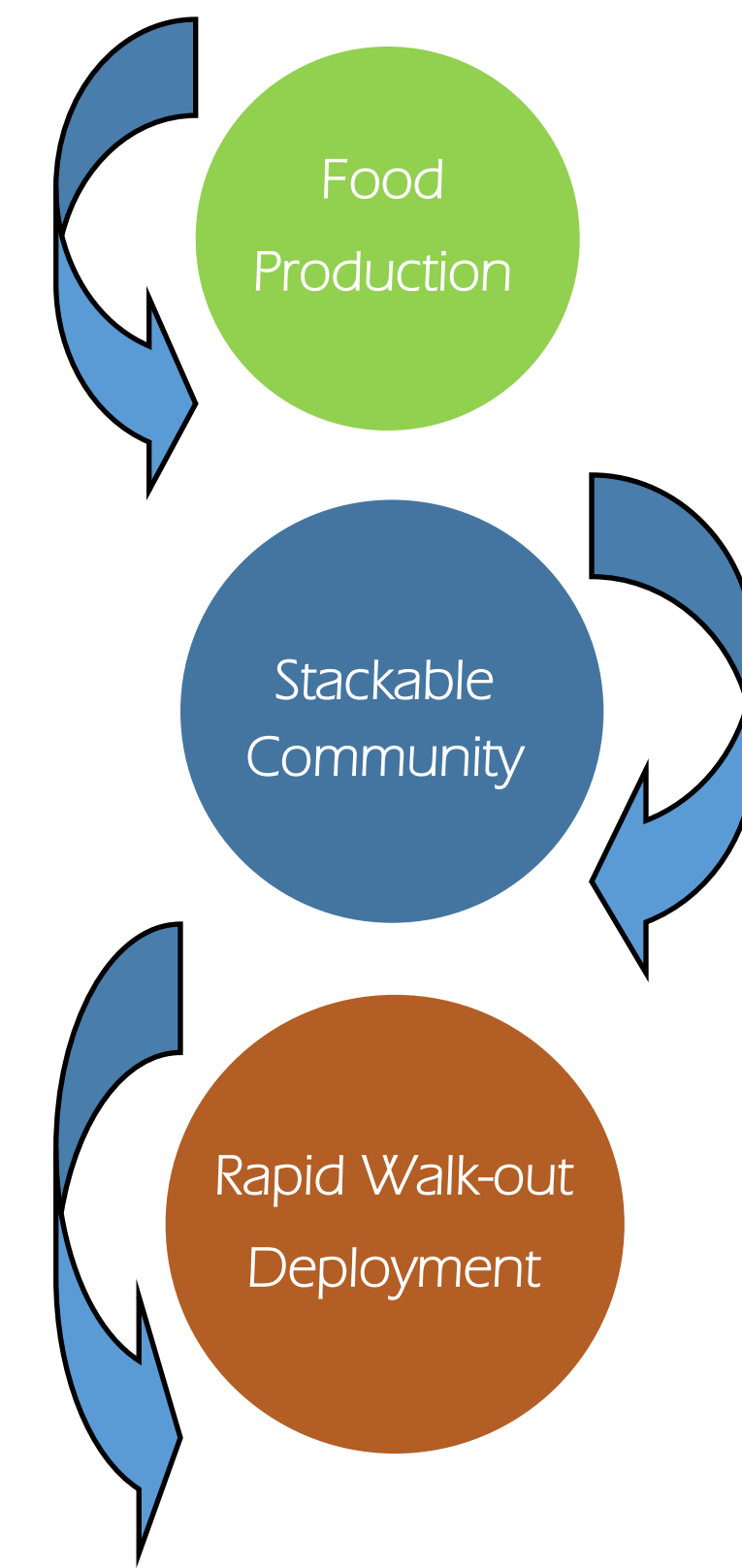


# Rapid-Deployment Truss Shelter Community

By: Scottie Manners



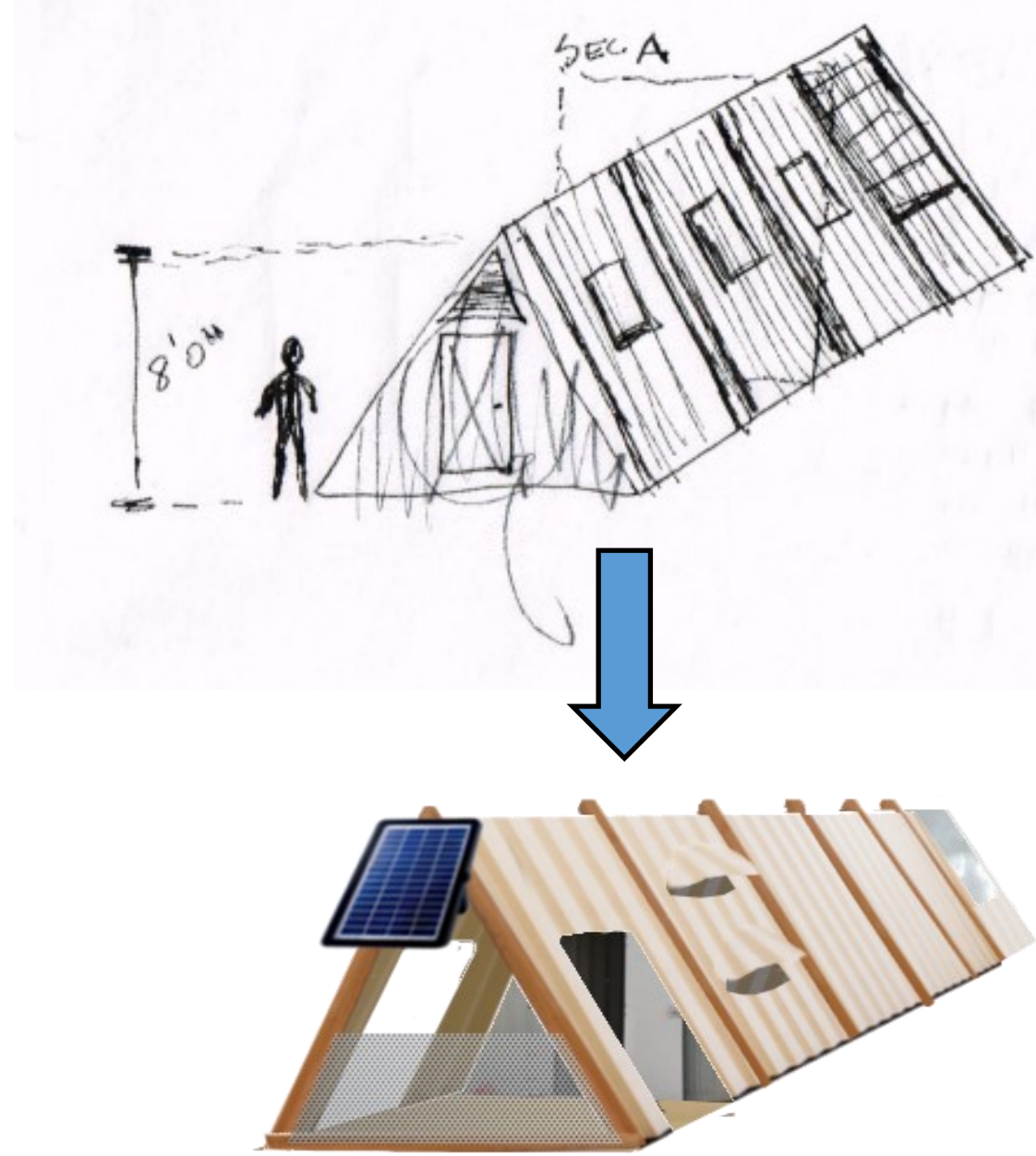
## The Problem

- Millions of refugees displaced from homes and countries every year
- Refugee camps are crowded/running out of room
- Strained food supply and UNHCR support is spread thin
- Current shelters cannot withstand certain conditions like winters or are unbearable in the desert.



