

Emergency Shelter Kit (ESK)

Introduction

The enhanced emergency shelter kit was designed to cover the surface area of 15 m² with volume of 37.5 m³. The size of the shelter is as follow: 3m width, 5m length and 2.7m of height. The shelter area can accommodate a family of 4 members according to minimum sphere standard of 3.5m² per person.

Distribution protocol (per family)



1 kit (≤4)



2 kits (5-12)



3 kits (>12)

Note: In the case of distributing more than one kit per family, the family shall not receive more than one unit of saw, hammer, utility knife and pickaxe.

Content of the kit

No .	Item Name	Item Description	Distribution protocol (per HH)	Unit price	Total cost	Picture of the item
1	Plastic sheet	Dimensions: 4x5m Weight: approx. (3.5 - 4.5) kg Manufacturing: made of woven high density black polyethylene fibers, with reinforced rims by heat sealing on all sides.	6	\$14.5	\$87	
2	Saw	Type: Stanley type Size: 550 mm (±20mm) (22") blade (hard pointy teeth in two different sides) Materials: steel Stanley type Blade thickness: 0.90 mm (±0.05mm) Handle: Plastic	1	\$3.8	\$3.8	
3	Hammer	Head size: steel head 5.5 inch (13.5cm) (±7 mm) Head type: metal head with finger groove (claw) to remove the nails. Mirror polished, fine polished. Hammer weight (incl. head and handle): 0.650kg (±0.05kg) Materials: carbon steel	1	\$3.4	\$3.4	

		Handle: Double colour plastic coating fiber glass handle. Handle length: 33 cm (± 3 cm)				
4	Pickaxe	Head: Iron head with two pointy edge Size: 48 cm (± 3 cm) for digger iron head) Handle: local wooden, straight, free of cracks and caries Handle Size: 60 cm or more. Type: flat / pick edge The wooden handle thickness must be fit with the hole of the iron head	1	\$4.7	\$4.7	
5	Sisal Rope	Length: 30m (± 0.5 m) Type: sisal – natural fiber Thickness: 10 mm (± 0.5 mm)	1	\$12	\$12	
6	Nylon Rope	Length: 30m (± 0.5 m) Type: nylon Thickness: 7 mm (± 0.3 mm)	1	\$10	\$10	
7	Nails Box	Length: 73 MM (± 3 mm) Thickness: 3.2 mm (± 0.3 mm) Box weight: 600 grams (± 50 grams), but the total count of nails in each box not less than 100 nails Type: Iron wires nails, galvanized with tapered head, smooth	1	\$4	\$4	
8	Wooden Plate	Dimensions: 10x2.2x300 cm (± 3 mm in width) (± 1 mm in thickness) (± 3 cm in length) Free of crack and caries Color: white or brown, dry with a moisture level between 9% to 14%	12	\$6.9	\$36	
9	Wooden Pole (Timber)	Dimensions: 7x7x300 cm or more and (± 3 cm in length only) Free of crack and caries Color: white or brown, dry with a moisture level between 9% to 14%.	8	\$6.9	\$55.2	
10	Metal Pegs	Iron bar Length: 30 cm (± 3 cm) Diameter: ϕ 14 mm (± 1 mm) Type: Iron bar with circular head and tapered or pointed edge	10	\$1.5	\$15	
11	Utility Knife	Size : 100x18x0.5 mm (length x width x thickness) (± 0.06 mm in thickness)	1	\$2	\$2	

		Type: steel series good quality Handle: plastic				
Total Cost of the kit					\$233.1	

Note: It is possible to use one type of the above-mentioned ropes only but the length should be 60m. The preferred type is the sisal rope because it is stronger

Installation Steps

1. Dig the foundation as follow (Sketch 3):
 - Four holes with the dimensions of 40x40cm and 50 cm depth for the one side of the wooden poles (Sketch 1).
 - One hole with the dimensions of 40x40cm and 50 cm depth for the doorframe (Sketch 3).
 - Three holes with the dimensions of 40x40cm and 60 cm depth for the other side of the wooden poles (Sketch 1).
2. Fix the wooden poles inside the foundation as vertical shape 90 degree and fill the foundation by the soil extracted during the digging with good compacting around the poles to ensure that the poles are stable. The height of poles should be 2.5m from one side and 2.4m in the other side over the ground level.
3. Use the saw to cut 50cm from 8 wooden plates only to have the length of plates 2.5m and keep the other 4 plates with 3m.
4. Use the hammer and nails to fix the 8 wooden plates 2.5 m on the top and bottom of poles, each two plates in one side to get 5m for the length of shelter. The pole in the middle should be connected as in Sketch 3.

