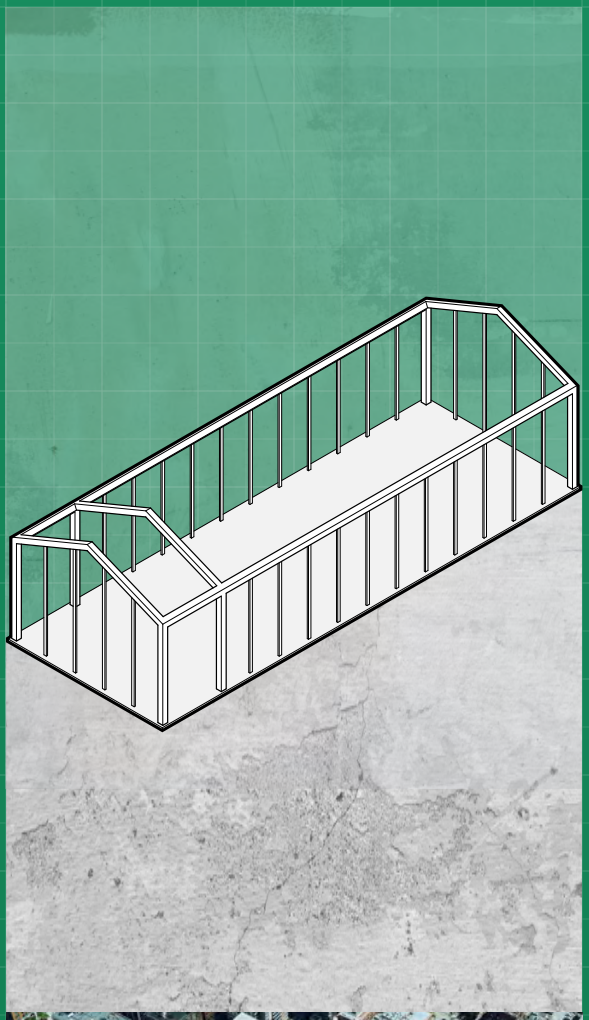
V1 – Hydroponic Unit

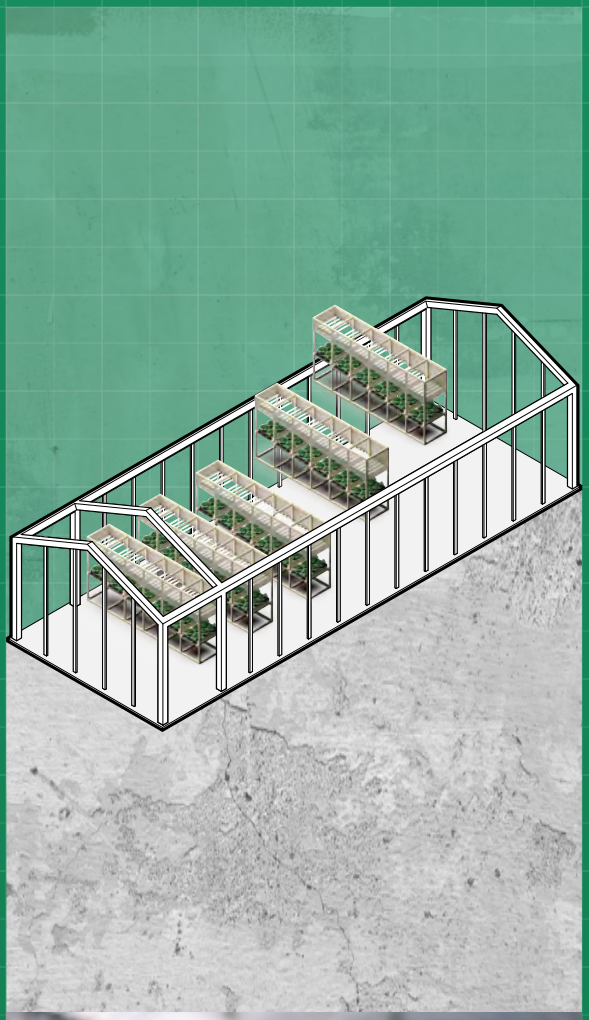


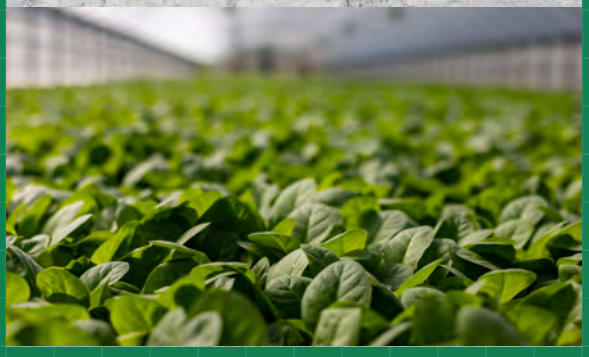
With the scale and dimensions determined by the parametric model, new models were generated to explore the interaction and aesthetic of the growing units.

