

# Container Home Project

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# Collecting Information

# Who?

- Occupant: Nonbinary adult in their 30's with a stable income
- Our occupant would be a nature lover, and planned the container home as a sort of escape or vacation from the city to be immersed in nature
- With the start of Covid-19, they decided to use the container home as a work-from-home office.
- Our occupant is also an amateur astronomer, so they will use the roof for astronomy.
- Our occupant has enough money to buy land but not enough for an entire home, so they found a container home as a affordable alternative to an actual house.
- They want the house to fit one person comfortably, but also be able to fit a couple guests as well.
- Our occupant also enjoys learning to build new things and will happy contribute to building the container house.

# Who? Part 2

- The occupant spent want many neighbors and wants a very quiet neighborhood so he can be immersed in nature.
- Guests might be friends and family who probably just stay for a short time.
- The occupant wants a cozy, wood aesthetic to match the surrounding forestry.
- Though that occupant wants a lot of nature they also want to me close to a major metro area.
- In terms of emotional and physical needs, the occupant wants privacy, but in a low population area privacy is pretty easy to find.
- Our occupant also enjoys hunting.

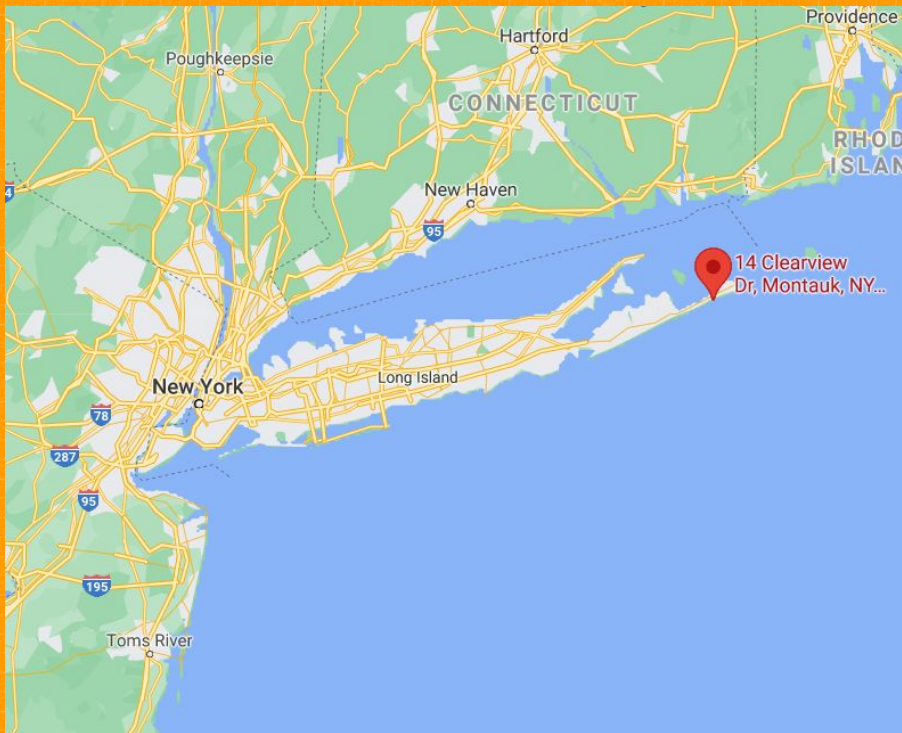
# Where?

- The container home would be located in a place surrounded by nature but at the same time within reasonable distance from a large metro area.
- **14 Clearview Dr, Montauk, NY 11954, USA** was the site we selected because it is in Long Island and is relatively close to NYC but is still forested, has nice views, and is near the beach.
- The weather conditions in this area are probably similar to that of the city's, with mild summers and colder winters. The only difference might be that it is more windy near the tip of Long Island, as it is near water.
- The plot of land is near a building on the right and is near a road on the left.
- It is in nature and near water, so it is probably very good for the health of the occupant and is relatively safe. Hopefully it will be constructed on site, as there seems to be a decent amount of space if some trees are cleared.

## Recycling the Container

- Since the container home is so portable it can be handed off to another person who needs a home.
- After its use has ended, the metal, fabrics, wood, and most other parts of the container house can be recycled.

# Where? Part 2



Location



Plot with Container

# What?

- One shipping container will have dimensions of 40ft x 8ft and putting two together will give us a space with the size of 40ft x 16ft.
- For insulation we will use a green form of insulation on the outside of the building to conserve space on the inside and to prevent health problems.
- On top of the insulation, recycled wood would be placed, giving a feeling of coziness.
- To make the inside more aesthetically pleasing, wood panels will cover the container's metal exterior.
- An outside terrace could also be built using recycled wood.
- Using recycled glass or a strong see-through plastic, an opening can be made on the roof, allowing light in throughout the day.
- Using recycled clothing, we can make an aesthetically pleasing interior with rugs and fabric wall coverings.
- Because of the surrounding wilderness and our occupant's enjoyment of hunting, we will have multiple animal skins and heads in the interior of the building.

