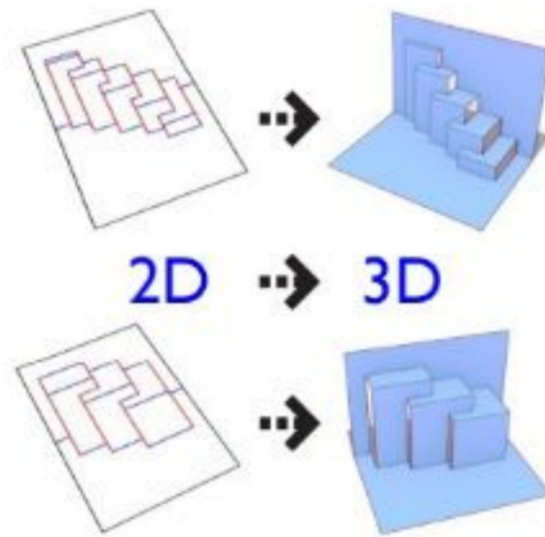


C² EMERGENCY SHELTER

CUT AND CREASE EMERGENCY SHELTER

This design is an investigation into a prefabricated deployable emergency shelter that comes in a flat pack. The intention of this conceptual shelter is to replace the traditional refugee tents and provide a habitation which is more comfortable and closer to a permanent home. The reason being that these "temporary" abodes can be used from a period of 5-months to upto 5 years! The challenge was to

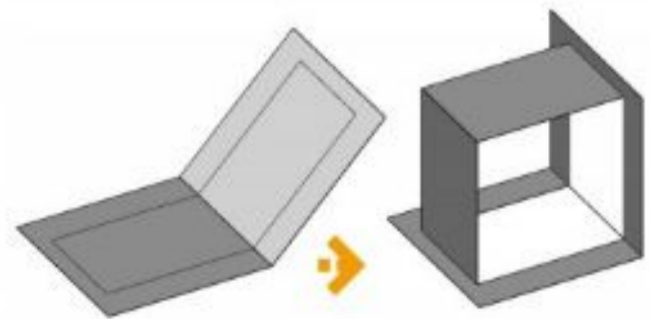
conceive of a design that is easy to set up without prior knowledge of construction or the availability of special tools. The idea was taken from pop-up cards that once opened, sets up the house for a family, containing all the essentials for living. It can be packed up just as easily and reused for another location.



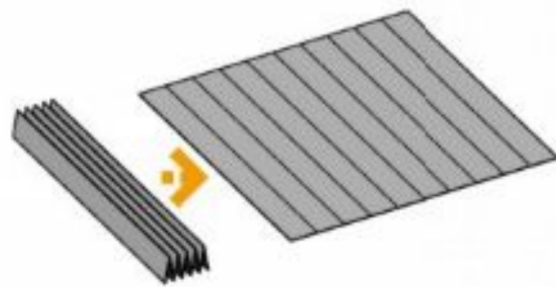
- MODULAR SYSTEMS ADAPTABILITY LIGHT-WEIGHT
- NO SPECIALIZED MANUAL LABOR DIFFERENT OPTIONS OF USAGE
- EASY INSTALLATION TRANSPORTABLE NO MACHINERY



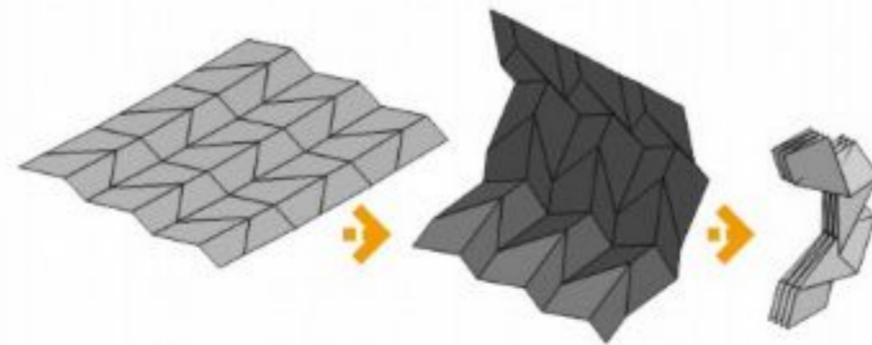
SALIENT FEATURES FOR DESIGN



Kirigami techniques of cuts and creases transforms flat 2D paper into habitable volumes.

