

Base Ideas

- **Luxury Modular Off the grid portable housing**
 - Sustainability
 - Renewable Energy
 - Solar Panel Rooftops / Personal Wind turbines.
 - Self-sufficient
 - Archiblox is a popular modular home creator check them out for ideas
 - Carbon Positive?
 - Green Room (provides thermal insulations?)
 - Use lots of natural light to save on energy
 - Maximise Nature / Outdoor Experience
 - Modern
 - Use different materials but keep monotone in a way
 - Simplicity
 - Have multiple options
 - Catalog of different kits
- **Underwater Housing / Floating Home?**
 - More in the realm of science fiction
 - Check out Poseidon Undersea Resort
 - Water Discus in dubai
 - H2OME
 - Must be structurally sound
 - How Deep underwater would it be?
 - Location is important
 - Lots of glass for views, but also don't make residents feel trapped
 - Compressed air (needed so flooding is not possible)
 - How would the entrance work?
 - Lifespan of the building?

- Modern Resort
 - Topic of the resort?
 - Ski lodge
 - Water
 - National Park / Forest
 - Large or small resort?
 - Budget or Luxury?
 - Public Eating Area / Kitchen
 - Facilities and space for crew.
 - Location?
 - Outside of USA?

Chosen Idea

Luxury Modular Home

Want I want to accomplish

- Modern look
 - Sleek, black, curvature / geometric look
- Self-sufficient
 - Catch own rain, space for garden. etc...
- Renewable Energy
 - Solar, wind turbines, etc.
- Luxury Housing
- Multiple Options / Designs
 - Have different starting designs; small, medium, ...
- Needs to be durable and fit for most environments
- Multiple Modular Add-ons
 - Add extra storage, larger bathroom, bedroom, kitchen, etc.
- Incorporate a lot of nature into the structure
 - Stay Carbon Positive

- Possible indoor garden or usage of plants as decoration
- Keep small but spacious inside
 - Don't make it feel claustrophobic
- Lots of Natural light
 - Openable windows enabling use of outside space
- Possibly incorporate Bio - Producers in the building
 - Waste products to turn into fertilizer

Possible Materials

- Cement (Structurally not decorative)
 - Durable, good with thermal insulation
- Dark Wood
 - Good for outside use, possible used as a material for any balconies / decks.
- Aluminum
 - Minimizes weight to the structure
- Steel (Structural)
 - Used recycled materials for Pro-Green living
 - Incredibly durable
 - Really Heavy
- Bamboo Plywood
 - Good for interior use
- Low E Windows
 - Keeps Heat inside and out

IMPORTANT THINGS TO REMEMBER

- Solar power not extremely effective
 - Solar hot water is a thing
 - Can not be flat on the ceiling, must be facing the sun for efficient use.
 - Need to have storage space for the batteries
- Housing must be compatible in multiple environments

- Water tanks are big
- Keep everything renewable
- Bio Converters, and solar water heaters are very bulky

Good Resources / Inspiration

<https://www.curbed.com/modular-prefab-homes>

<https://elemental.green/18-inexpensive-sustainable-homes-almost-anyone-can-afford/> ← Some Inspiration

<https://www.coodo.com/>

<http://www.genaq.com/water/> water from air PogU

<https://www.curbed.com/2019/7/10/20688718/modern-house-hurricane-resistant-plastic-bottles-jd-composites>

Home Built Out of Recycled Plastic. Could be good material to use

<https://www.networx.com/article/how-many-solar-panels-does-it-take-to-po> ← Needed Info to determine how many solar

panels I will need

- <https://www.wholesalesolar.com/solar-information/battery-bank-sizing> ← Info on Batteries

<https://www.eesi.org/papers/view/fact-sheet-biogasconverting-waste-to-energy> ← Biodigerster (Possible source of energy and natural fertilizer.)