• Over 1 Million Syrians fled to Turkey and Turkish Government is running out of resources for the refugees including land and food

## Initial Design



## What's already out there?



## Modular Truss Shelter

- Easy to walk out accordion sections
- No Tool-assembly
- Modular, stackable, and light
- PVC Floor layer and insulation
- Greenhouse space
- Customizable inside and out
- Plumbing and electricity

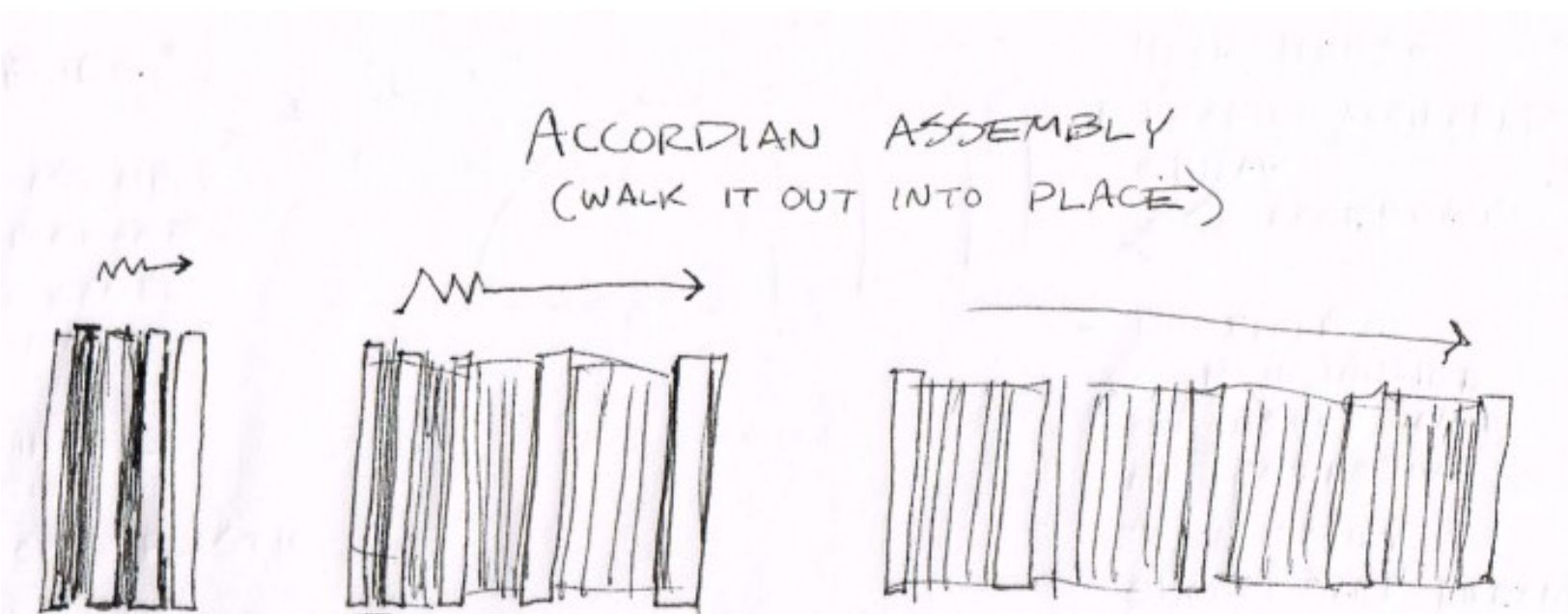
## IKEA Flat Pack Shelter

- Sold for \$1000
- No-tool assembly
- 300lb package
- No floor
- 3 yr lifespan of plastic shell
- 4 hr setup
- Ventilation and windows