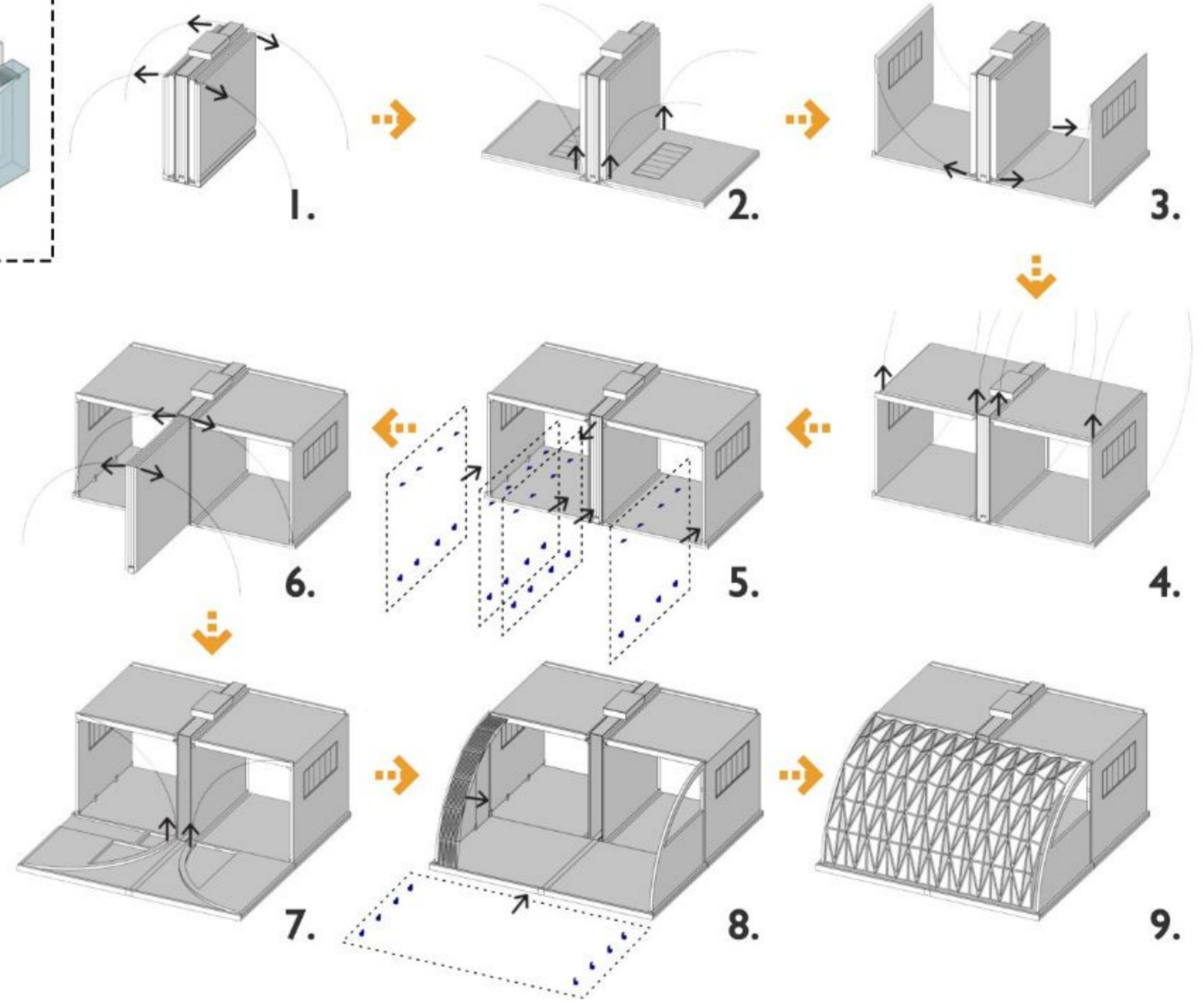
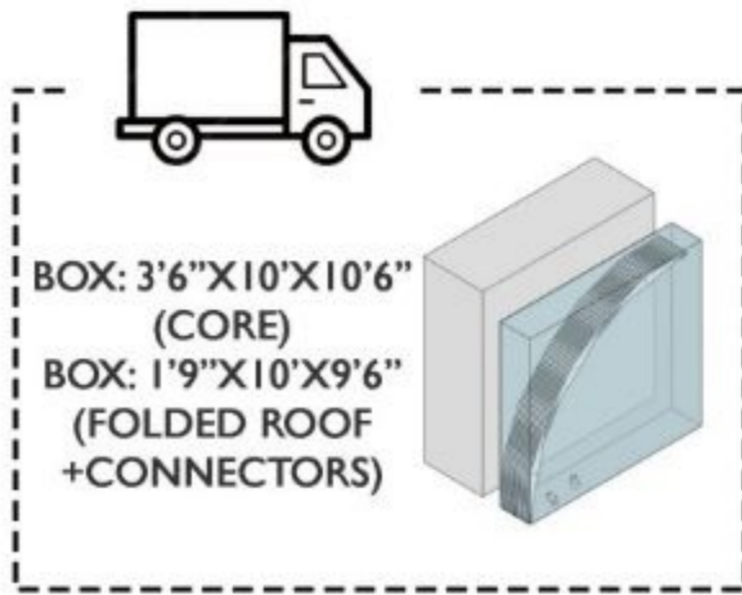
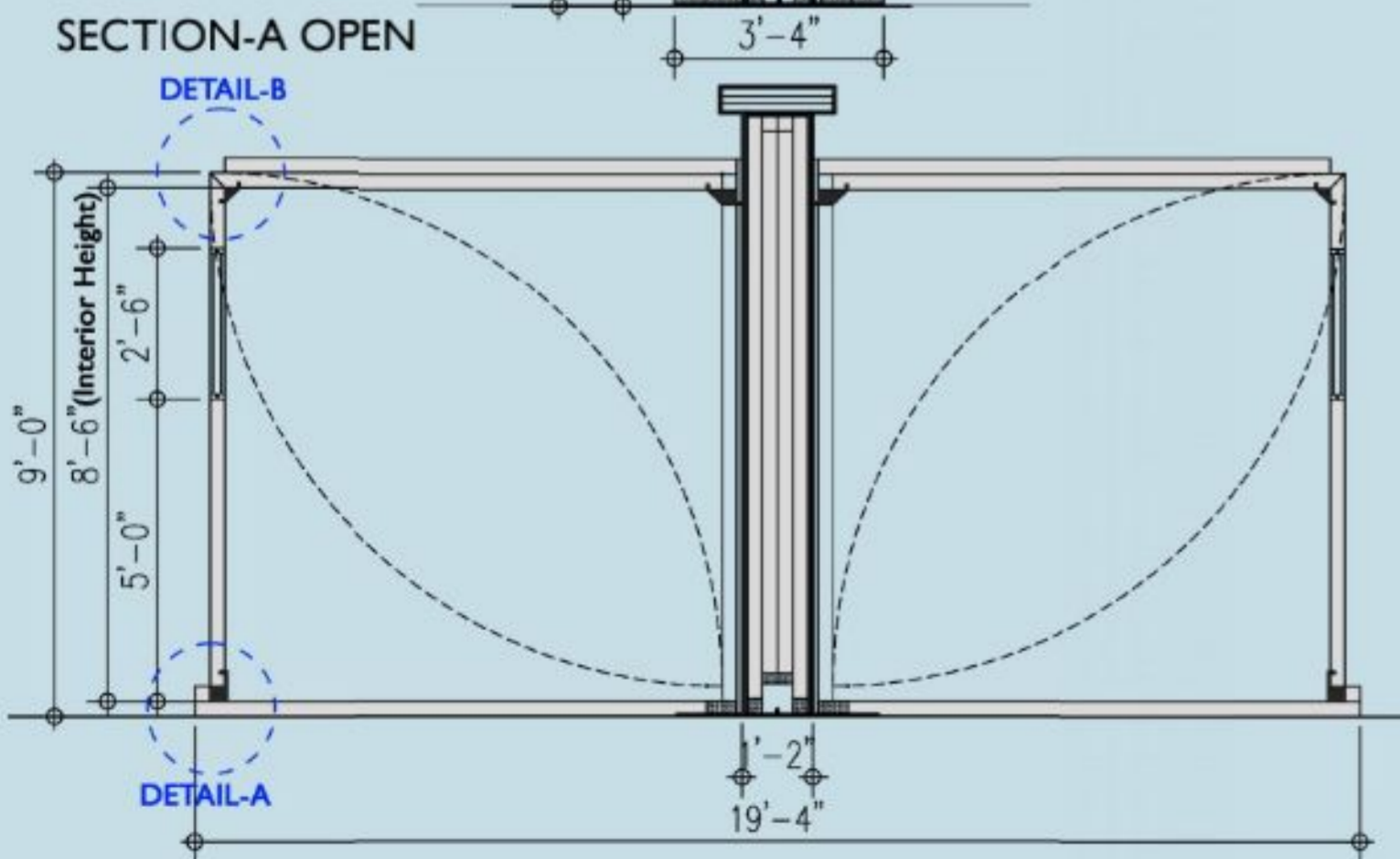