V1 – Hydroponic Unit

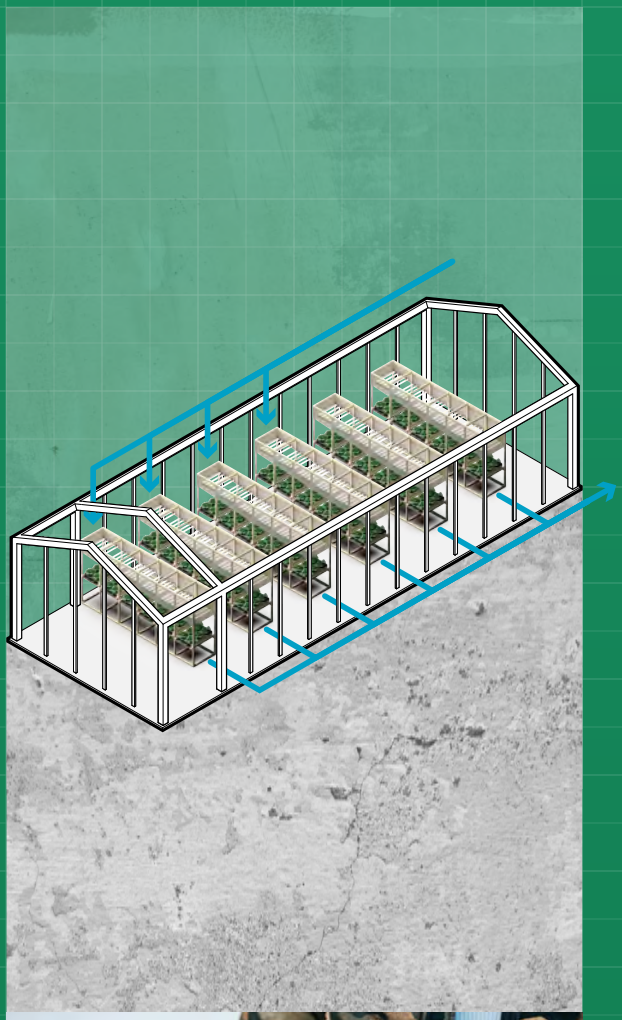
V1 – Hydroponic Center

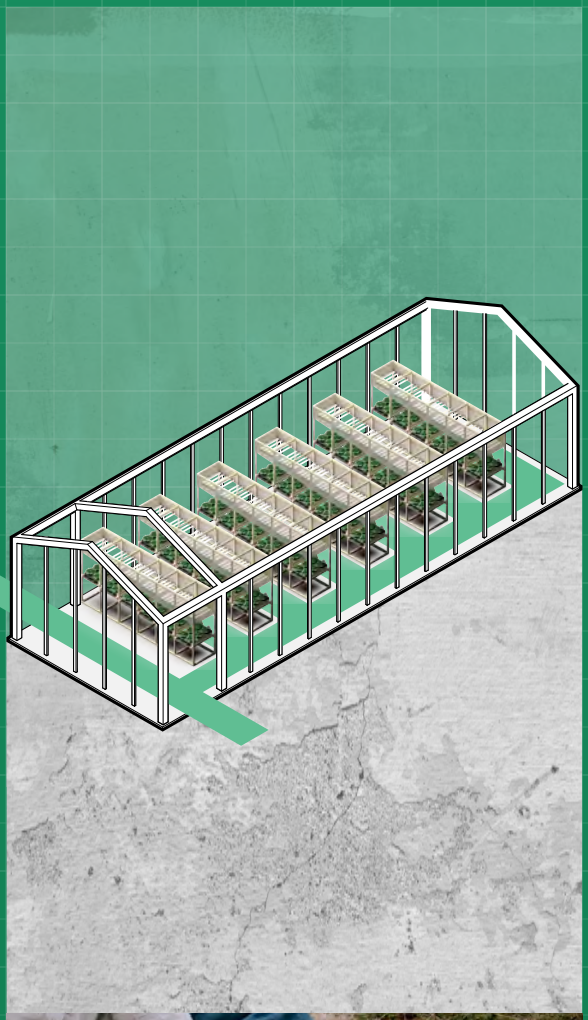






V1 – Hydroponic Center





Community Process

The process begins with a community deciding to grow food together.

This group of soon-to-be farmers is provided with a framework for constructing and facilitating their own food production.

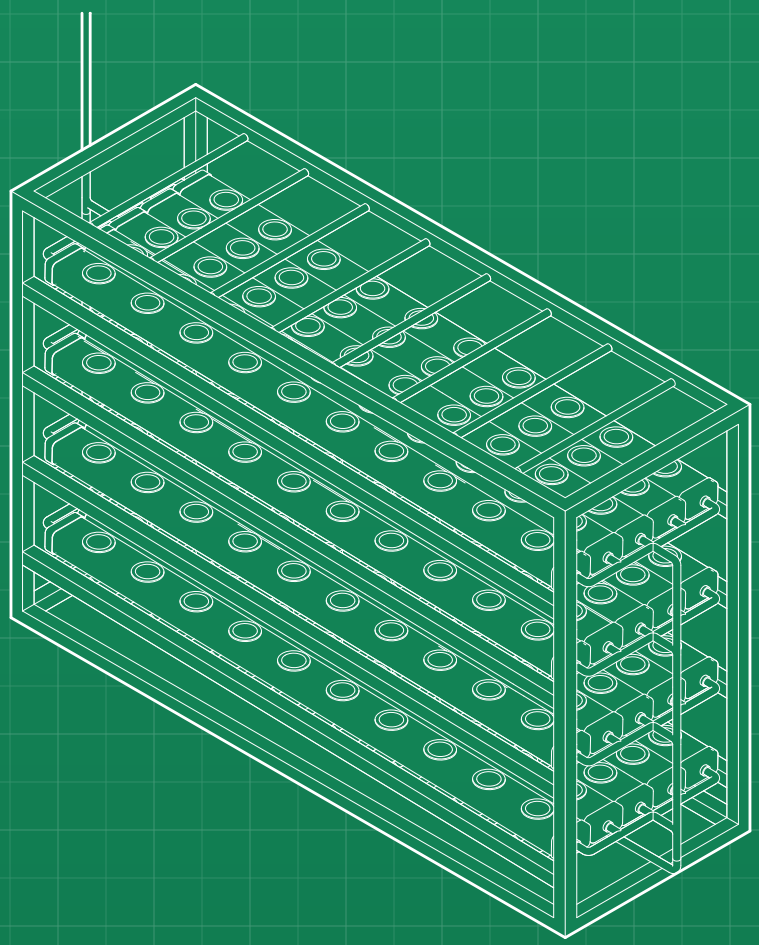
The community collectively manages, operates, and maintain it's own food supply.

Technical resources and consulting are available to aid the community in their shared production.