## Canvas Hoop House

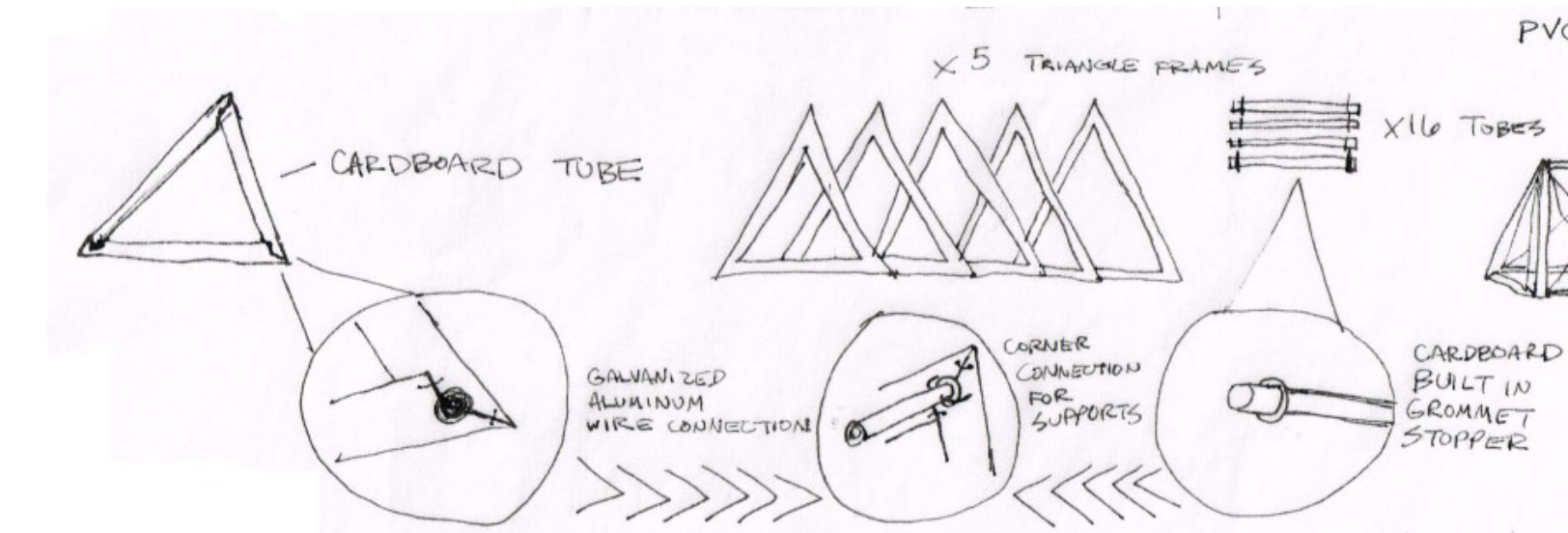
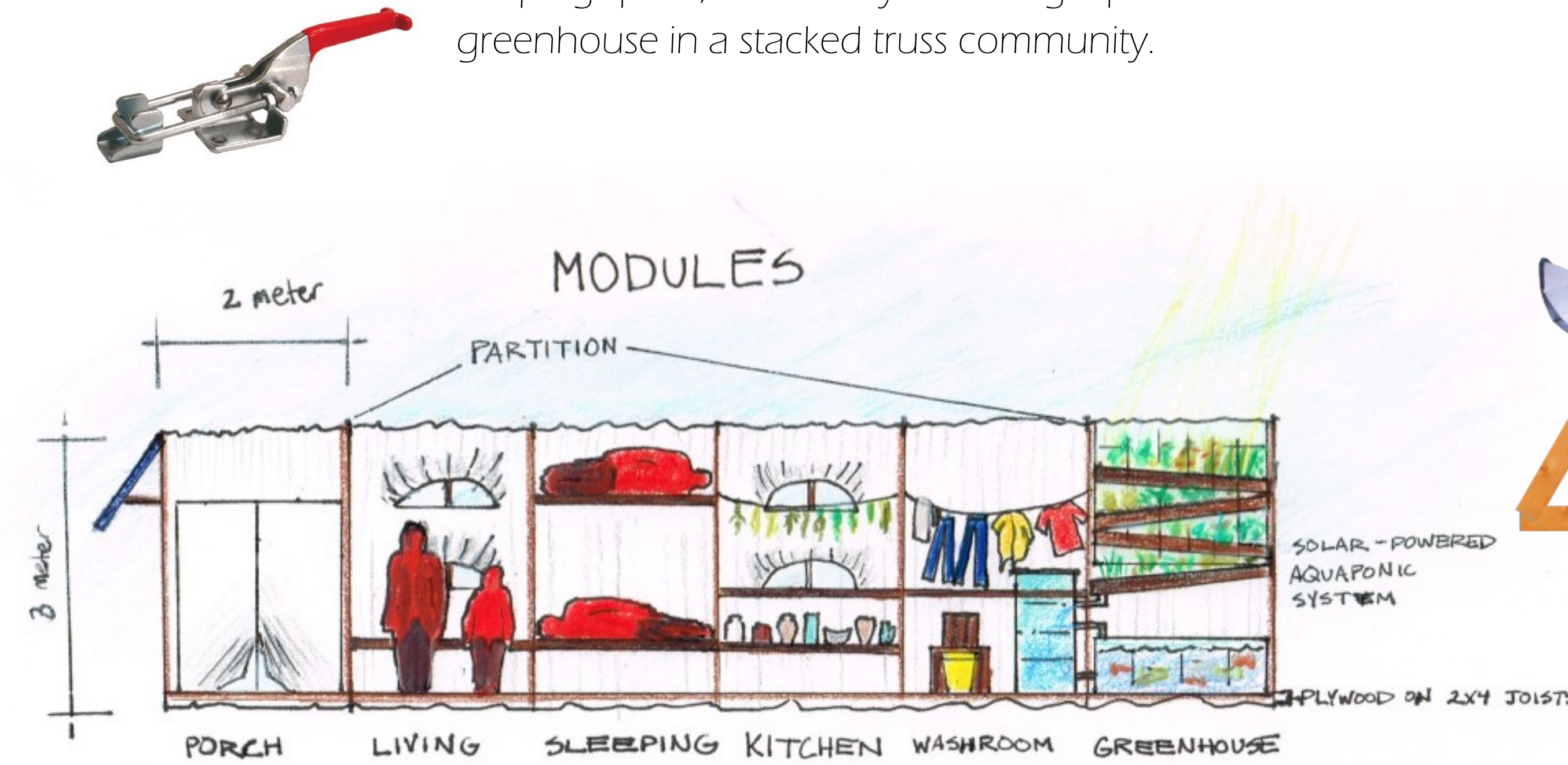
- Readily Available
- Assembly requires many people helping
- No floor
- Cold in winter
- No insulation or ventilation
- Torn easily
- Short tarp lifespan