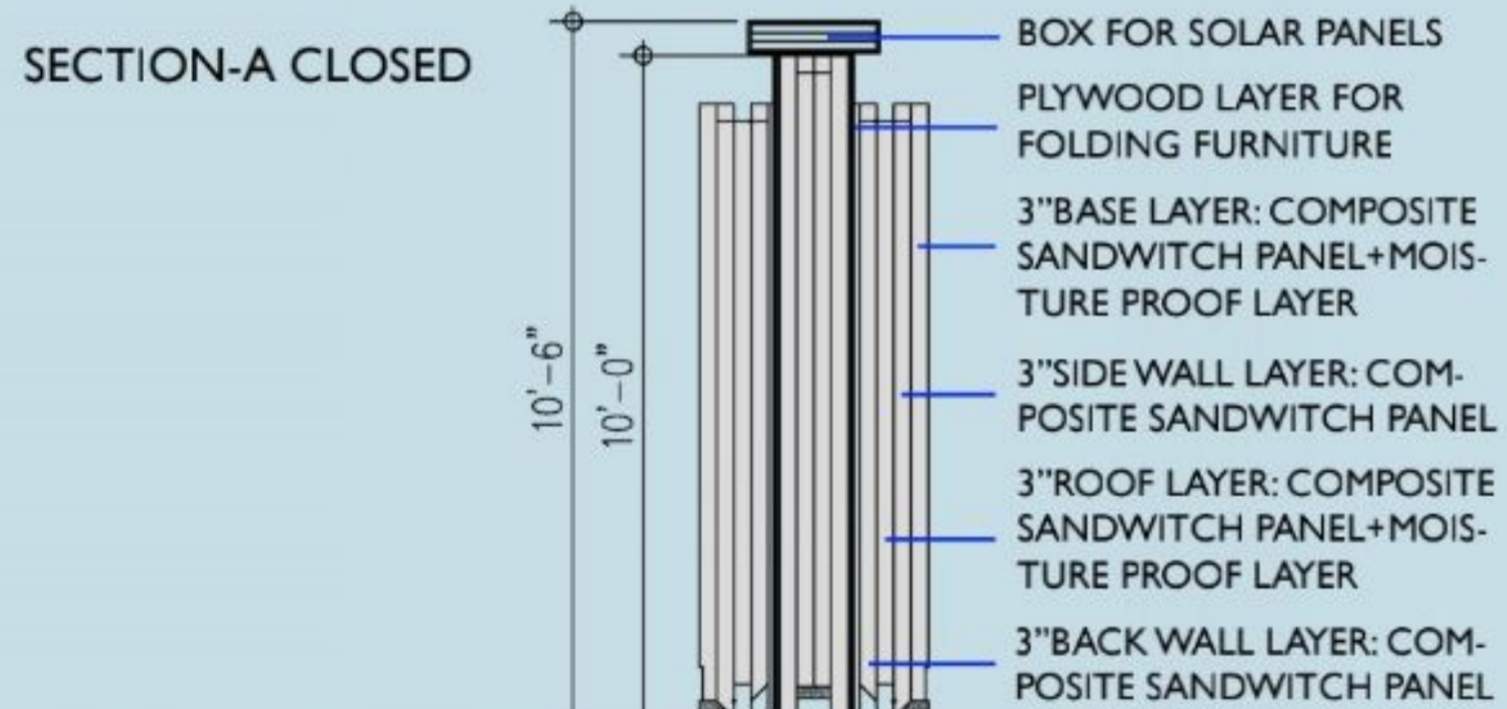
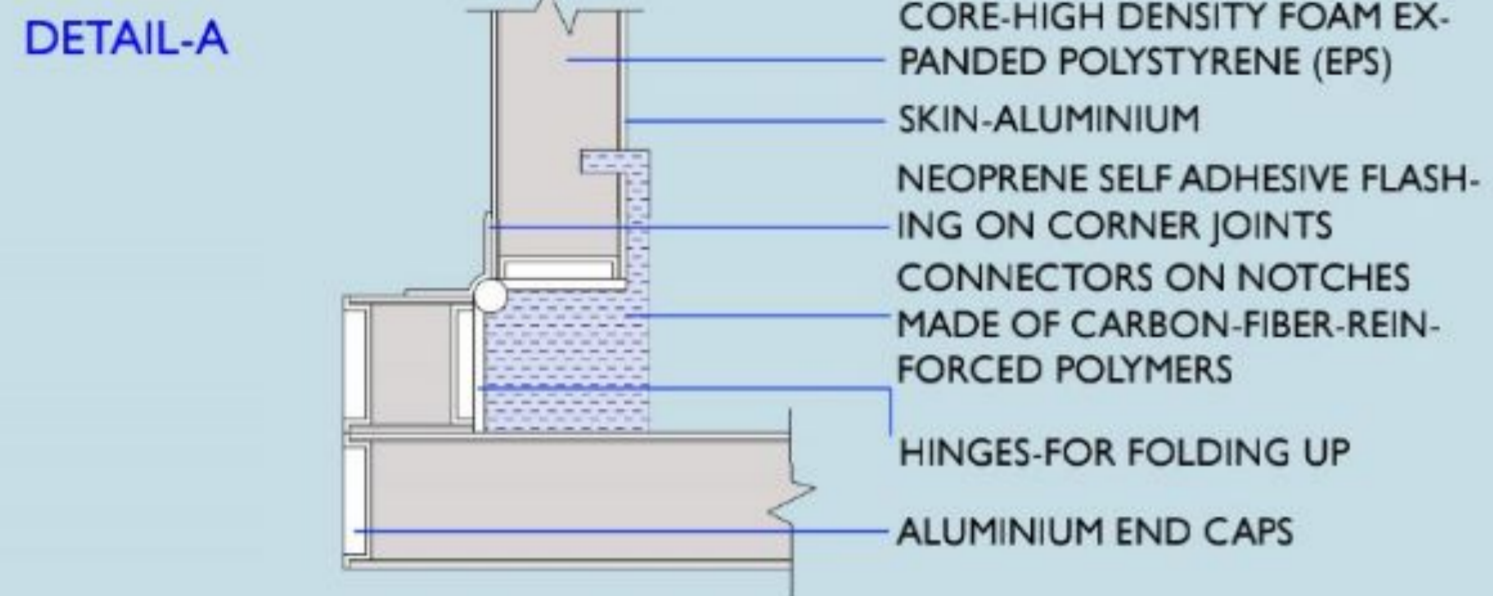
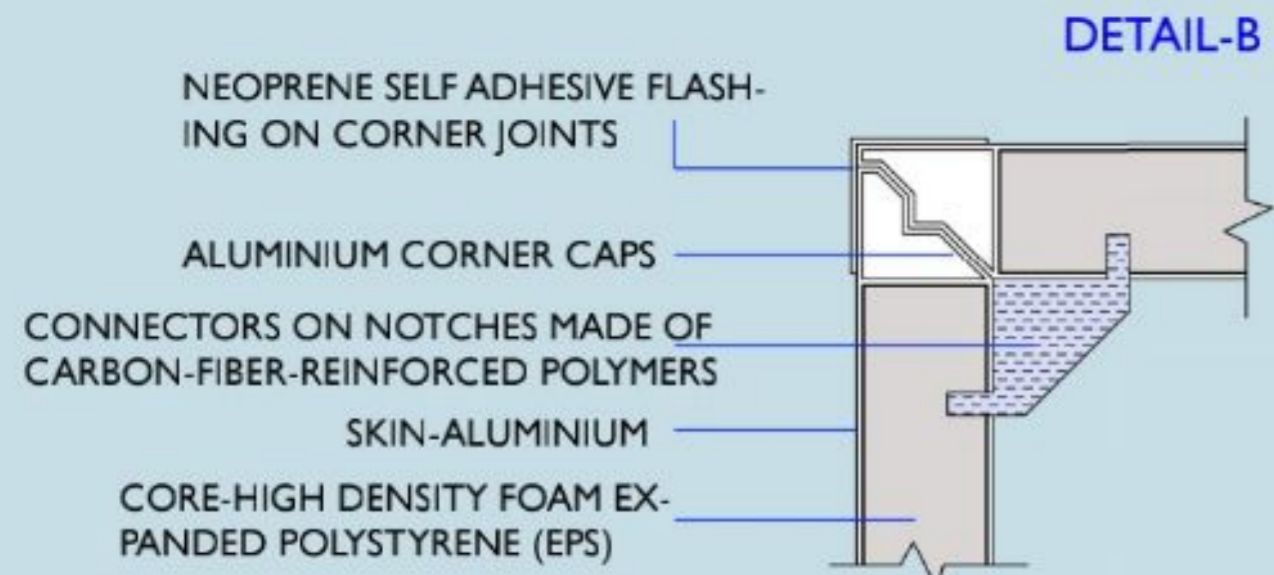