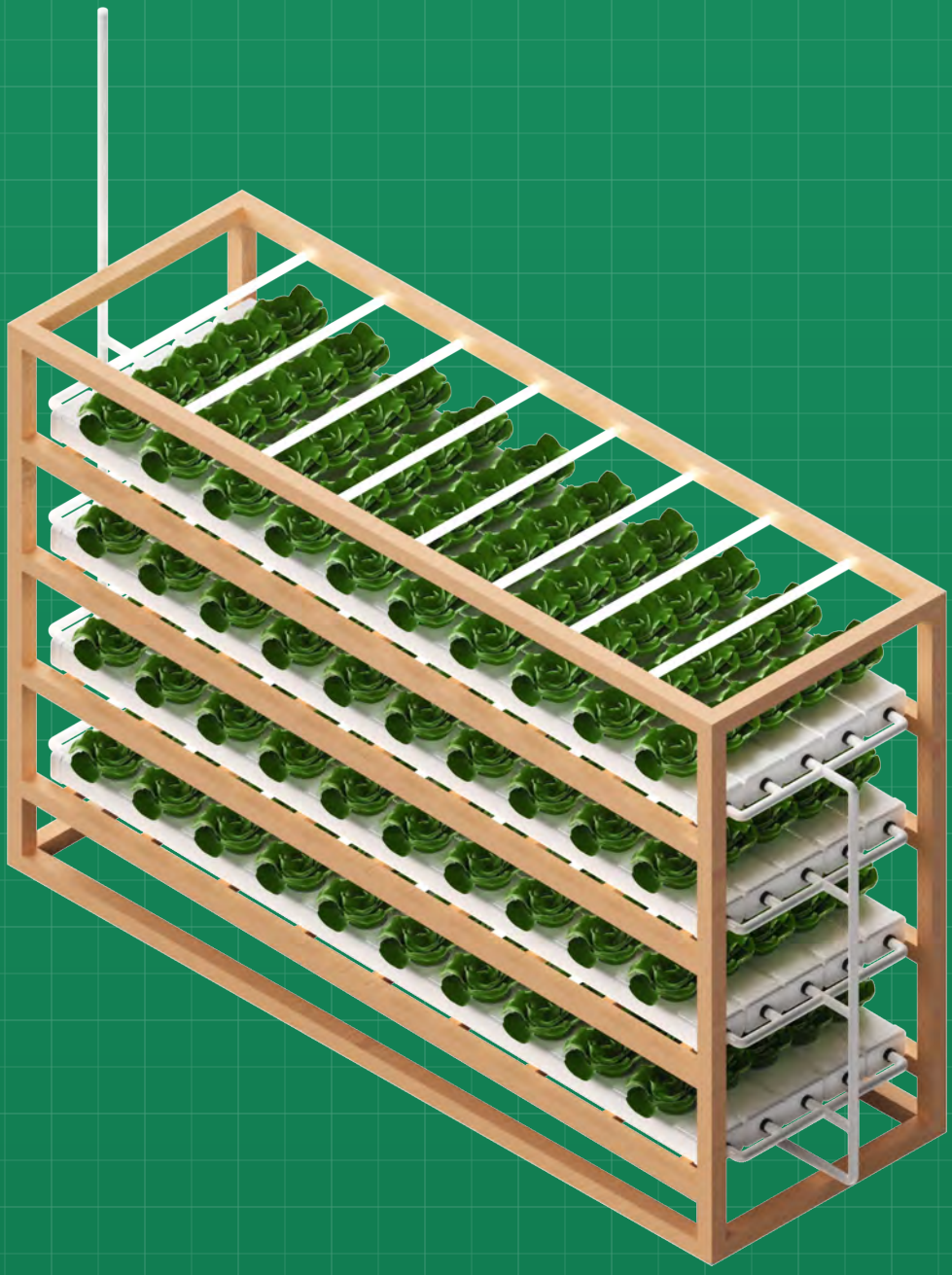
Nutrient Film Hydroponic Unit

Within each growing center lives a collection of hydroponic units connected in series. The growing units cycle a nutrient infused water solution over the roots of the vegetables, eliminating the need for land and soil.

Each growing unit can produce up to 8 heads of lettuce per day in a 4’ x 10’ footprint.



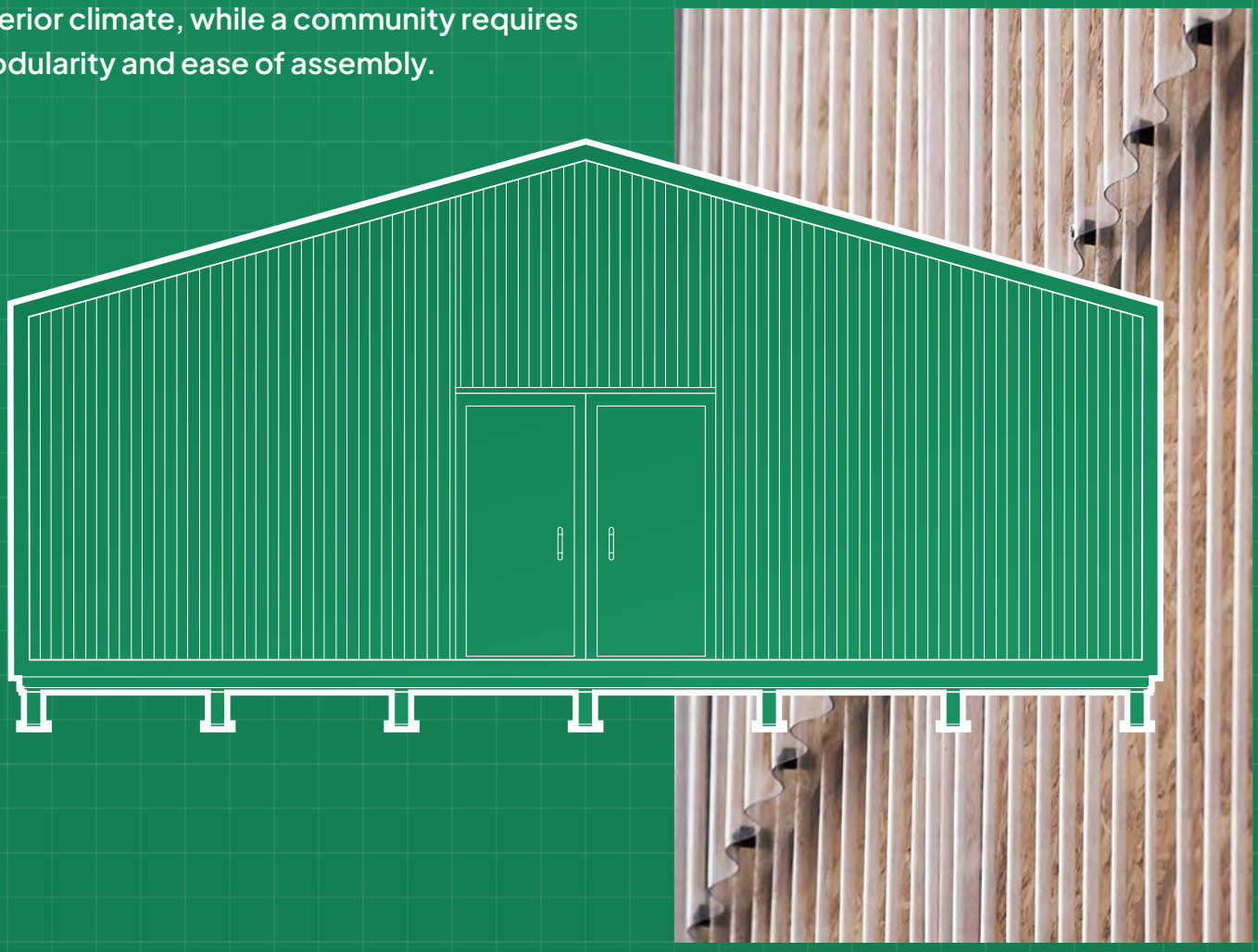
Nutrient Film Hydroponic Unit



Proposed structure for communal production.