<https://database.passivehouse.com/en/components/>

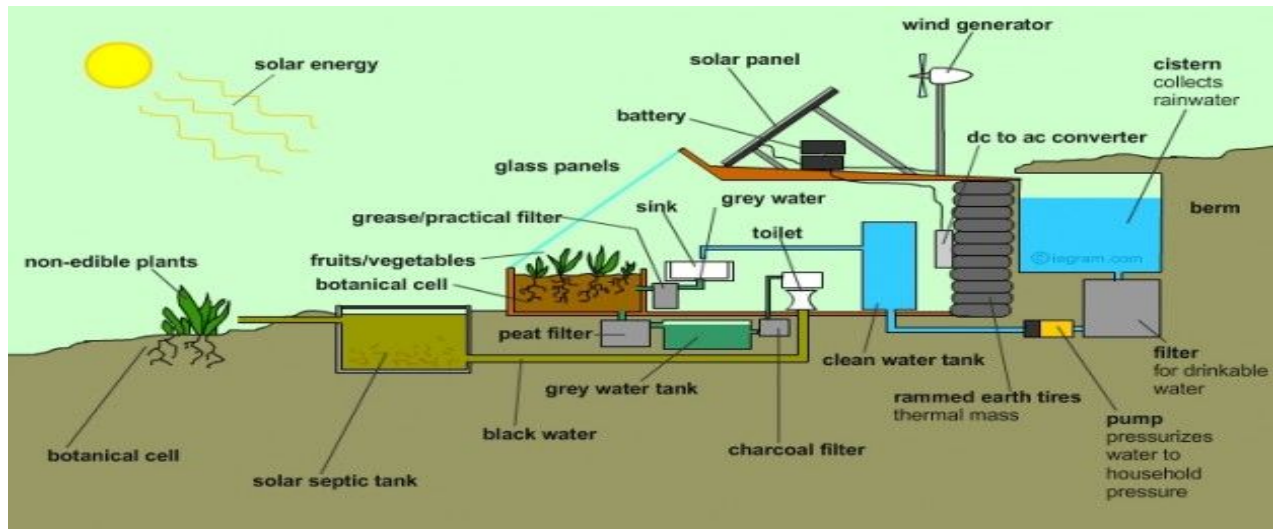
Super energy efficient

<https://www.highstuff.com/energy-efficient-building-materials/>

List of Energy Efficient Materials

<https://www.conserve-energy-future.com/methods-of-rainwater-harvesting.php> Rain water harvesting

<https://www.godownsize.com/tiny-house-weight/>
Average weight of a tiny house



KERCHUM RESIDENCE LEED for Homes Certification: LEED Platinum

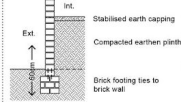


> The House

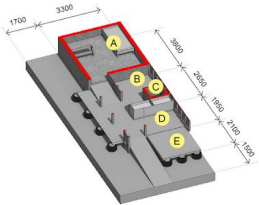
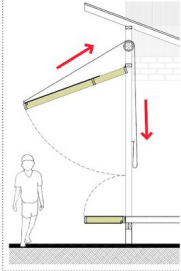
Raised roof allows for cross ventilation, keeping the room cool.

Tree and other plants provide natural shading and barrier to rain and wind.

Solid compacted earth with brick veneer provides stability to DRY area.



Operable walls not only provide shade to the inside of the house and the garden, but also expand the occupiable communal space. Each wall panel is individually operated.



- A Private space
- B Accessible Shower & Toilet
- C Water Tank
- D Cooking space
- E Extension

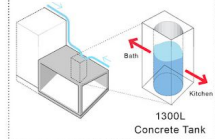
Potential location for future installation of roof plants or solar panels.

Gutter takes rain water into the watertank.

Replacable wall panels. Windows open individually.

Brick walls provide increased resilience to the elements and stability to support level above.

1300L water tank located centrally within the WET area to provide water to kitchen and bathroom.