2x6x10 Lumber	PVDF Shell	4*8 OSB	Solar Cell	55 Gal Drum	Aquaponics
\$5*10 boards	\$6*18 yds <sup>2</sup>	\$16*1	\$32*1	\$30*2	\$250*1
\$50	\$108	\$16	\$32	\$60	\$250
210 lbs	30 lbs	48lbs	11lbs	40lbs	30lbs
		Stock living/sleeping/kitchen	Porch	Washroom	Greenhouse
	Total Price	\$174	\$206	\$234	\$424
	Total Weight	288lbs	299lbs	328lbs	318lbs
				Total Shelter Cost	\$1386
				Total Shelter Weight	1809lbs



## Modular Living Components

Each "module" of the Truss Shelter is a 3x3 meter equilateral triangle by 2 meters in depth room. Each room simply snaps onto the next room with quick release latches, and a sealplate in between the 2x6's, and can add infinite modular possibilities to a shelter. Depending on the campsite different setups could be used. The idea of the modules is to provide a system for the occupants to choose from to make it their own. It can be as simple as just living / sleeping space, all the way to having a porch and greenhouse in a stacked truss community.

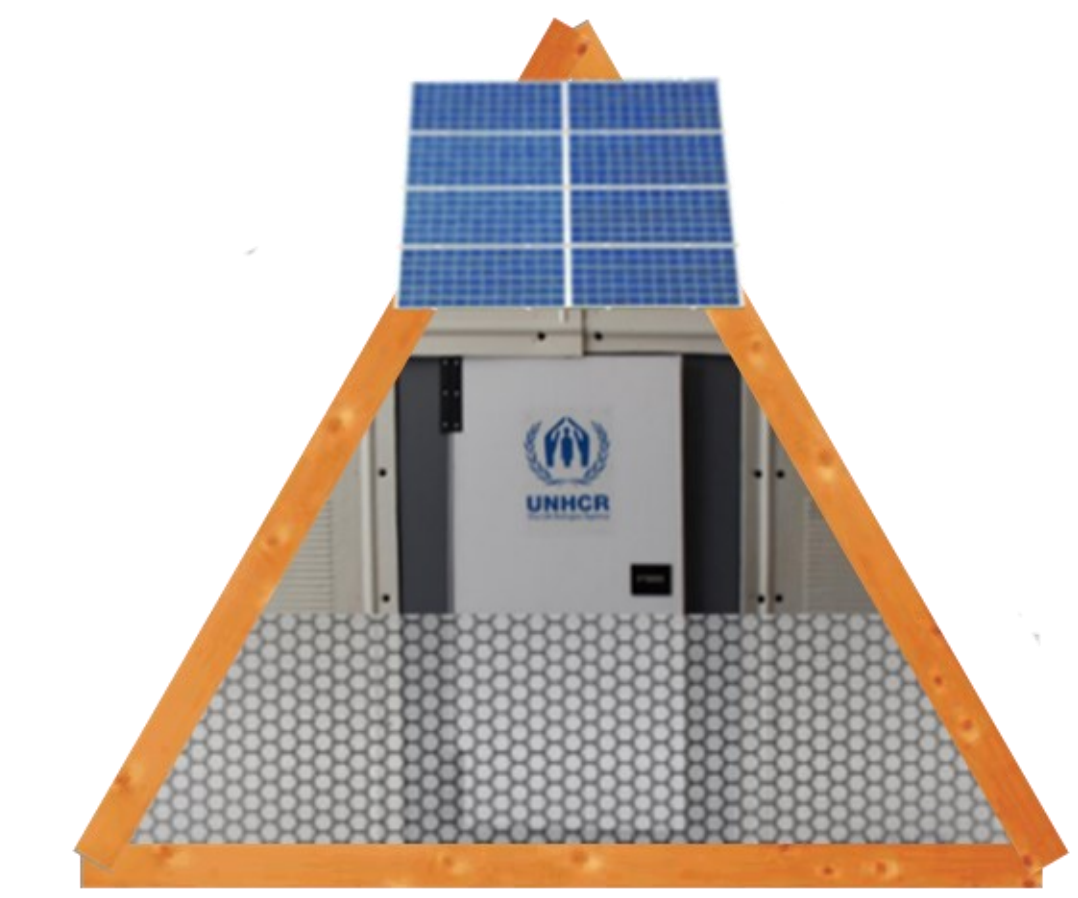
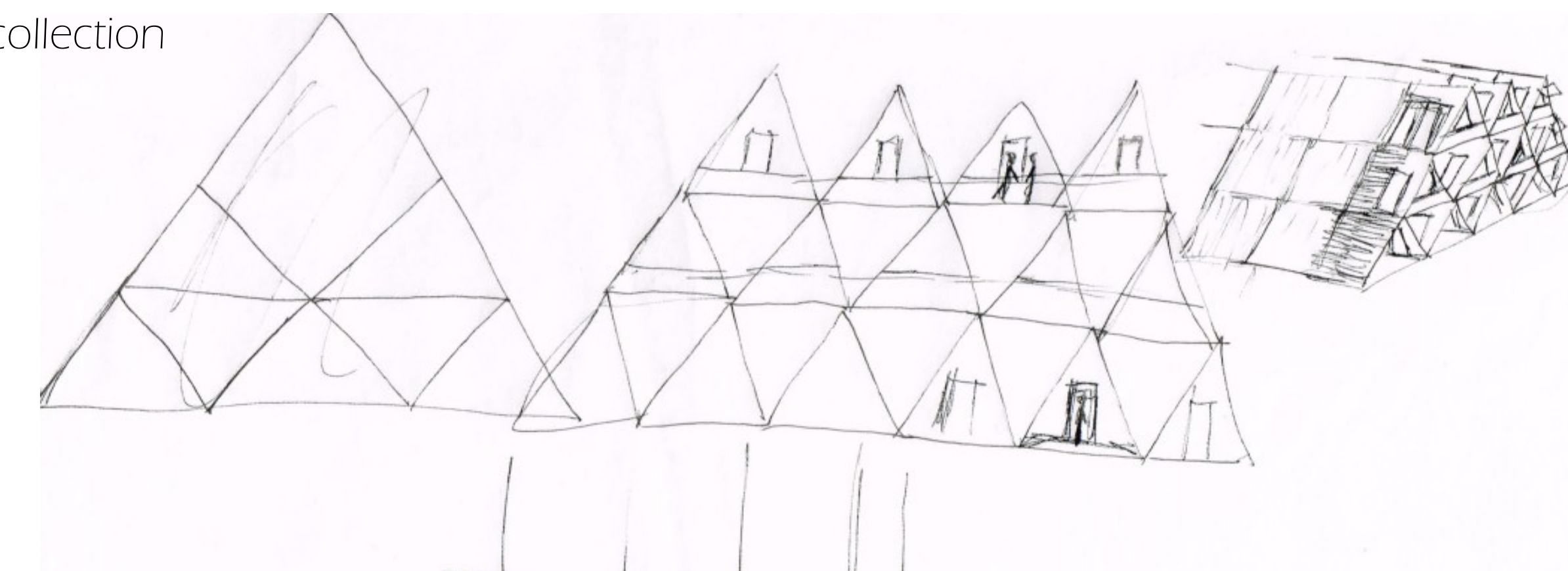


## Stackable Truss System



The Truss design of the modules allow for stackability. At each joint there is a hexagonal aluminum allow plate screwing each beam in. Stacking triangles is a strong durable truss geometry. The front porch on the upper levels become hallways to get to a particular unit from the ladders on the sides. Going 3 units high would significantly increase the capacity a certain amount of land can hold in a camp.