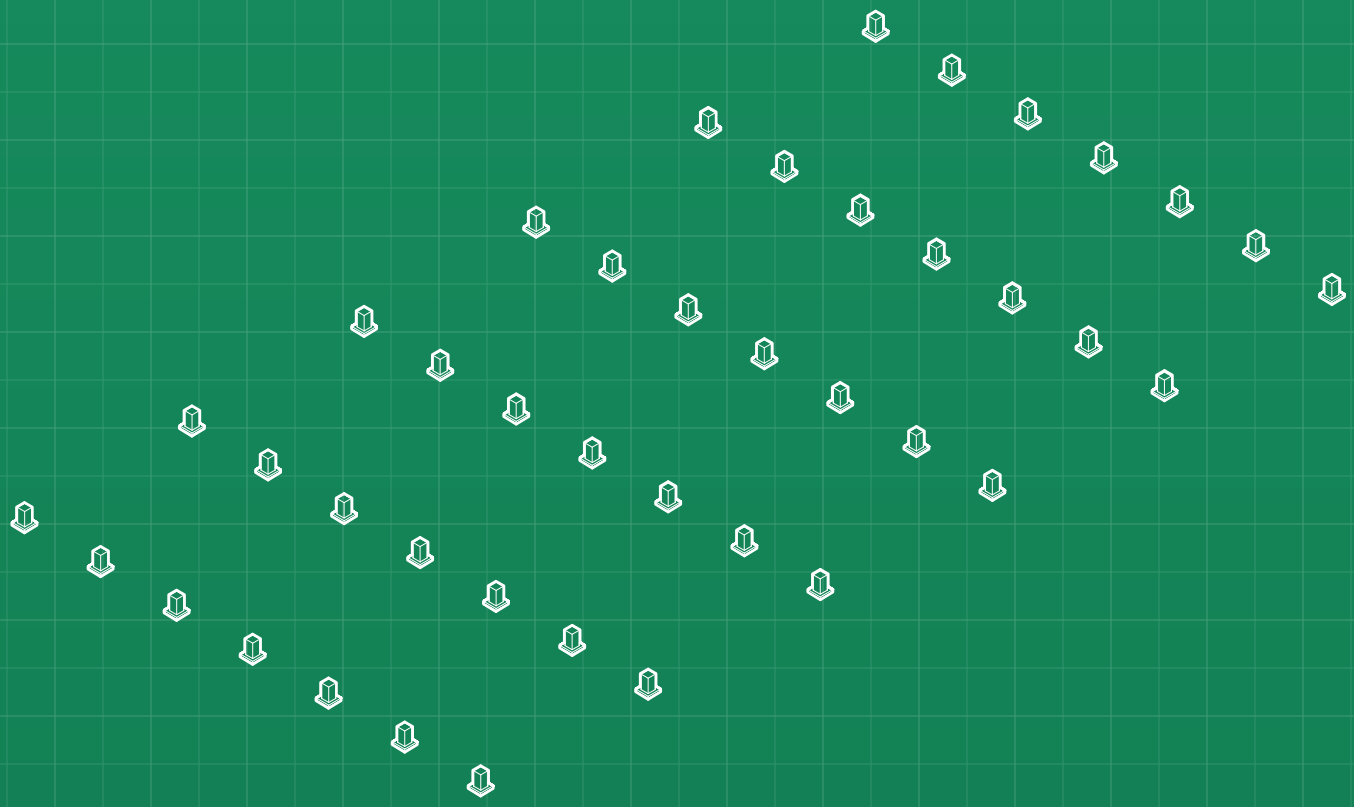
The design of this structure aims to work within the constraints and opportunities of food production at community scale.

The hydroponic growing units require a stable interior climate, while a community requires modularity and ease of assembly.