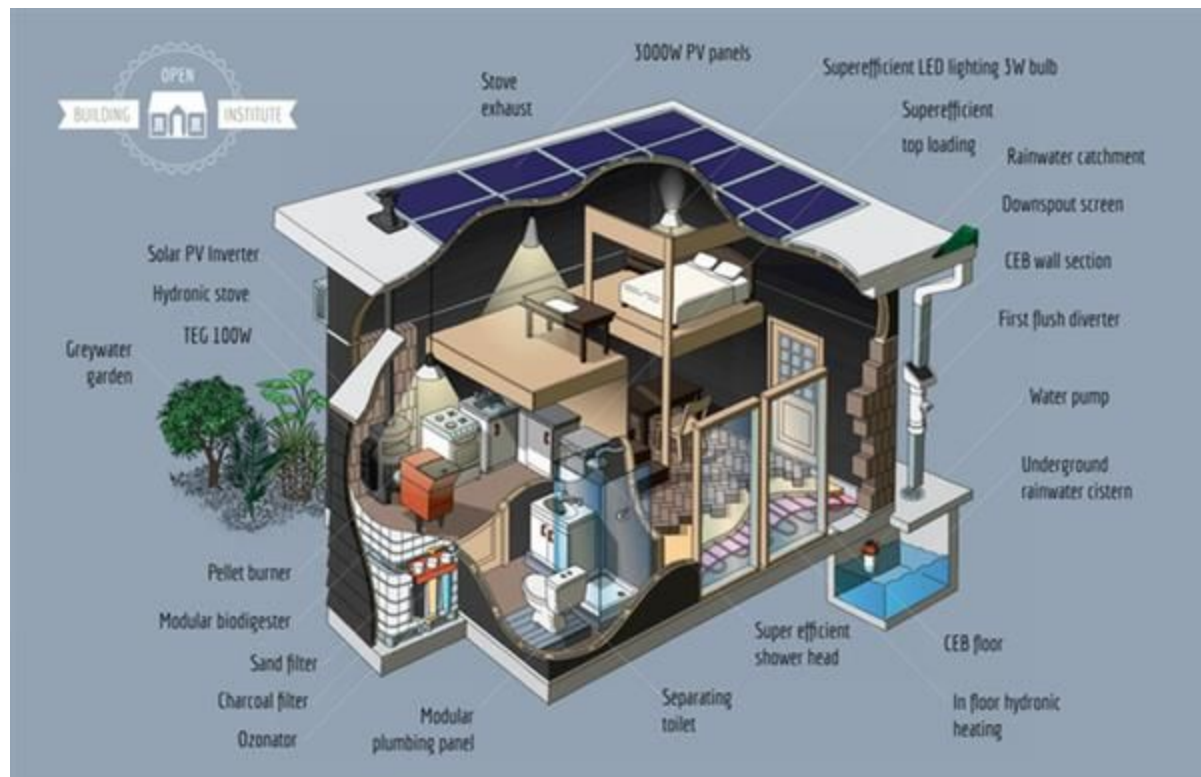
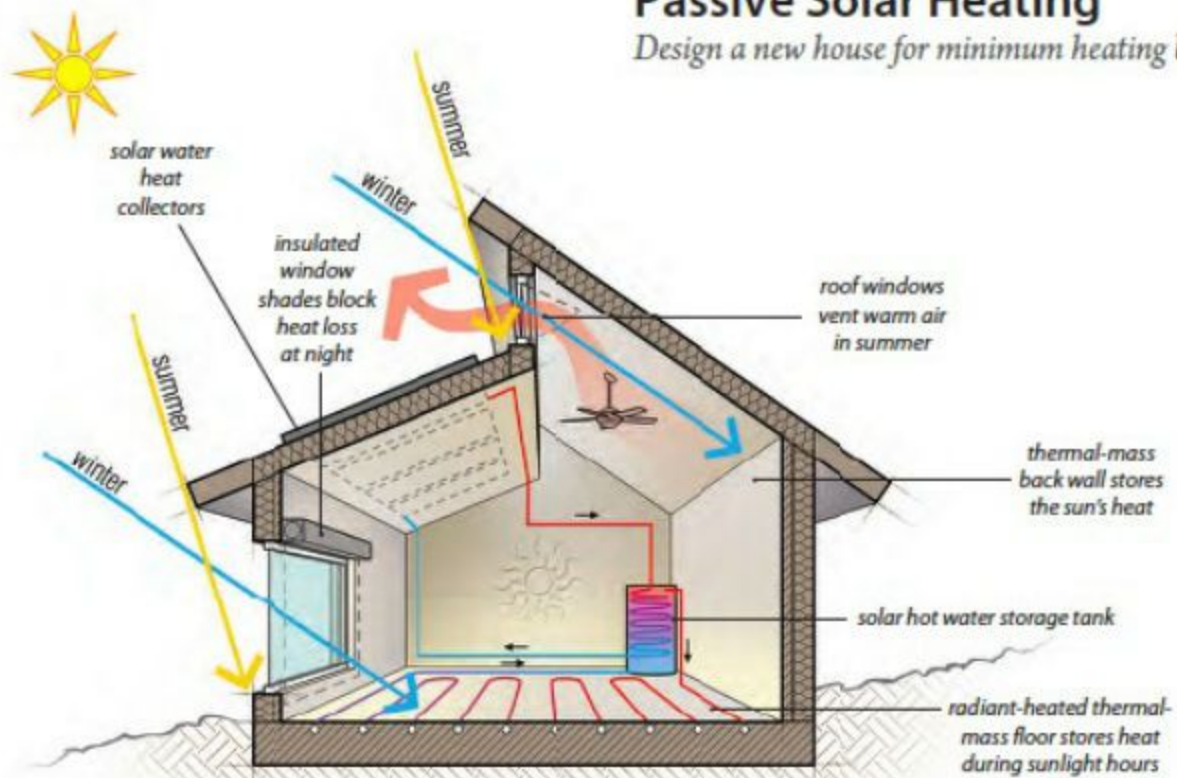