Combination of ridges and valleys ceates an unfolded compact entity. Ability to transform to more than 5x its size and beyond.



Some origami folds like Miura and Yoshimura creates self curvature surfaces capable of erecting without additional support.

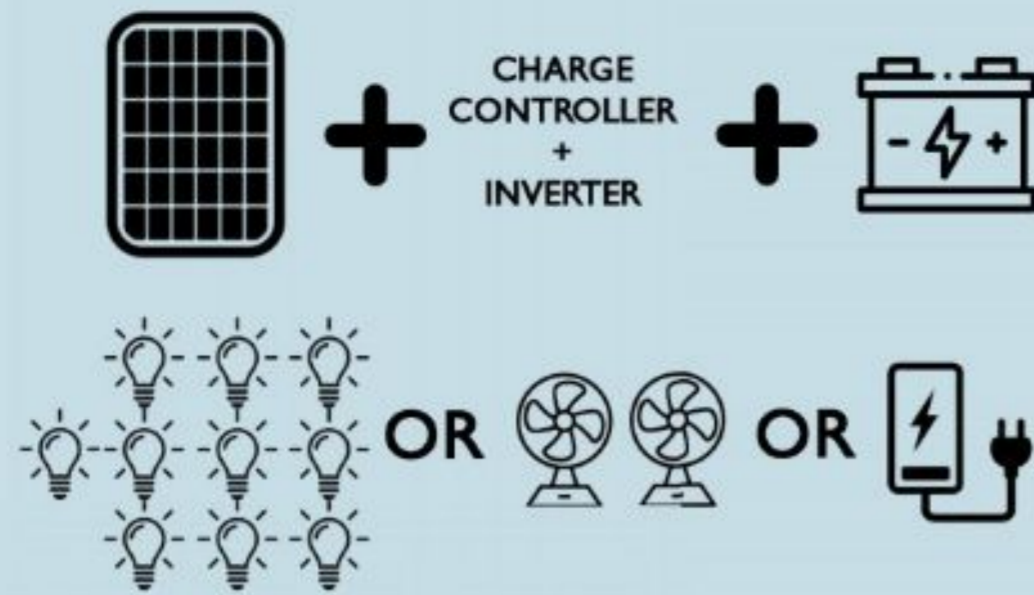




In order to use batteries as part of the solar installation, we need solar panels, a charge controller, and an inverter.

Use Deep cycle batteries that provide sustained energy over a longer period of time.

ONE 100 WATT SOLAR PANEL CAN CHARGE:



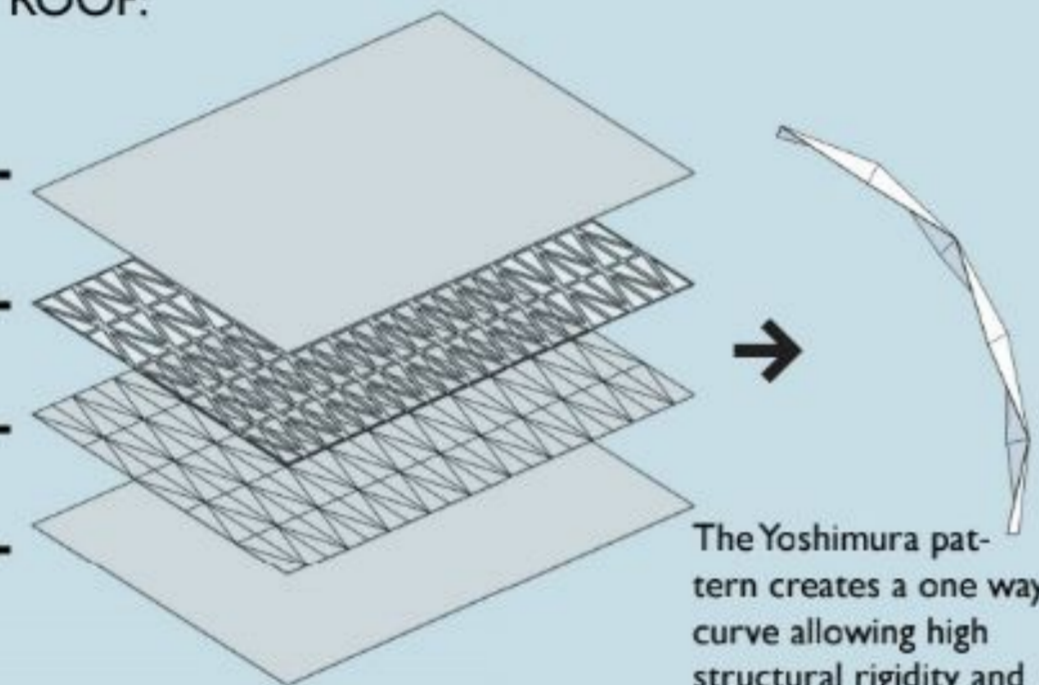
Ten LED lamps for 4 hours that use 10 Wh each

Two electric fans for 7 hours that use 35 Wh each

Smartphone charger for 85 hours that use 5Wh

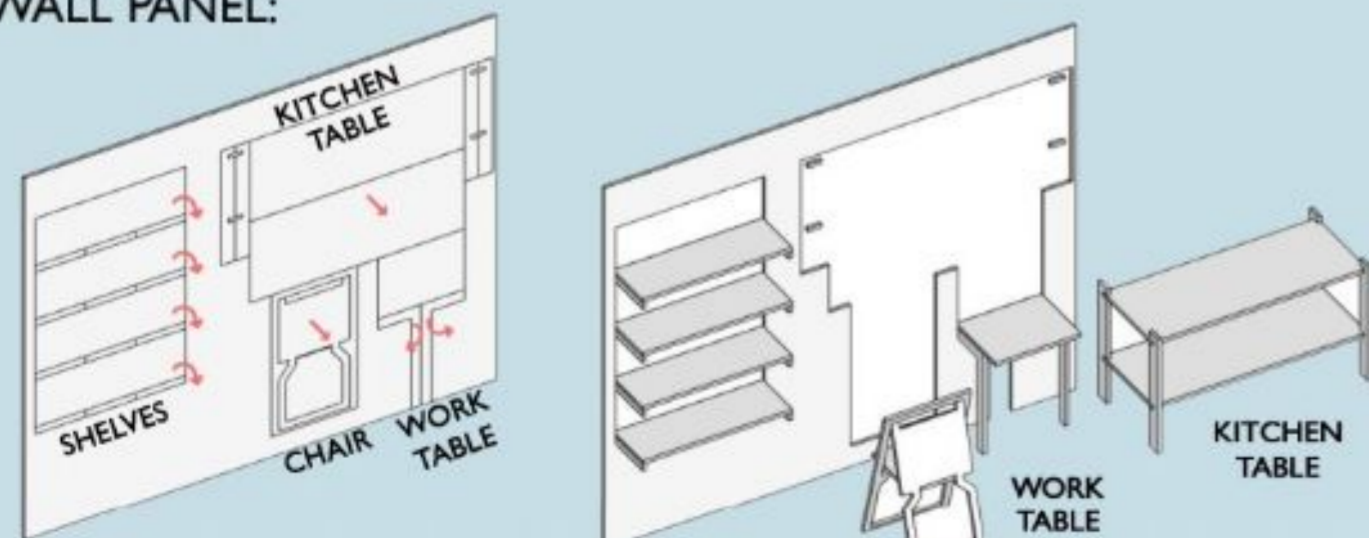
ORIGAMI FOLDED ROOF:

- Top layer of PTFE sheet to withstand weather
- Mask off seams to create fold points with fibre glass tape
- Cardboard roof, pre cut into triangles with gaps for the folds.
- Base layer of PTFE sheet to seal the roof completely



The Yoshimura pattern creates a one way curve allowing high structural rigidity and low weight

CUT AND CREASE WALL PANEL:



One plywood sheet of wall will provide essential furniture for easy set up and deployment when not in use.