# What? Part 2

- With enough self-education, most of the skills required for the construction of the home can be learned such as welding, plumbing, electrical wiring, insulation, etc.
- The container home should last a minimum of 13 years, since that is the average ownership period of a home in the United States of America.
- In the container home, we will have a living space, a kitchen, a place to sleep, and bathroom with a sink, shower, and toilet.
- The container home will be one large room with one foldable wall to provide more privacy if wanted. There will also be a wall between the bathroom and the main room.
- Our occupant can also use the top of the containers as a place to do their astronomy; when it's cold outside, they can use an opening in the roof to perform astronomy.



We Want A Similar Outside



# What? Part 3



Other inspirational container homes for our design.



# Why?

- The container will be used as a secondary home for the owner, a location to relax in for a short while and to work from home during the Coronavirus pandemic.
- It will be suitable for extended stays (over a week) for one person and for shorter stays with more people.
- It will convey an upper-middle class status as it will not look gaudy but not shabby either.
- It will also be very eco-friendly as it is created as a place to observe and enjoy nature.
- A shipping container will be used as a primary structure because it is affordable and convenient, as it also provides a good base structure for a residence.
- This housing is practical as it is re-using an existing structure (the shipping container) as a base, saving cost and resources.



# Why? Part 2

- Another reason we decided to use shipping container homes is because it has been done many times and there a lot of guides on how to build a successful one.
- Homes made from shipping containers are also becoming more popular because of the aforementioned reasons.
- Because of this increase in popularity a shipping container home can be viewed with value if the owner sells their land, meaning the owner can probably turn a profit on the land.
- This type of home is also easy to dismantle if the owner wants to build another house on their property and is significantly easier and less time consuming to build than an actual house.





# Brainstorming

# 1.

- Only 2 walls, one between the living space and bathroom which contains a shower, sink, and toilet only and the other wall will be a foldable wall cutting the living space in half allowing for a more private living area.
- The stove can be hidden away with a plate making it an extra counter.
- Windows can open to the outside allowing for shelves to be placed in the windowsill.
- Insulation can be placed on the outside of the container in the way of hungarocell allowing for a bigger interior.
- Houses should be built on stilts a little above the ground like 1 foot preventing water damage.



# 2.

- The entirety of the container must be painted in a rust protective coating.
- Using wood a terrace could be built on one of the sides
- Solar panels could blanket the top of the containers
- Inside of the container could stay metal or be plated with possibly wood.
- Shower head can function as a faucet for the sink.
- Using scrap glass or a strong see through plastic a sunroof can be created
- Windows on the side should be placed so that the sun shines in during sunset and sunrise





# Green Features and Solutions

# Solar Panels

Where?

- On the roof and side of the container house.

Roof

- The solar panels will cover the roof generating power throughout the day and storing excess energy in a battery so it can be used during the night. The batteries will be made from 18650 cells manufactured by Panasonic since these are what Tesla uses in its electric cars and provides a long use time before they become scrap.

Side

- Solar panels can also be put on the sides of the container home at an angle to provide a little extra energy. This part is not needed; it just depends on the energy use of our inhabitants.



# Solar Panels



# Solar Panel Heated Water

Where?

- Under the solar panels on the roof is heating and under the house is storage.

Under panels

- Solar panels produce a lot of excess heat when the sun shines on them. This heat can be used as a way to heat up water preserving electricity and also lessening the cost of the project. Water will be slowly run in a thin chamber under the solar panels during the day, this will heat up the water and cool down the solar panels increasing their efficiency.

Underground

- The heated water will be run underground in an insulated storage chamber so it doesn't cool down over the night. The size of this chamber will depend on the hot water usage of the individual.

# Windows for Natural Light

## Where?

- One window will be on the top, and one 40ft side will be almost completely a window and smaller windows will be on surrounding sides.

## Long window on 40ft side of container home

- A window will cover the entirety of one of the 40ft sides. This side will be placed on the east or west sides of the building so the sun always shines in through the day providing light.

## Smaller windows

- Smaller windows on the remaining 3 sides will be placed. We decided to not put full windows here since large windows are expensive and we don't want everyone to be able to see into the building. The bathroom will have a tinted small window higher up so people can't see in.

## Roof

- Surrounded by solar panels we will have a small to medium sized window on the roof for more light and a nice view during the night.



Possible examples of windows.

# Rain Collection for Water

Where?

- Roof

Roof

- The solar panels on the roof will be slightly tilted inwards so when it rains the rain funnels into the center of the solar panels, the window on the roof. Here we will have a collection area for the water which will be stored outside the house or underground.



# Composting

Where?

- Outside and Underground

Outside

- Organic compounds can be composted in the outside composting bins, preventing food waste. The compost can be used to fertilise plants around the container home or possibly sold to other organisations.

Underground

- Rather than connecting our home to a sewer and sewage system it is much more cost effective and better for the environment to compost human excrement. The toilet rather than leading to a sewage system leads to a unger ground composting area. The compost can be sold or used for gardening around the container home.



# Alternatives to Styrofoam Insulation

Where?

- House insulation and hot water insulation

We first planned on using styrofoam insulation but realized that it was very bad for the environment. Here are some alternatives.



Aerogel



Greensolute

# Alternatives to Styrofoam Insulation 2



Sheep's wool →

← Cellulose



← Hay Bale

Denim →







# Floor Plan