Important note: if the plates are cracked by nail, you can fasten the connection point by using rope to increase the strength of the connection point between the plate and pole.
5. Use the hammer and nails to fix the other 4 wooden plates of 3m for each distance of 1.67m to be used as rafters for the ceiling of shelter and each plate should connect between two poles.
6. The 6 plastic sheets should be utilized as follow: 1 for ceiling, 3 for side walls, 1 for middle partition and door cover and the last plastic sheet to cover the floor area.
7. Warp one meter from the plastic sheet in short direction for the dimensions of 5m length and 3m height, 2.5 m will cover the sidewall of the shelter and 50cm will be extended on the ground and filled up by soil to prevent the water and any other hazards from the entry to the shelter.
8. Use the Nylon Rope to fix the first plastic sheet (tarpaulin) on the top of poles under the warped part of plastic sheet.
9. Use similar method as explained above for the second plastic sheet to install the plastic sheet on the poles to cover the width of shelter (3 m) and extend it to other side to cover 2m from the side.
10. Use same method for the third plastic sheet that will cover the remaining space in the side of 3m and continue to cover the last width of shelter on 2m only. 1m will remain without any cover because it will be use as a door for shelter.

11. The fourth plastic sheet will be used for the roof of the shelter, 5m will cover the length of shelter and 4m will cover the width of shelter with 50 cm will prominent from the edges to discharge the rainwater outside the shelter, the plastic sheet will be fixed by the rope as in Sketch 2. The 5th plastic sheet can be used to cover the floor area.

12. Last plastic sheet should be divided into two parts with dimensions 3x4m and 2x4m by using the utility knife.
13. The first part of last plastic sheet 3x4m should be installed in the middle of shelter on the wooden plate using nails and pieces of extra wooden plates (50 cm) in order to separate the shelter to two parts
14. The second part of plastic sheet 2x4m to should be installed on the wooden plate on the top of door to cover the door of shelter.
15. Install the metal pegs in the ground and connect the external frame using the sisal rope to the metal pegs (10 pegs, 30 cm and diameter 14mm)
16. Soil barrier can be used to backfill the soil around the external perimeter.

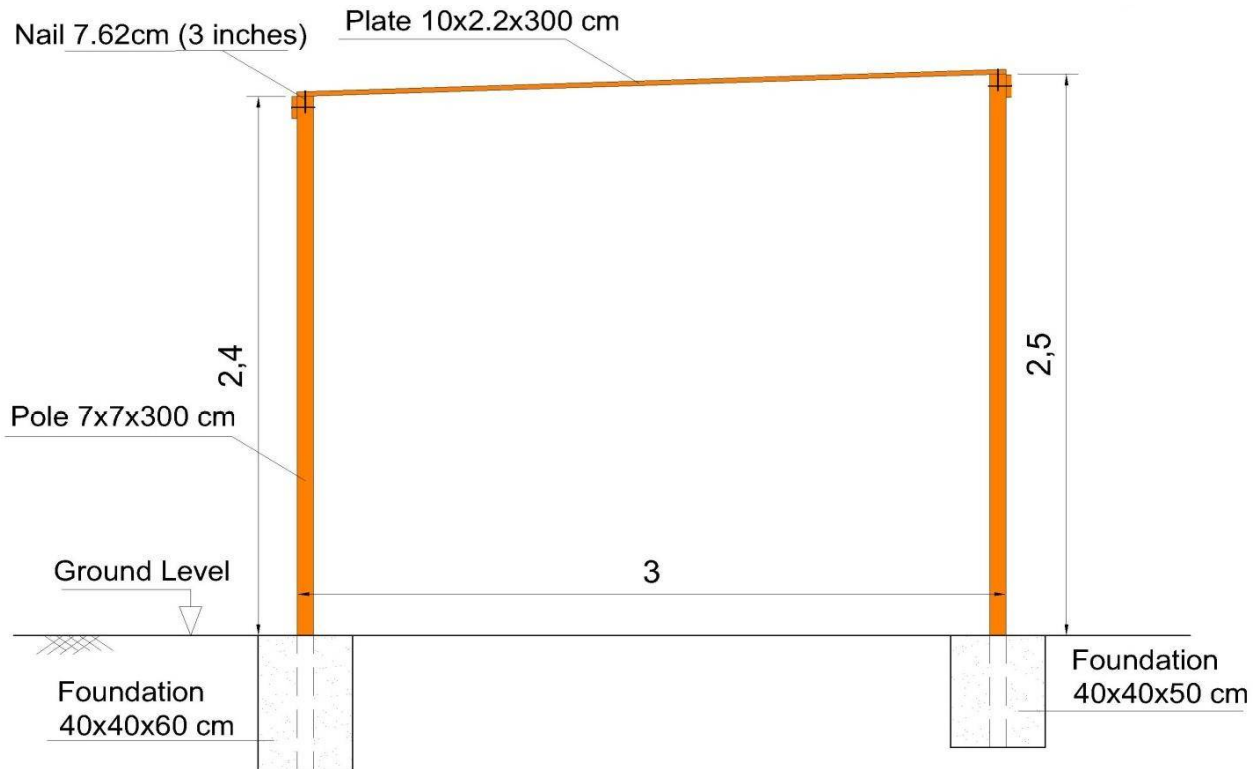
Instructions:

The Shelter Cluster identified the following points to incorporate and ensure that every new shelter will better resist severe weather conditions and provide higher levels of protection.

- Erect the shelter in the highest spot in the area.
- Anchor the strong posts with solid footings to the ground.
- Strengthen your shelters against the winds with barriers on each side.
- Cut the area of the window firmly with the Utility Knife like U shape in the plastic sheet for ventilation.
- Maintain the important parts of your shelter regularly.
- Re-tighten and repair your shelter before the monsoon starts

ANNEX 1 : The Shelter Structure

Sketch 1: Foundation



Cross section for shelter

Sketch 2: Slope direction

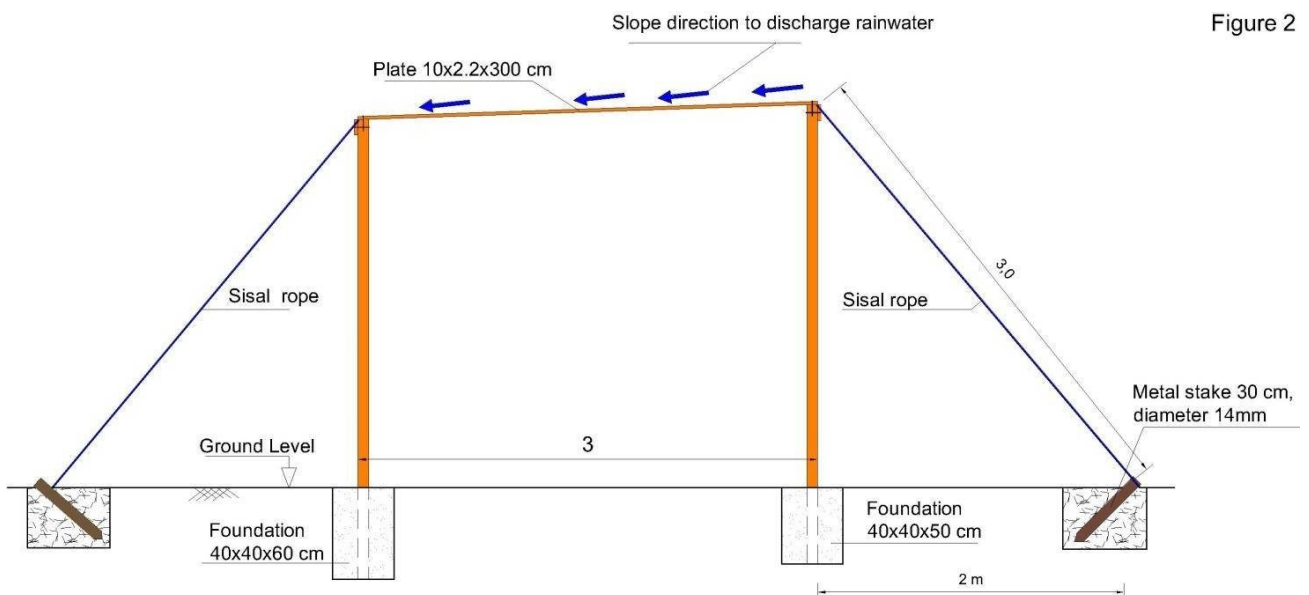
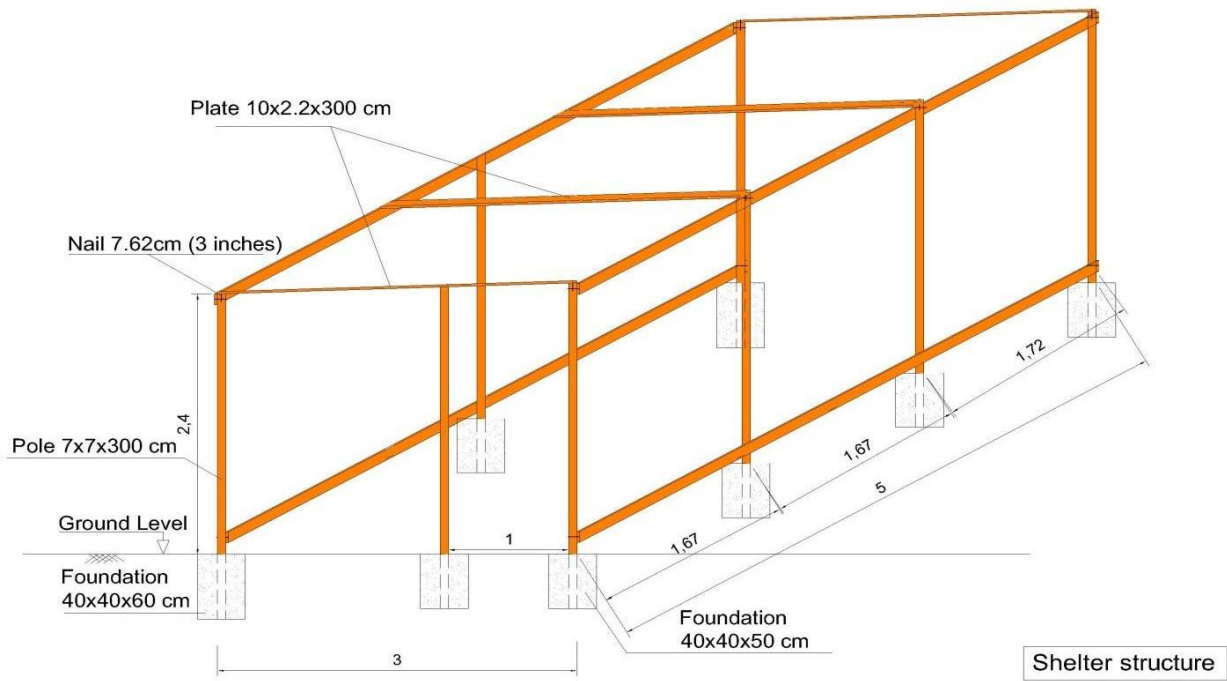