SOLAR PANELS:
3 X 100 WATT PANELS
SIZE: 22" X 40"

BUTTERFLY ANCHORS:
DETAIL C

FOLDED ROOF:
YOSHIMURA ORIGAMI STRUCTURE

THE CORE
IT HOUSES BATTERIES FOR THE SOLAR PANELS, AND PROVIDES CONNECTIONS FOR ELECTRICALS

PLYWOOD SHEET:
FOLDS OUT BASIC FURNITURE FROM THIS LAYER

LIGHT AND FAN:
CONNECTIONS PROVIDED THROUGH CORE

FOLDING WINDOWS:
FOR MAXIMUM VENTILLATION AND CONTROLLED DAY LIGHT

VELCRO SCREEN:
MAINTAINS PRIVACY AS DESIRED








FLOOR CRAMPS:
HOLDS LATERAL MOVEMENT OF FLOORS. **DETAIL D**

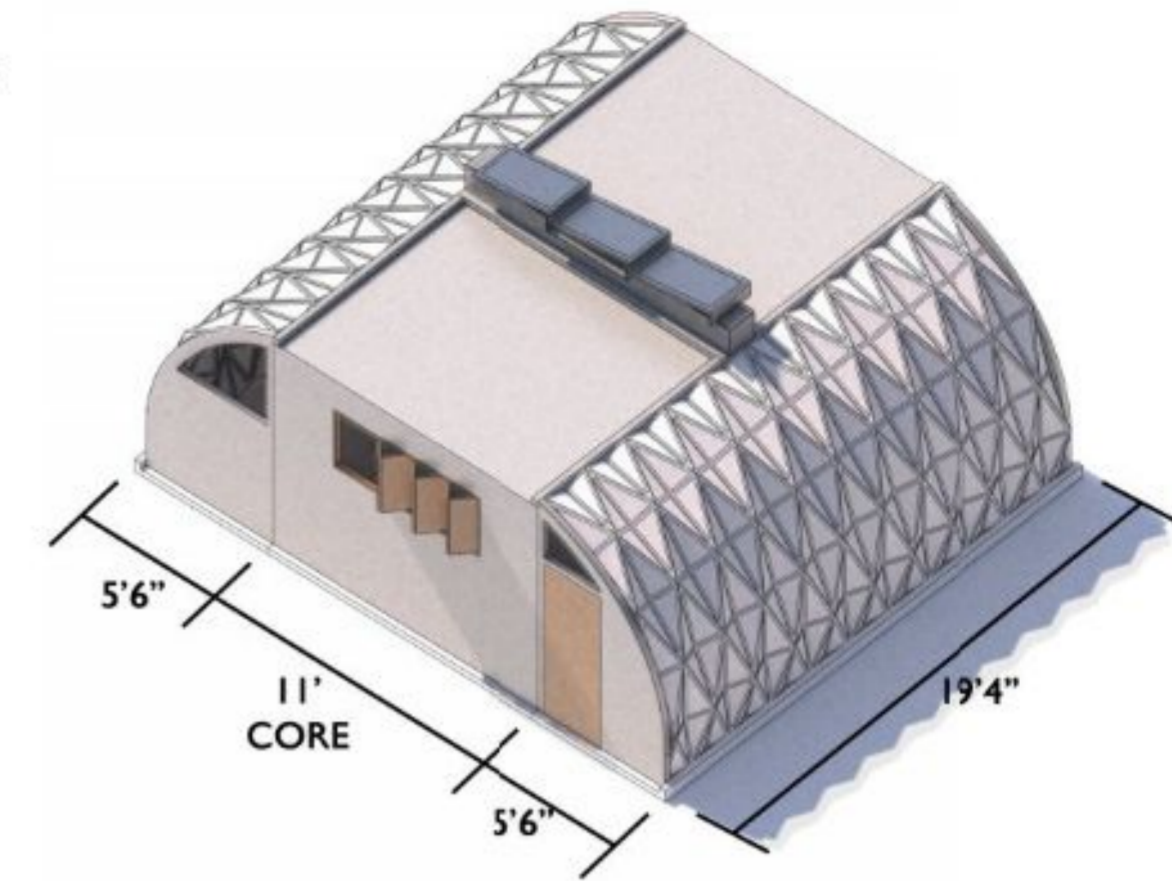
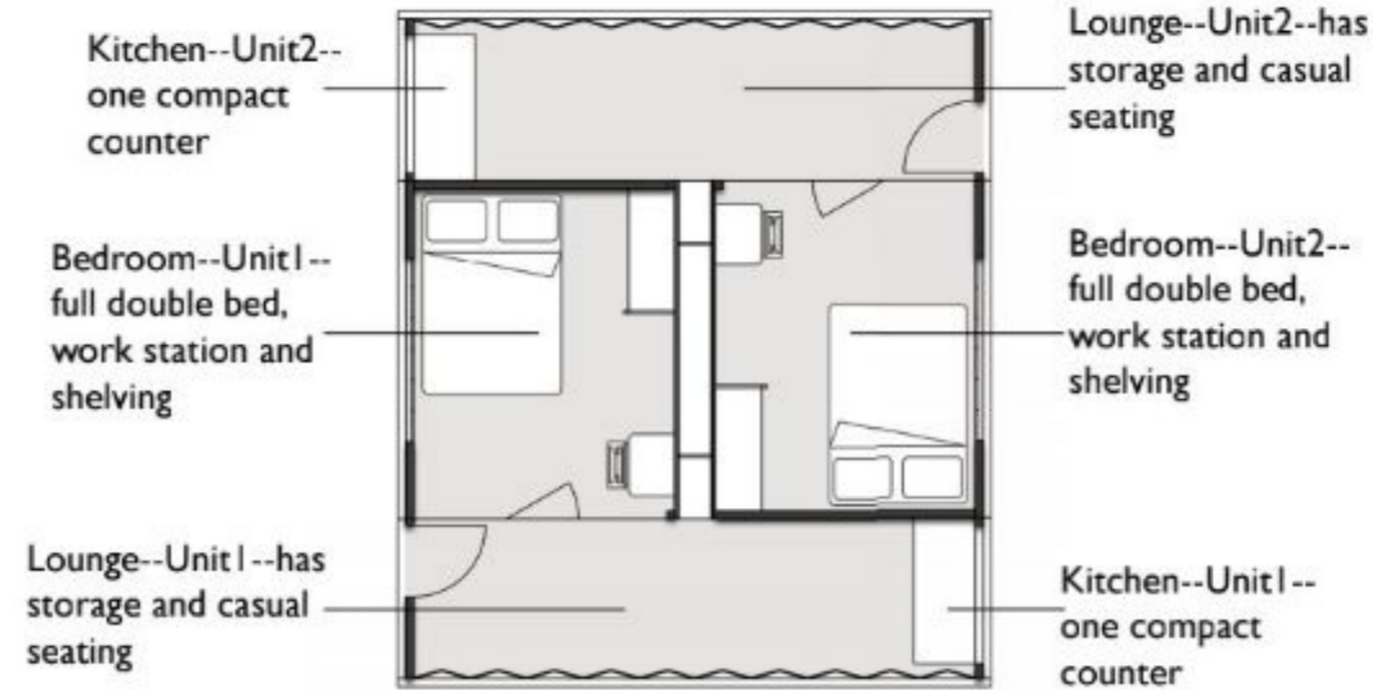
TABLE FOR KITCHEN:
EASY SET UP OF CUT OUT NOTCHES