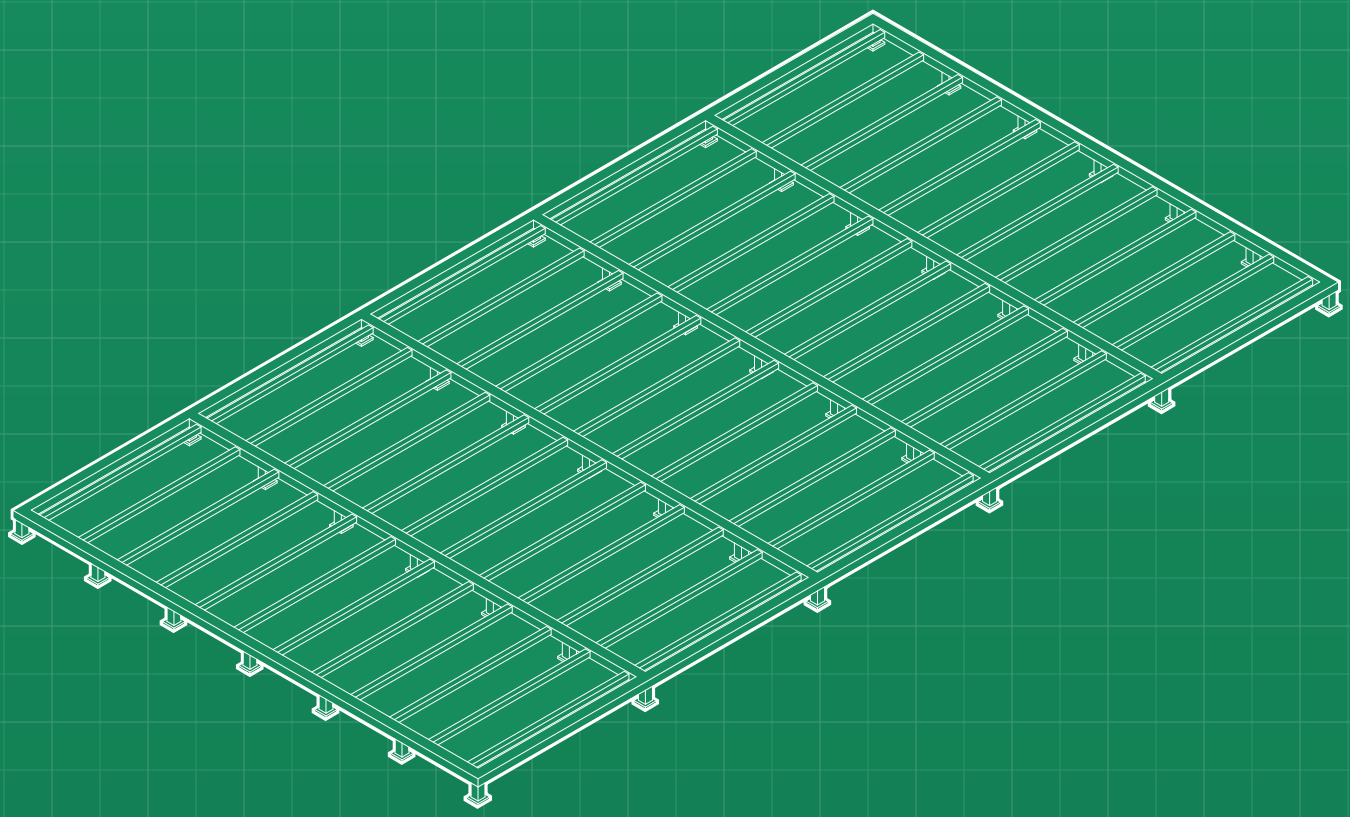
Structure

01 Footings



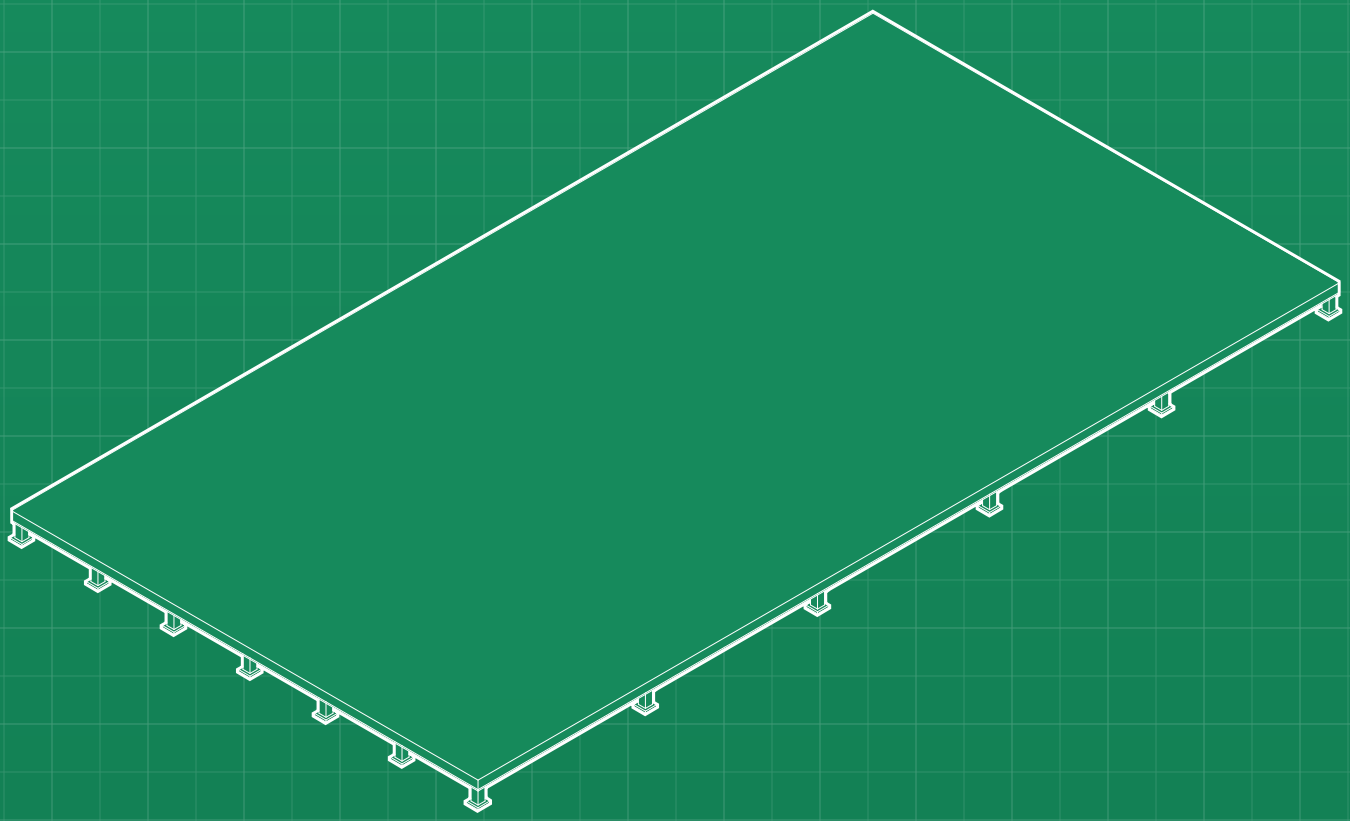
Structure

02 Platform



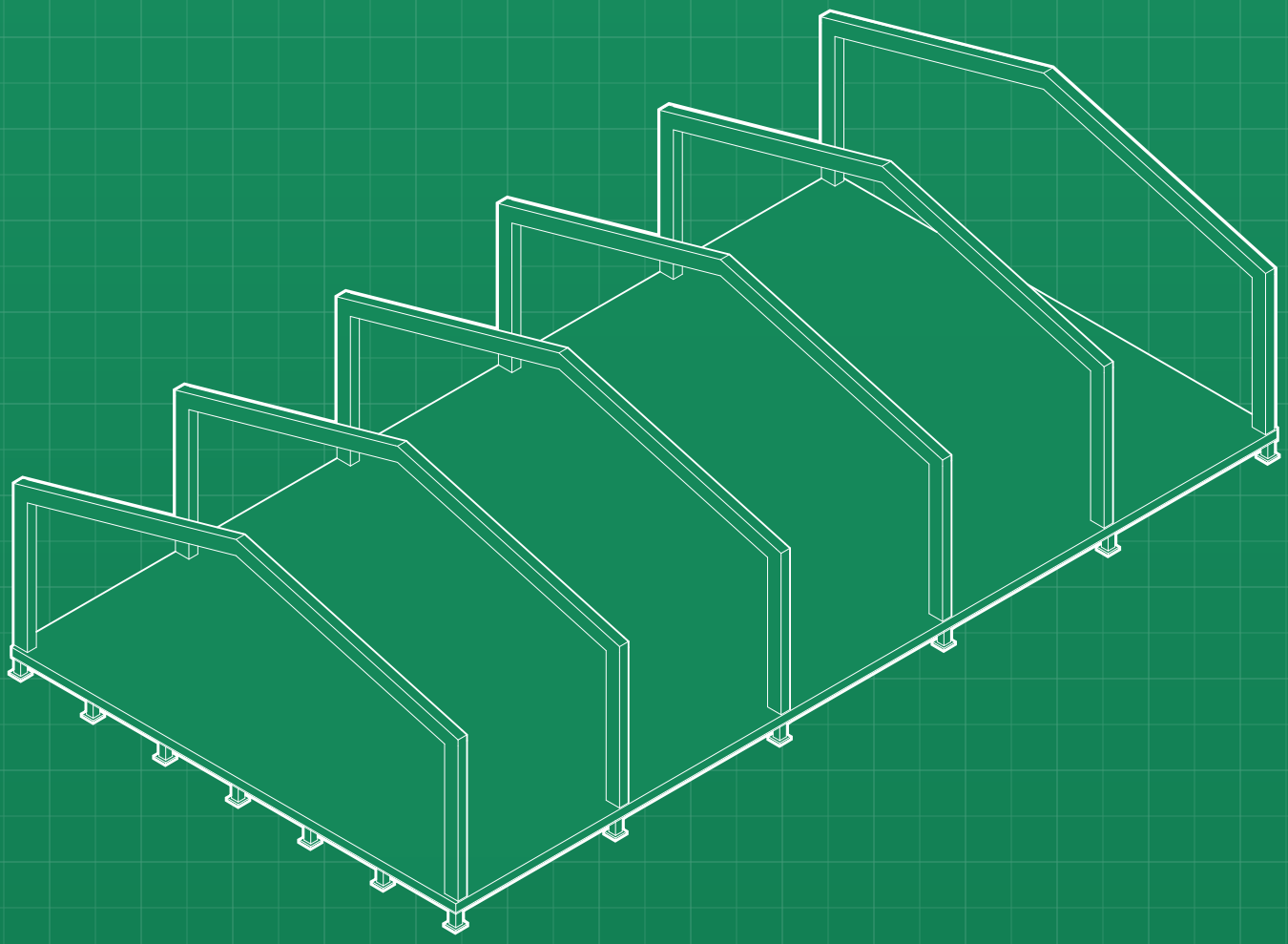
Structure

03 Flooring



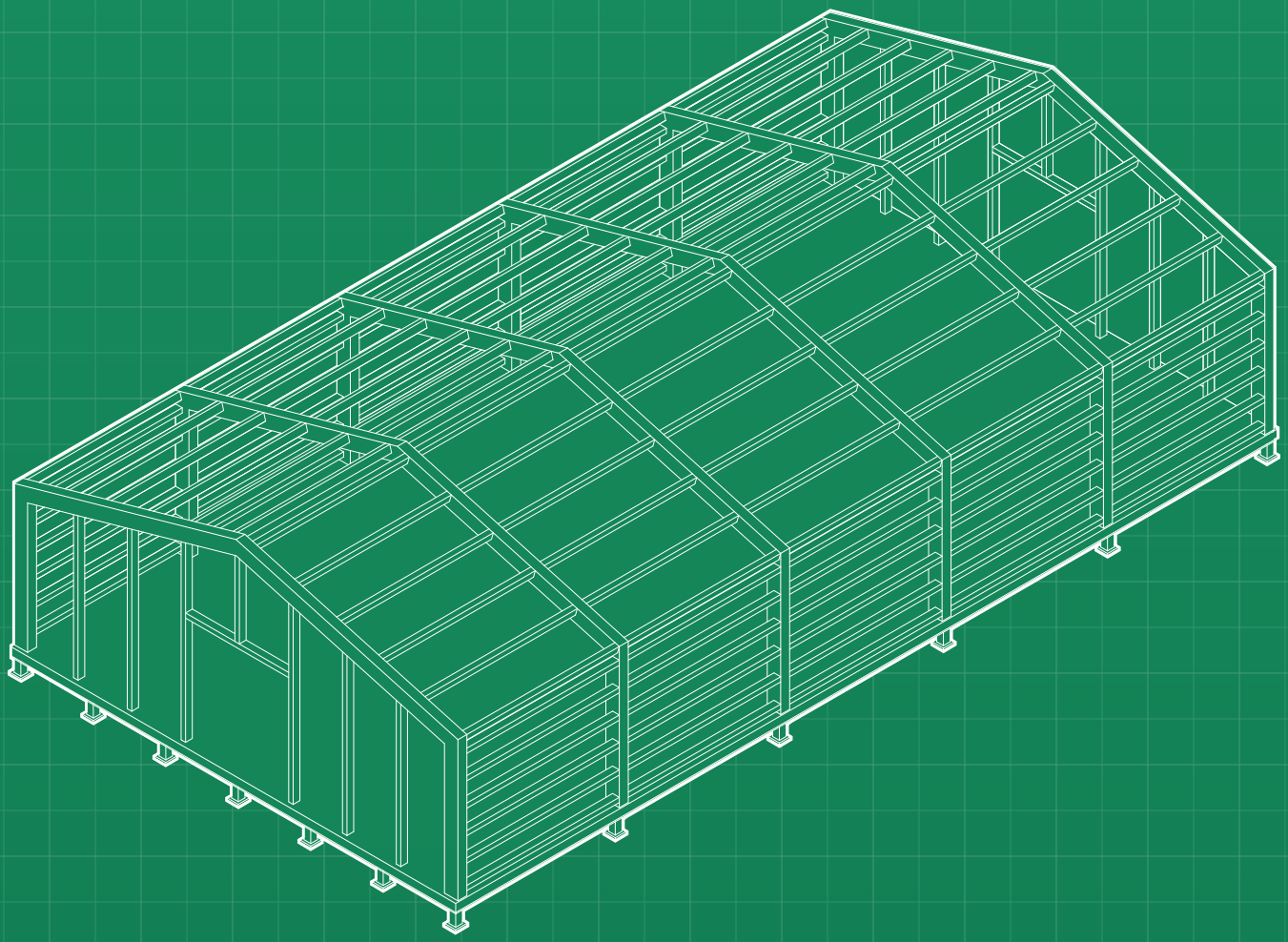
Structure

04 Posts



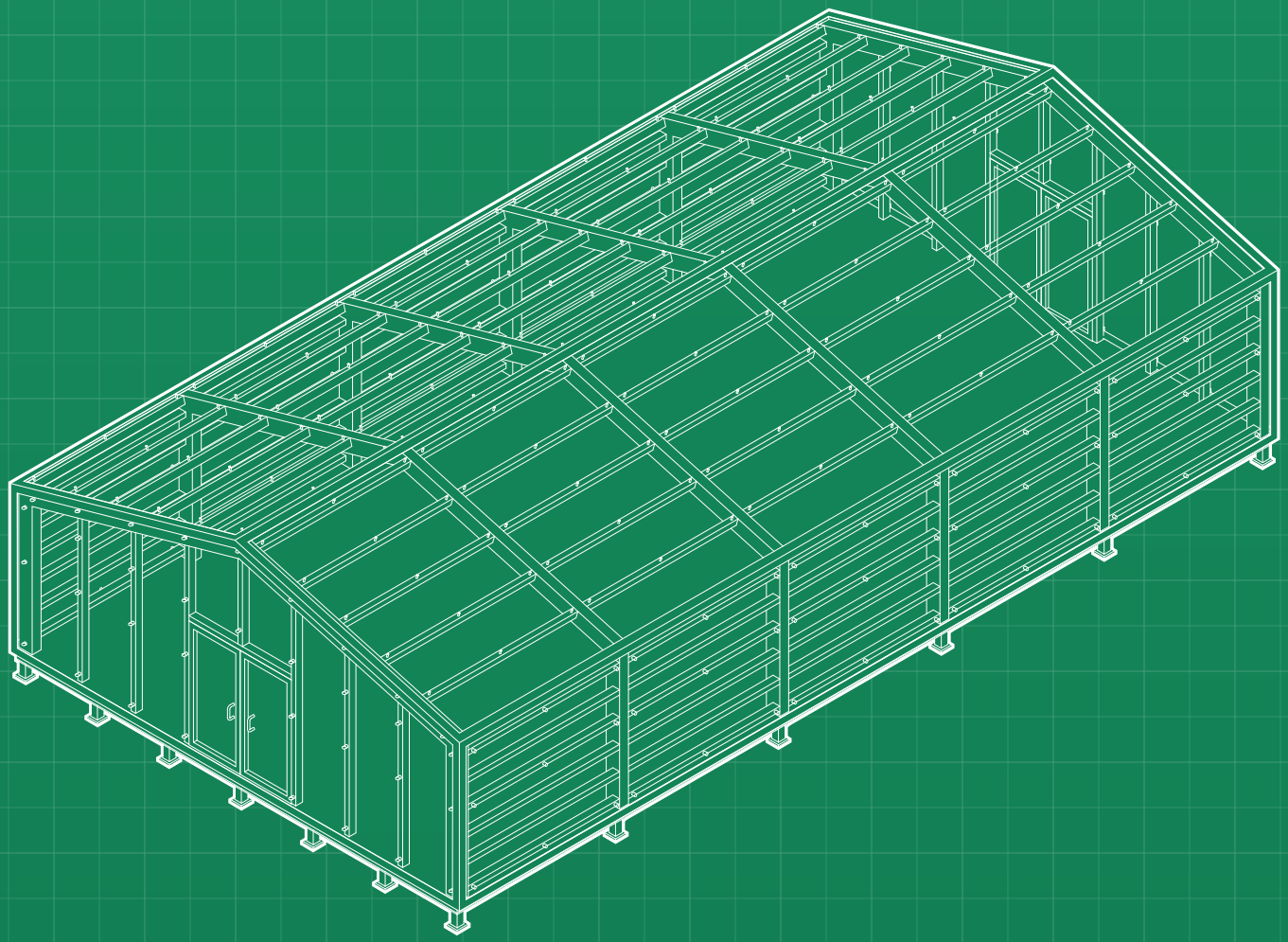
Structure