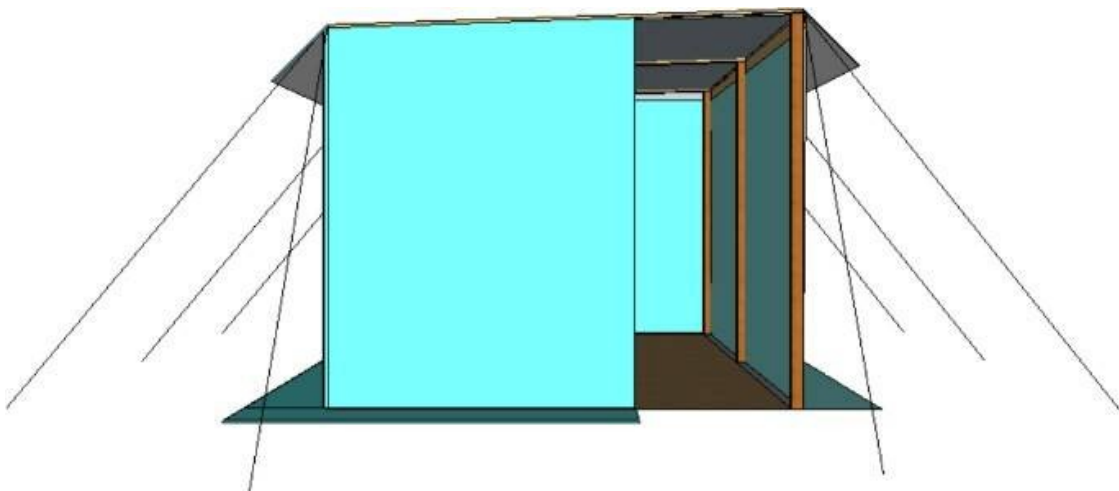
Figure 2

Cross section for shelter

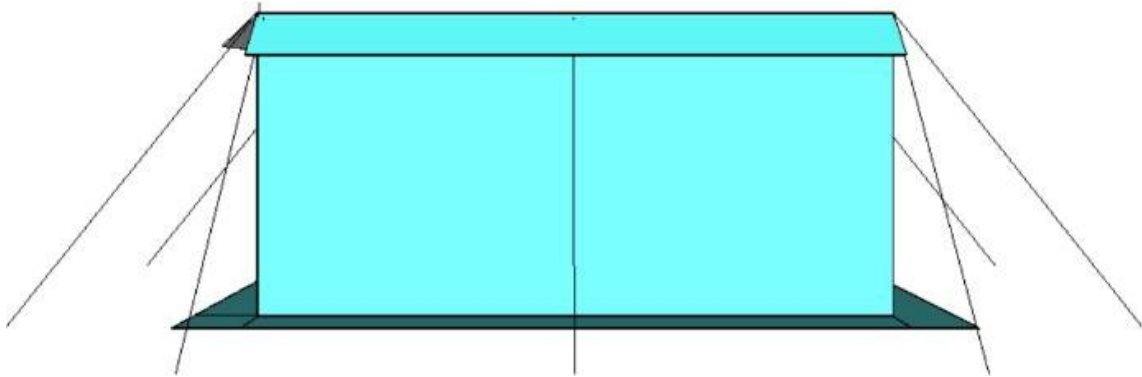
Sketch 3: Wooden frame shape