[MODULE-A]

EMERGENCY SHELTER

This module forms a typical emergency shelter. It houses two units from a single package. This ensures fast deployment and accessibility to a larger number of people.

-  215 SQFT + 215 SQFT
-  1 FAMILY + 1 FAMILY (8 PPL)
-  1 BEDROOM
-  NONE (COMMUNAL)
-  1 LIVING RM
-  1 KITCHEN
-  NONE (COMMUNAL)

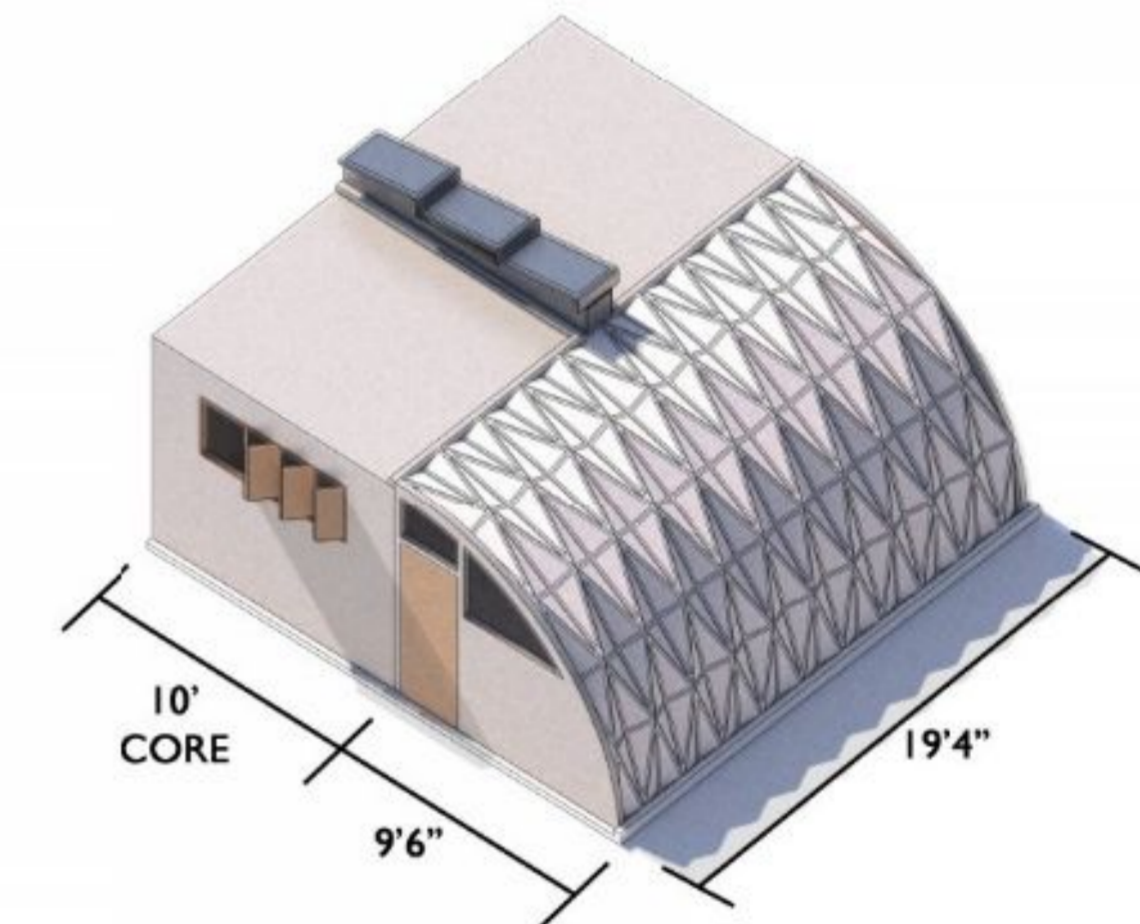
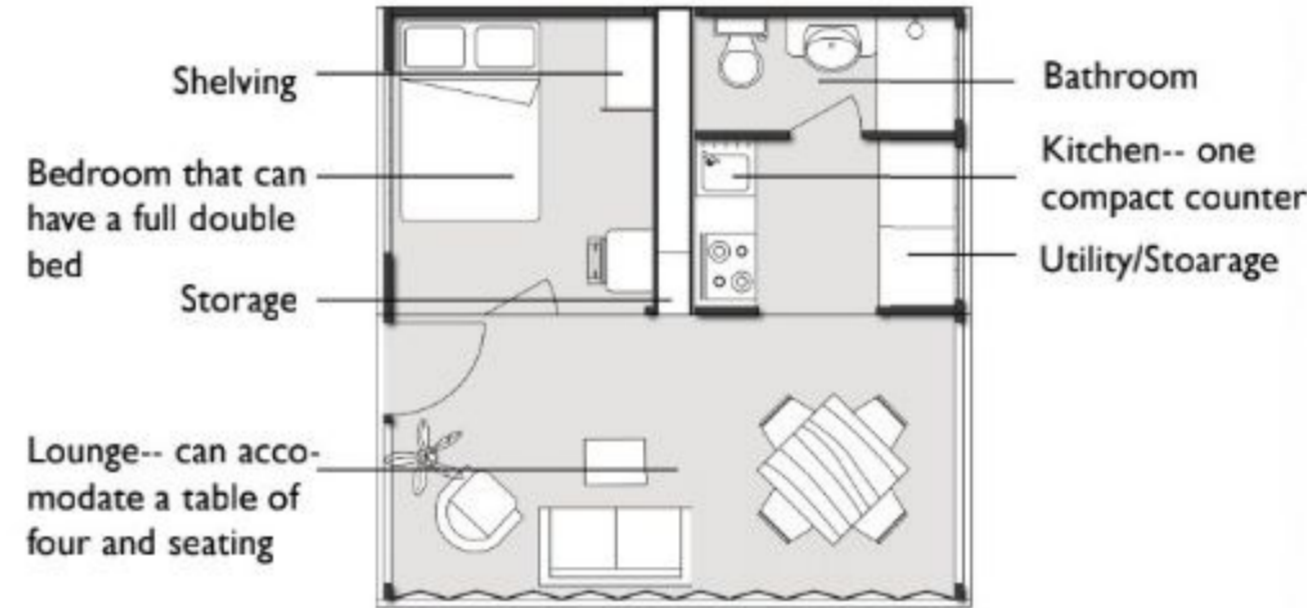


[MODULE-B]

COMPACT ADU UNIT

This module forms a very compact single ADU. It forms a complete house with all basic essentials in a single package. Other uses for this module are an office/shop/motel room.