05 Framing



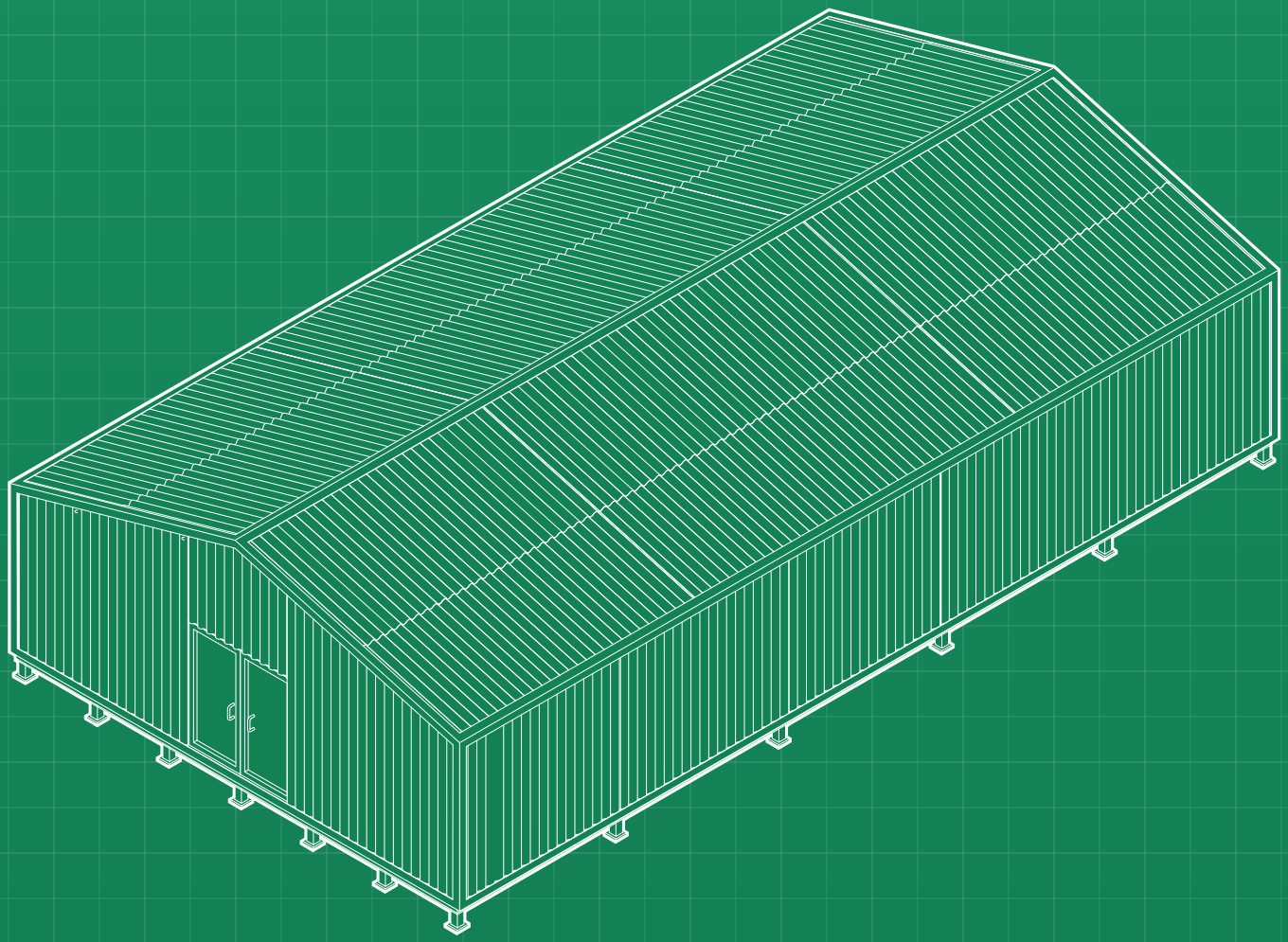
Structure

06 Hardware



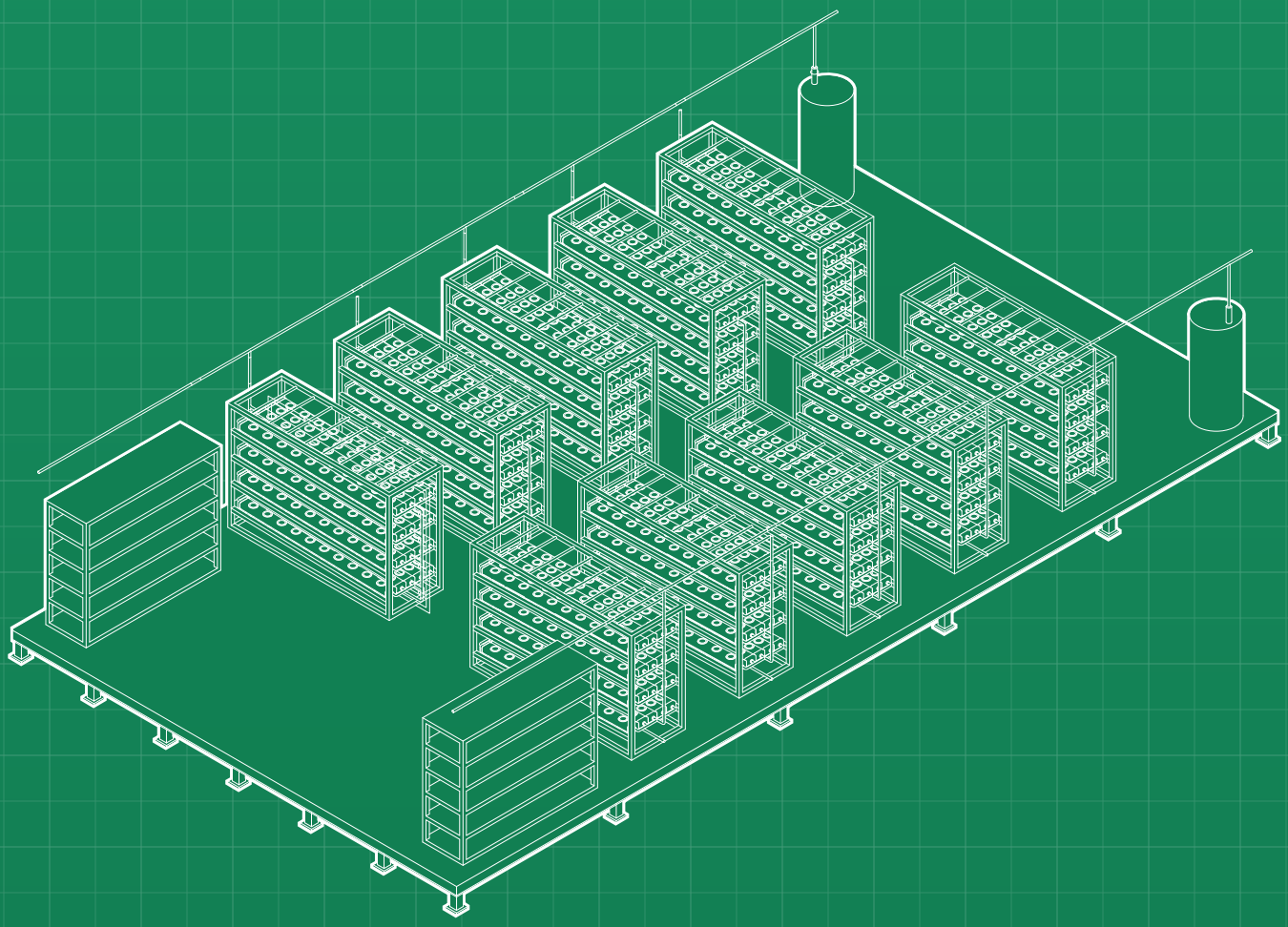
Structure

06 Skin



Structure

07 Production



Bibliography

1. *Food Justice, Hunger and the City* - Nik Heynen, Hilda E. Kurtz, Amy Trauger
2. *Governing the Commons* - Elanor Ostrom, 1990
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5. www.guernicamag.com/karen-washington-its-not-a-food-desert-its-food-apartheid
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7. www.nobelprize.org/prizes/economic-sciences/2009/ostrom
8. www.openstreetmap.org
9. *www.sciencedirect.com/topics/agricultural-and-biological-sciences/nutrient-film-technique*

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This report utilizes the Plus Jakarta Sans typeface, available for free on Google Fonts. Graphics presented here were generated using Rhino3d, Grasshopper, Keyshot3d, Adobe Illustrator, and Adobe Photoshop.