The triangle void between the trusses is open to opportunity and allows for more usable living space for things such as food production, more sleeping capacity, hanging clothes, wind and solar collection for battery banks, and water collection



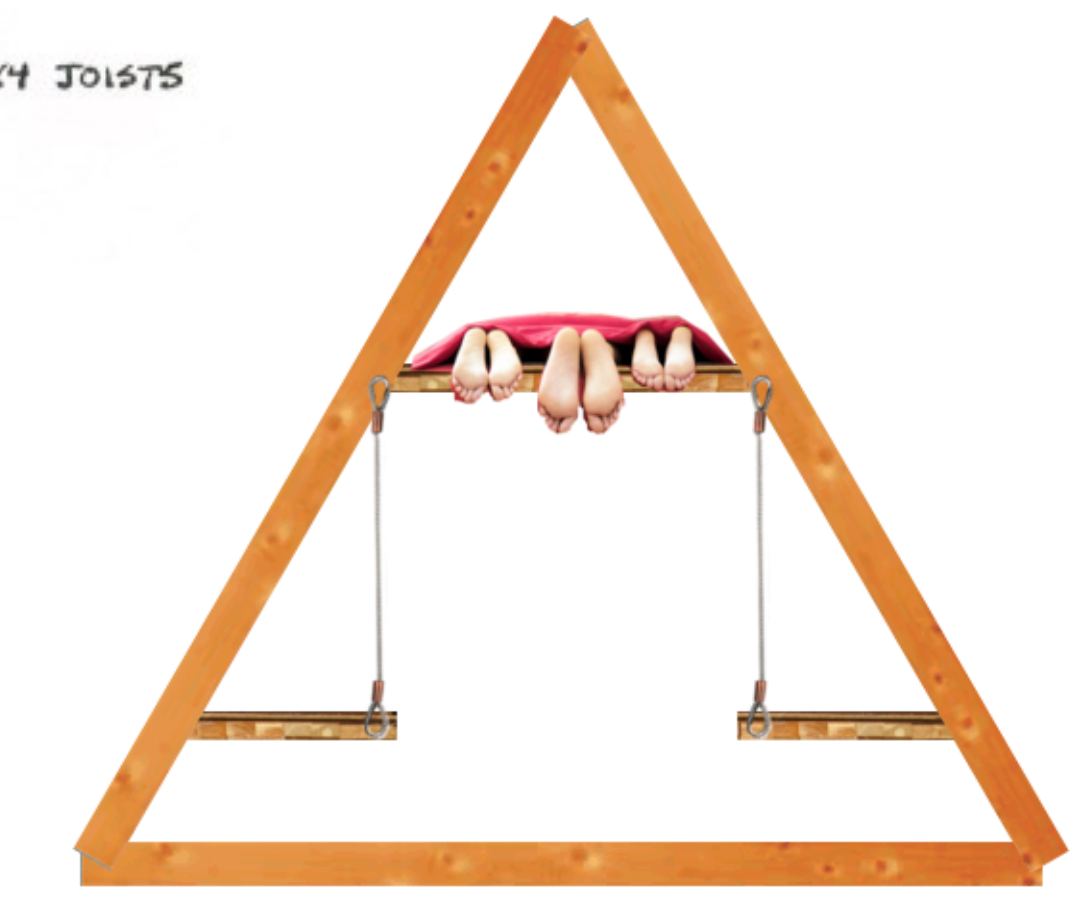
## Porch

The porch provides shade and a walk-through for the truss system when stacked



## Living

Stow away the hanging benches for more open space or fold down for sitting and sleeping. Cross ventilation from the windows helps cool down the place



## Sleeping

There is a loft space for sleeping, this can easily be done to the living space as well



## Cooking

The kitchen has a countertop height bar with shelving below for food, pots, and even a table fold out table



## Bathing

Bathing can be hooked up to inside or outside water reservoirs or the aquaponics system of the garden



## Food Production

The aquaponics greenhouse helps to ease the food shortage issue by growing food