-  380 SQFT
-  UPTO 2 PEOPLE
-  1 BEDROOM
-  1 FULL BATH
-  1 LIVING RM
-  1 KITCHEN
-  1 UTILITY/STORE

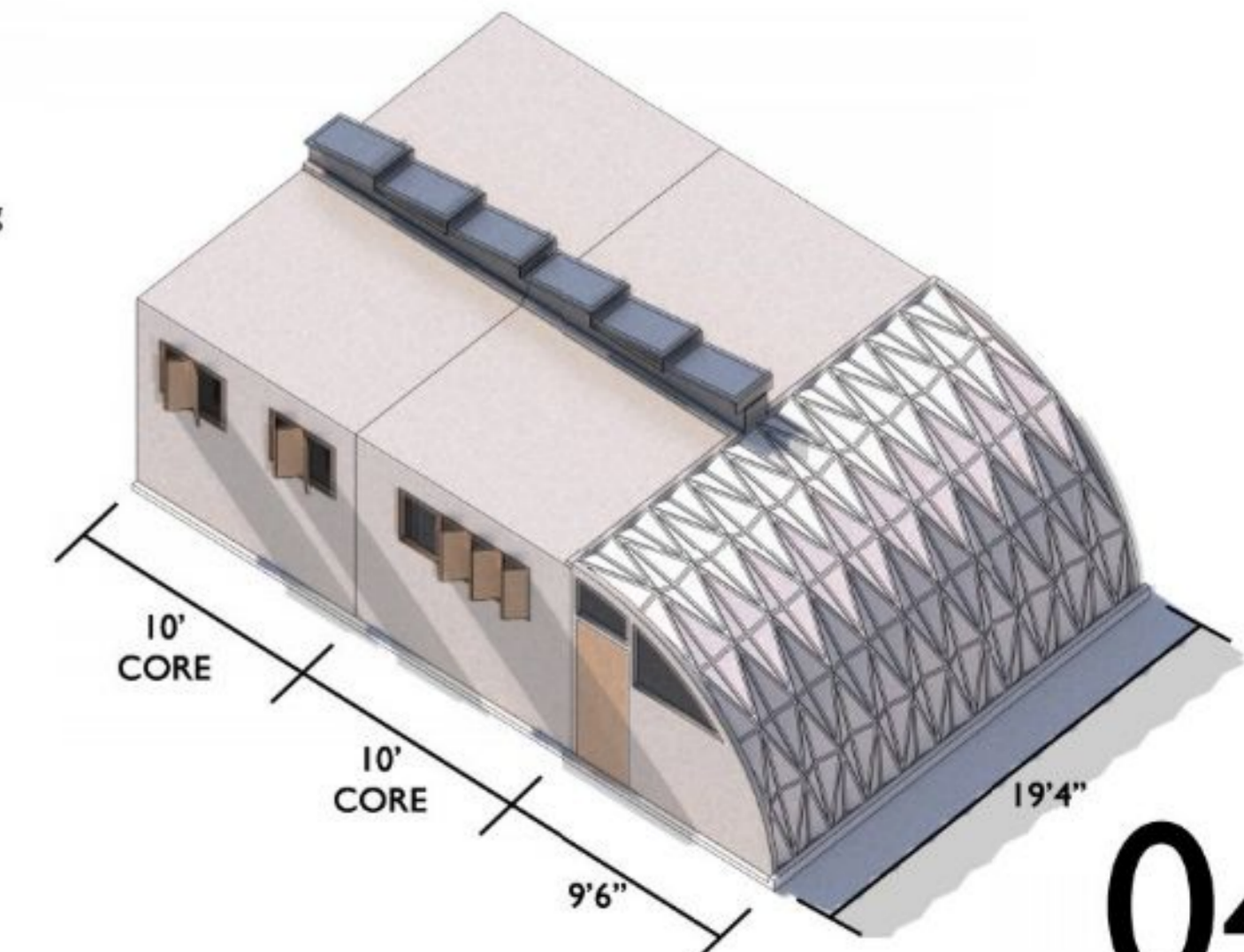
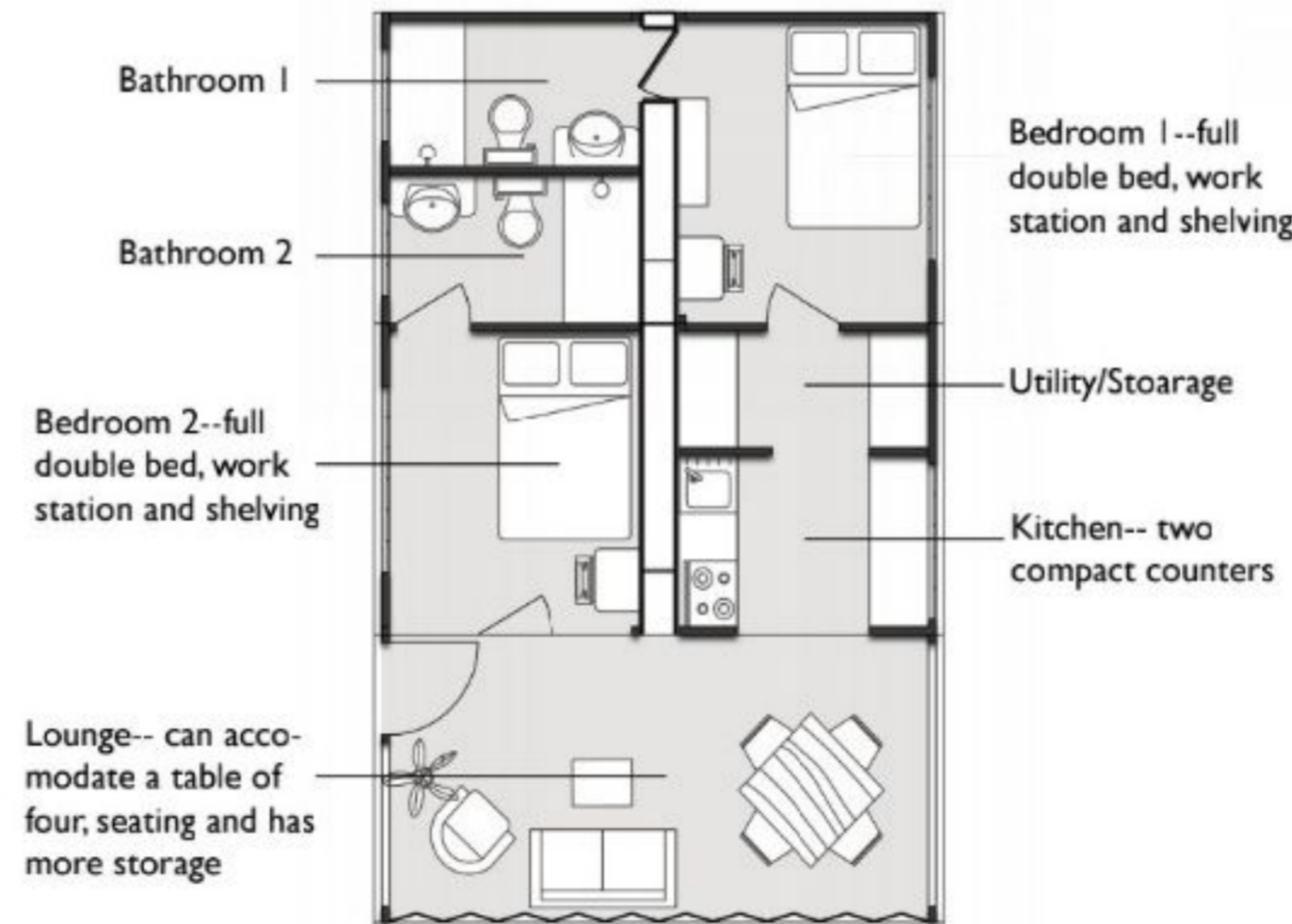