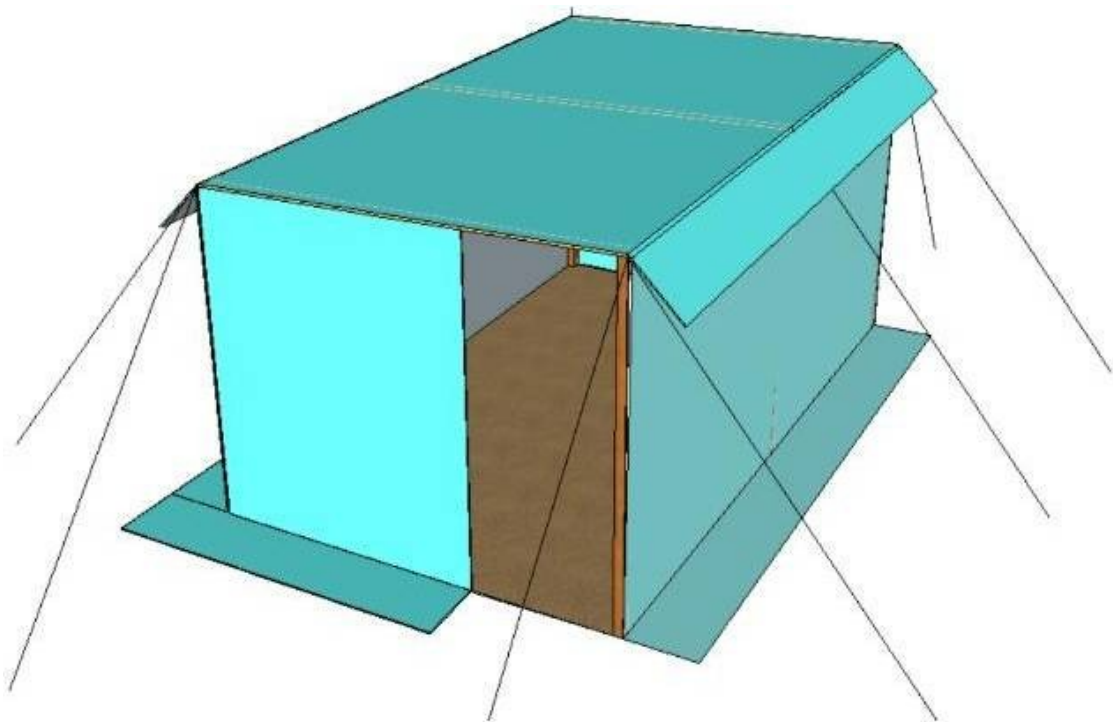
Sketch 4: Front Design



Sketch 5: Side Design



Sketch 6: Top Design



Sketch 7: Two Drawings of the Door