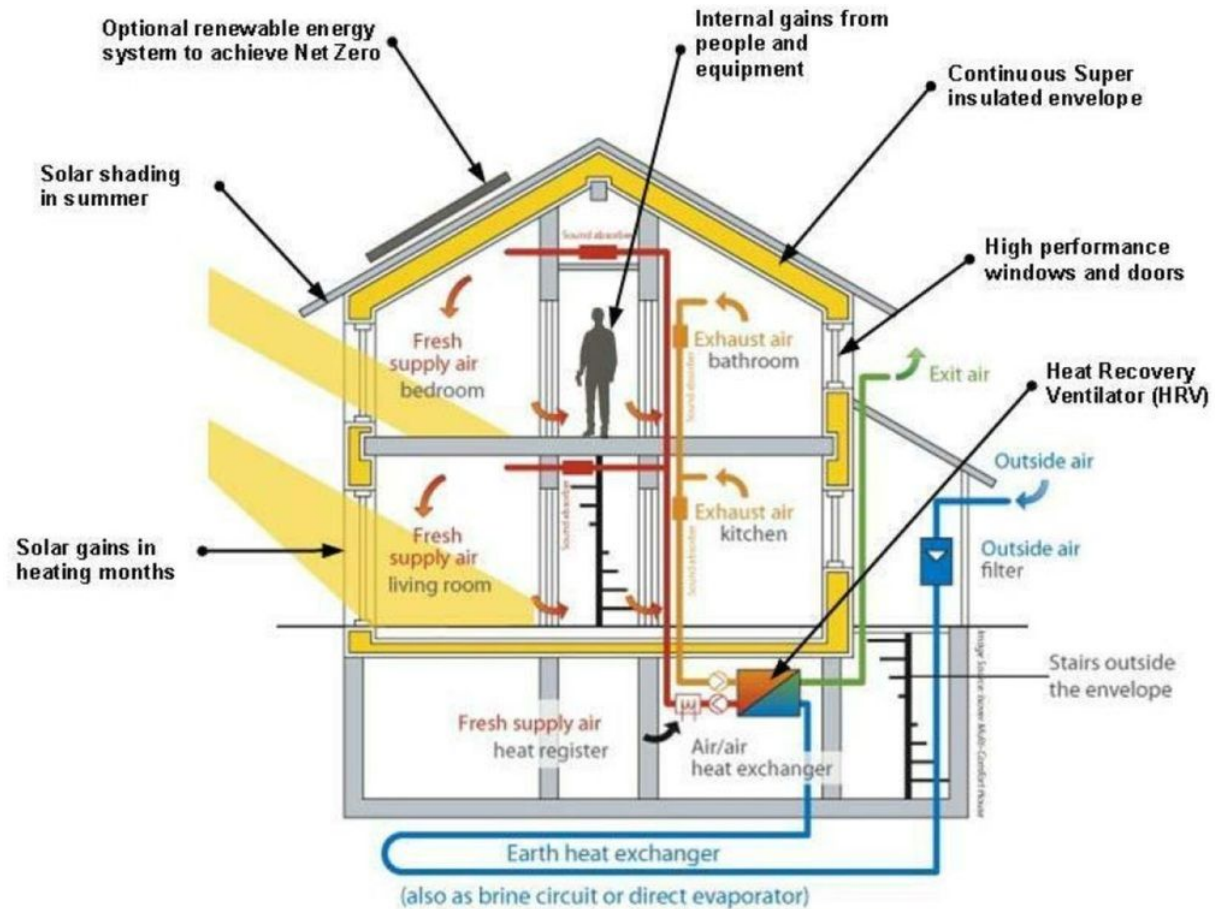
Front wall swings downward to extend common area to the outside and provide a ramp into the house. Walls will fall on to a set of used tyres packed with earth.



Passive Solar Heating

Design a new house for minimum heating bills





Passive House Diagram