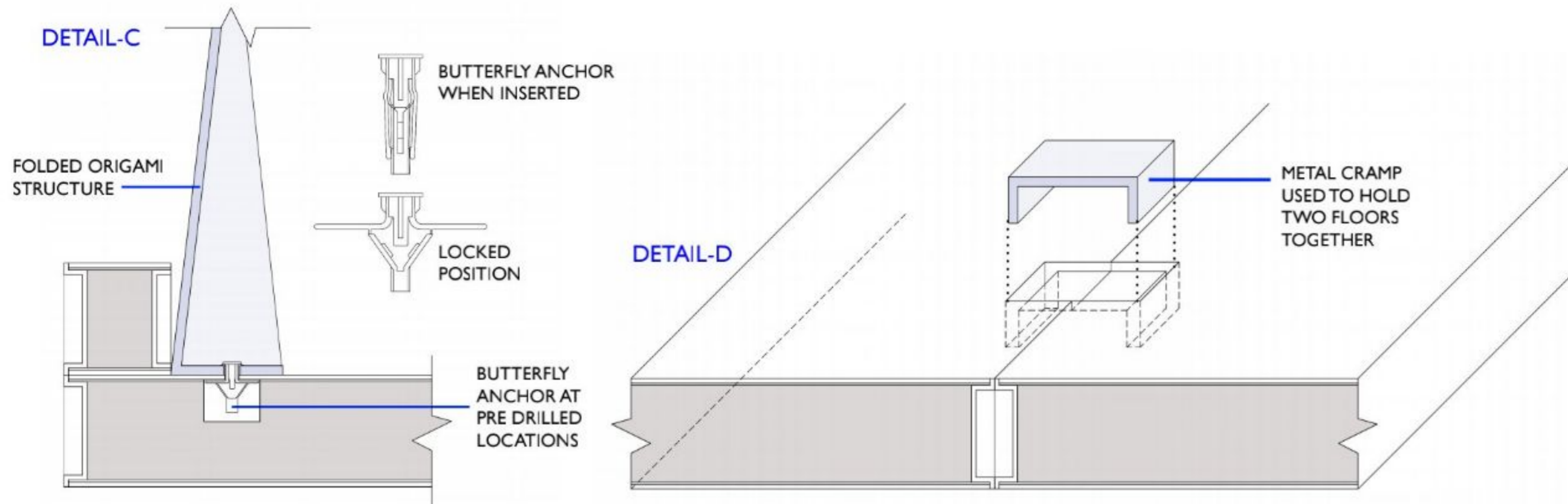
[MODULE-C]

ADU UNIT

This module forms a bigger ADU unit for a larger family. It forms a complete house with all basic essentials and uses two units of package. Similar larger modules can be devised.

-  570 SQFT
-  1 FAMILY UPTO 4 PPL
-  2 BEDROOM
-  2 FULL BATH
-  1 LIVING RM
-  1 KITCHEN
-  1 UTILITY/STORE

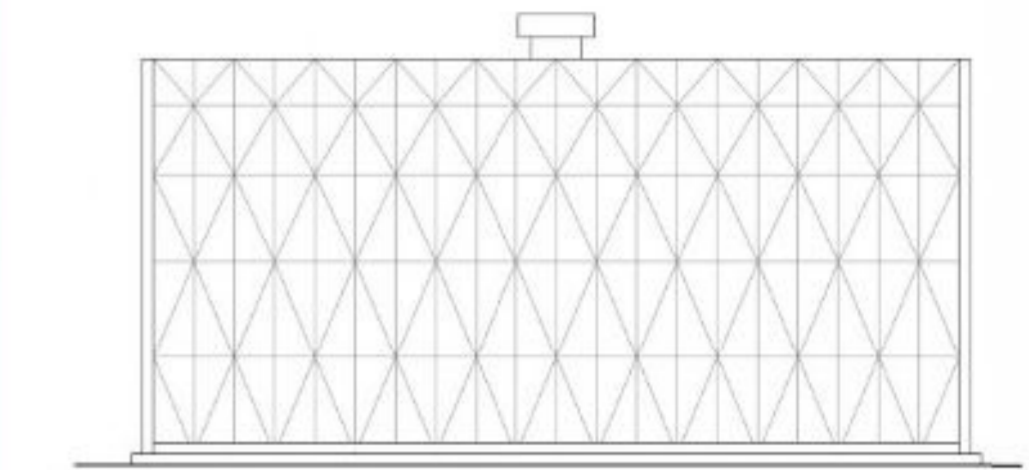




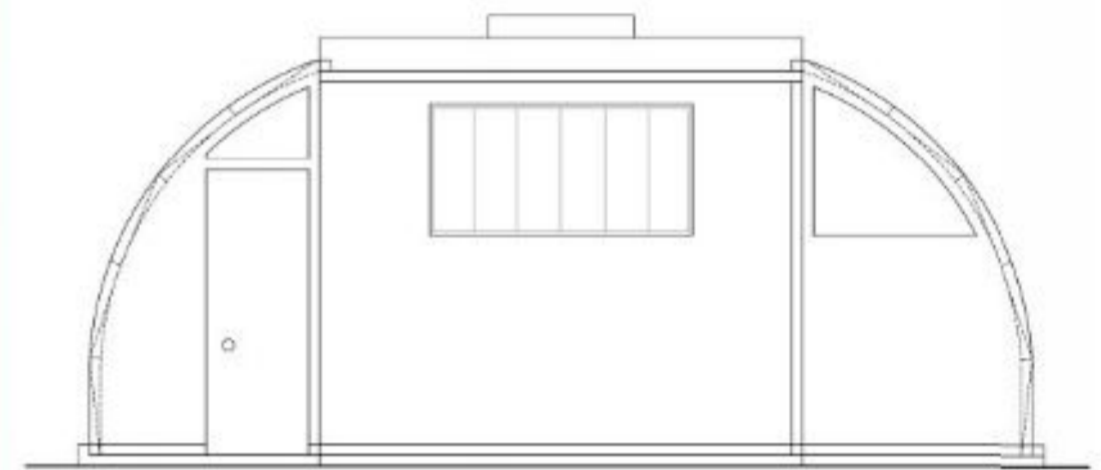
Interior View showing the main sleeping room. Foldable furniture comes with the house; ability to fold onto the wall when not in use thus maximizing space. Large window provides light and ample ventilation. Foldable shutters provides control of light and privacy.

Interior View showing the main living room with kitchen at the end wall. Kitchen table comes with the house. Windows on both ends of the room provides ample light and cross ventilation throughout the day.





FRONT ELEVATION



SIDE ELEVATION